

1, TITLE: An Algorithm for Multi-Attribute Diverse Matching

<https://www.ijcai.org/proceedings/2020/1>

AUTHORS: Saba Ahmadi, Faez Ahmed, John P. Dickerson, Mark Fuge, Samir Khuller

HIGHLIGHT: In this work, we prove that the problem of simultaneously maximizing diversity along several features (e.g., country of citizenship, gender, skills) is NP-hard.

2, TITLE: Intention Progression under Uncertainty

<https://www.ijcai.org/proceedings/2020/2>

AUTHORS: Yuan Yao, Natasha Alechina, Brian Logan, John Thangarajah

HIGHLIGHT: In this paper, we propose SAU, a Monte-Carlo Tree Search (MCTS)-based scheduler for intention progression problems where the agent's beliefs are uncertain.

3, TITLE: Social Ranking Manipulability for the CP-Majority, Banzhaf and Lexicographic Excellence Solutions

<https://www.ijcai.org/proceedings/2020/3>

AUTHORS: Tahar Allouche, Bruno Escoffier, Stefano Moretti, Meltem Ouml;ztürk

HIGHLIGHT: In this paper, we focus on rules representing three classical approaches in social choice theory: the marginal contribution approach, the lexicographic approach and the (ceteris paribus) majority one.

4, TITLE: Maximum Nash Welfare and Other Stories About EFX

<https://www.ijcai.org/proceedings/2020/4>

AUTHORS: Georgios Amanatidis, Georgios Birmpas, Aris Filos-Ratsikas, Alexandros Hollender, Alexandros A. Voudouris

HIGHLIGHT: We consider the classic problem of fairly allocating indivisible goods among agents with additive valuation functions and explore the connection between two prominent fairness notions: maximum Nash welfare (MNW) and envy-freeness up to any good (EFX).

5, TITLE: Speeding Up Incomplete GDL-based Algorithms for Multi-agent Optimization with Dense Local Utilities

<https://www.ijcai.org/proceedings/2020/5>

AUTHORS: Yanchen Deng, Bo An

HIGHLIGHT: In this paper, we present several novel sorting-based acceleration algorithms by alleviating the effect of densely distributed local utilities.

6, TITLE: Almost Group Envy-free Allocation of Indivisible Goods and Chores

<https://www.ijcai.org/proceedings/2020/6>

AUTHORS: Haris Aziz, Simon Rey

HIGHLIGHT: For two natural classes of additive utilities, we design polynomial-time algorithms to compute a GEF1 allocation.

7, TITLE: Uniform Welfare Guarantees Under Identical Subadditive Valuations

<https://www.ijcai.org/proceedings/2020/7>

AUTHORS: Siddharth Barman, Ranjani G. Sundaram

HIGHLIGHT: We study the problem of allocating indivisible goods among agents that have an identical subadditive valuation over the goods.

8, TITLE: Biased Opinion Dynamics: When the Devil is in the Details

<https://www.ijcai.org/proceedings/2020/8>

AUTHORS: Aris Anagnostopoulos, Luca Becchetti, Emilio Cruciani, Francesco Pasquale, Sara Rizzo

HIGHLIGHT: The framework we propose exhibits a rich structure, with a nonobvious interplay between topology and underlying update rule.

9, TITLE: Formalizing Group and Propagated Trust in Multi-Agent Systems

<https://www.ijcai.org/proceedings/2020/9>

AUTHORS: Nagat Drawel, Jamal Bentahar, Amine Laarej, Gaith Rjoub

HIGHLIGHT: We present a formal framework that allows individual and group of agents to reason about their trust toward other agents.

10, TITLE: Fine-Grained View on Bribery for Group Identification

<https://www.ijcai.org/proceedings/2020/10>

AUTHORS: Niclas Boehmer, Robert Bredereck, Dušan Knop, Junjie Luo

HIGHLIGHT: Complementing previous results showing polynomial-time solvability or NP-hardness of bribery for various social rules in the constructive (aiming at making specific individuals socially qualified) or destructive (aiming at making specific

individuals socially disqualified) setting, we provide a comprehensive picture of the parameterized computational complexity landscape.

11, TITLE: Evaluating Approval-Based Multiwinner Voting in Terms of Robustness to Noise
<https://www.ijcai.org/proceedings/2020/11>
AUTHORS: Ioannis Caragiannis, Christos Kaklamanis, Nikos Karanikolas, George A. Krimpas
HIGHLIGHT: To assess effectiveness, we propose to employ new noise models that are specifically tailored for approval votes and committees.

12, TITLE: Decentralized MCTS via Learned Teammate Models
<https://www.ijcai.org/proceedings/2020/12>
AUTHORS: Aleksander Czechowski, Frans A. Oliehoek
HIGHLIGHT: In this paper, we present a trainable online decentralized planning algorithm based on decentralized Monte Carlo Tree Search, combined with models of teammates learned from previous episodic runs.

13, TITLE: On the Complexity of Winner Verification and Candidate Winner for Multiwinner Voting Rules
<https://www.ijcai.org/proceedings/2020/13>
AUTHORS: Chinmay Sonar, Palash Dey, Neeldhara Misra
HIGHLIGHT: In this work, we resolve the complexity of both problems for the Chamberlin-Courant and Monroe voting rules in the settings of rankings as well as approval ballots.

14, TITLE: Stable Roommate Problem with Diversity Preferences
<https://www.ijcai.org/proceedings/2020/14>
AUTHORS: Niclas Boehmer, Edith Elkind
HIGHLIGHT: We study the complexity of finding good allocations of agents to rooms under the assumption that agents have diversity preferences (Bredereck, Elkind, Igarashi, AAMAS'19): each agent belongs to one of the two types (e.g., juniors and seniors, artists and engineers), and agents' preferences over rooms depend solely on the fraction of agents of their own type among their potential roommates.

15, TITLE: Strategic Campaign Management in Apportionment Elections
<https://www.ijcai.org/proceedings/2020/15>
AUTHORS: Robert Bredereck, Piotr Faliszewski, Michal Furdyna, Andrzej Kaczmarczyk, Martin Lackner
HIGHLIGHT: We study the complexity of the following bribery-style problem: Given the distribution of votes among the parties, what is the smallest number of voters that need to be convinced to vote for our party, so that it gets a desired number of seats.

16, TITLE: Concentration of Distortion: The Value of Extra Voters in Randomized Social Choice
<https://www.ijcai.org/proceedings/2020/16>
AUTHORS: Brandon Fain, William Fan, Kamesh Munagala
HIGHLIGHT: We study higher statistical moments of Distortion for randomized social choice in a metric implicit utilitarian model.

17, TITLE: Assume-Guarantee Synthesis for Prompt Linear Temporal Logic
<https://www.ijcai.org/proceedings/2020/17>
AUTHORS: Nathanael Fijalkow, Bastien Maubert, Aniello Murano, Moshe Vardi
HIGHLIGHT: We study assume-guarantee synthesis for prompt-LTL: the goal is to construct a system such that for all environments satisfying a first prompt-LTL formula (the assumption) the system composed with this environment satisfies a second prompt-LTL formula (the guarantee). This problem has been open for a decade.

18, TITLE: Peer-Prediction in the Presence of Outcome Dependent Lying Incentives
<https://www.ijcai.org/proceedings/2020/18>
AUTHORS: Naman Goel, Aris Filos-Ratsikas, Boi Faltings
HIGHLIGHT: We derive conditions under which a peer-consistency mechanism can be used to elicit truthful data from non-trusted rational agents when an aggregate statistic of the collected data affects the amount of their incentives to lie.

19, TITLE: Proportionality in Approval-Based Elections With a Variable Number of Winners
<https://www.ijcai.org/proceedings/2020/19>
AUTHORS: Rupert Freeman, Anson Kahng, David M. Pennock
HIGHLIGHT: We study proportionality in approval-based multiwinner elections with a variable number of winners, where both the size and identity of the winning committee are informed by voters' opinions.

- 20, TITLE: Flow-Based Network Creation Games
<https://www.ijcai.org/proceedings/2020/20>
AUTHORS: Hagen Echezell, Tobias Friedrich, Pascal Lenzner, Anna Melnichenko
HIGHLIGHT: We introduce Flow-Based NCGs where the selfish agents focus on bandwidth instead of latency.
- 21, TITLE: Stable Matchings with Diversity Constraints: Affirmative Action is beyond NP
<https://www.ijcai.org/proceedings/2020/21>
AUTHORS: Jiehua Chen, Robert Ganian, Thekla Hamm
HIGHLIGHT: We investigate the following many-to-one stable matching problem with diversity constraints (SMTI-DIVERSE): Given a set of students and a set of colleges which have preferences over each other, where the students have overlapping types, and the colleges each have a total capacity as well as quotas for individual types (the diversity constraints), is there a matching satisfying all diversity constraints such that no unmatched student-college pair has an incentive to deviate?
- 22, TITLE: Mechanism Design for School Choice with Soft Diversity Constraints
<https://www.ijcai.org/proceedings/2020/22>
AUTHORS: Haris Aziz, Serge Gaspers, Zhaohong Sun
HIGHLIGHT: Our central contribution is presenting a new class of algorithms that takes into account the representations of combinations of student types.
- 23, TITLE: Maximizing Welfare with Incentive-Aware Evaluation Mechanisms
<https://www.ijcai.org/proceedings/2020/23>
AUTHORS: Nika Haghtalab, Nicole Immorlica, Brendan Lucier, Jack Z. Wang
HIGHLIGHT: Motivated by applications such as college admission and insurance rate determination, we study a classification problem where the inputs are controlled by strategic individuals who can modify their features at a cost.
- 24, TITLE: Ethics, Prosperity, and Society: Moral Evaluation Using Virtue Ethics and Utilitarianism
<https://www.ijcai.org/proceedings/2020/24>
AUTHORS: Aditya Hegde, Vibhav Agarwal, Shrisha Rao
HIGHLIGHT: This work proposes a framework that models both, ethical decision making as well as evaluation using virtue ethics and utilitarianism.
- 25, TITLE: Prophet Inequalities for Bayesian Persuasion
<https://www.ijcai.org/proceedings/2020/25>
AUTHORS: Niklas Hahn, Martin Hoefer, Rann Smorodinsky
HIGHLIGHT: We study an information-structure design problem (i.e., a Bayesian persuasion problem) in an online scenario.
- 26, TITLE: Fair Division of Time: Multi-layered Cake Cutting
<https://www.ijcai.org/proceedings/2020/26>
AUTHORS: Hadi Hosseini, Ayumi Igarashi, Andrew Searns
HIGHLIGHT: We initiate the study of multi-layered cake cutting with the goal of fairly allocating multiple divisible resources (layers of a cake) among a set of agents.
- 27, TITLE: Well-Structured Committees
<https://www.ijcai.org/proceedings/2020/27>
AUTHORS: Sushmita Gupta, Pallavi Jain, Saket Saurabh
HIGHLIGHT: Motivated by possible interactions and dependencies between candidates, we study a generalization of committee selection in which the candidates are connected via a network and the task is to select a committee that relates to the given votes while also satisfy certain properties with respect to this candidate network.
- 28, TITLE: Evaluating Committees for Representative Democracies: the Distortion and Beyond
<https://www.ijcai.org/proceedings/2020/28>
AUTHORS: Michał Jaworski, Piotr Skowron
HIGHLIGHT: We study a model where a group of representatives is elected to make a series of decisions on behalf of voters.
- 29, TITLE: The Complexity of Election Problems with Group-Separable Preferences
<https://www.ijcai.org/proceedings/2020/29>
AUTHORS: Piotr Faliszewski, Alexander Karpov, Svetlana Obraztsova
HIGHLIGHT: We analyze the complexity of several NP-hard election-related problems under the assumptions that the voters have group-separable preferences

- 30, TITLE: Logics of Allies and Enemies: A Formal Approach to the Dynamics of Social Balance Theory
<https://www.ijcai.org/proceedings/2020/30>
AUTHORS: Wiebe Van der Hoek, Louwe Kuijjer, Ying Wang
HIGHLIGHT: We combine social balance theory with temporal logic to obtain a Logic of Allies and Enemies (LAE), which formally describes the likely changes to a social network due to social pressure.
- 31, TITLE: Synthesis of Deceptive Strategies in Reachability Games with Action Misperception
<https://www.ijcai.org/proceedings/2020/31>
AUTHORS: Abhishek N. Kulkarni, Jie Fu
HIGHLIGHT: To answer this question, we introduce a dynamic hypergame model to capture the reachability game with evolving misperception of P2.
- 32, TITLE: Selecting Voting Locations for Fun and Profit
<https://www.ijcai.org/proceedings/2020/32>
AUTHORS: Zack Fitzsimmons, Omer Lev
HIGHLIGHT: The most well known in the media is gerrymandering, in which district border-lines are changed to increase a party's chance to win, but a different geographical manipulation involves influencing the election by selecting the location of polling places, as many people are not willing to go to any distance to vote. In this paper we initiate the study of this manipulation.
- 33, TITLE: Incentive-Compatible Diffusion Auctions
<https://www.ijcai.org/proceedings/2020/33>
AUTHORS: Bin Li, Dong Hao, Dengji Zhao
HIGHLIGHT: In this work, we identify a sufficient and necessary condition for all dominant-strategy incentive-compatible (DSIC) diffusion auctions.
- 34, TITLE: Strategyproof Mechanism for Two Heterogeneous Facilities with Constant Approximation Ratio
<https://www.ijcai.org/proceedings/2020/34>
AUTHORS: Minming Li, Pinyan Lu, Yuhao Yao, Jialin Zhang
HIGHLIGHT: In this paper, we study the two-facility location game with optional preference where the acceptable set of facilities for each agent could be different and an agent's cost is his distance to the closest facility within his acceptable set.
- 35, TITLE: Dinkelbach-Type Algorithm for Computing Quantal Stackelberg Equilibrium
<https://www.ijcai.org/proceedings/2020/35>
AUTHORS: Jakub Cerny, Viliam Lisný, Branislav Bošanský, Bo An
HIGHLIGHT: We (1) present a transformation of the primal problem for computing QSE using a Dinkelbach's method for any general-sum normal-form game, (2) provide a gradient-based and a MILP-based algorithm, give the convergence criteria, and bound their error, and finally (3) we experimentally demonstrate that using our novel transformation, a QSE can be closely approximated several orders of magnitude faster.
- 36, TITLE: A Penny for Your Thoughts: The Value of Communication in Ad Hoc Teamwork
<https://www.ijcai.org/proceedings/2020/36>
AUTHORS: Reuth Mirsky, William Macke, Andy Wang, Harel Yedidsion, Peter Stone
HIGHLIGHT: The goal of this work is enabling improved ad hoc teamwork by judiciously leveraging the ability of the team to communicate.
- 37, TITLE: Convexity of b-matching Games
<https://www.ijcai.org/proceedings/2020/37>
AUTHORS: Soh Kumabe, Takanori Maehara
HIGHLIGHT: In this study, we give a necessary and sufficient condition of the convexity of the b-matching game.
- 38, TITLE: Learning Optimal Temperature Region for Solving Mixed Integer Functional DCOPs
<https://www.ijcai.org/proceedings/2020/38>
AUTHORS: Saaduddin Mahmud, Md. Mosaddek Khan, Moumita Choudhury, Long Tran-Thanh, Nicholas R. Jennings
HIGHLIGHT: In this paper, we combine both of these frameworks into the Mixed Integer Functional DCOP (MIF-DCOP) framework that can deal with problems regardless of their variables' type.
- 39, TITLE: Tight Approximation for Proportional Approval Voting
<https://www.ijcai.org/proceedings/2020/39>
AUTHORS: Szymon Dudycz, Pasiin Manurangsi, Jan Marcinkowski, Krzysztof Sornat
HIGHLIGHT: In this paper, we study approximability of Thiele rules, which are known to be NP-hard to solve exactly.

- 40, TITLE: Partial Adversarial Behavior Deception in Security Games
<https://www.ijcai.org/proceedings/2020/40>
AUTHORS: Thanh H. Nguyen, Arunesh Sinha, He He
HIGHLIGHT: We study attacker behavior deception with three main contributions.
- 41, TITLE: Approximate Pareto Set for Fair and Efficient Allocation: Few Agent Types or Few Resource Types
<https://www.ijcai.org/proceedings/2020/41>
AUTHORS: Trung Thanh Nguyen, Jölrg Rothe
HIGHLIGHT: We solve this problem approximately in polynomial time by modeling it as a bi-criteria optimization problem that can be solved efficiently by determining an approximate Pareto set of bounded size.
- 42, TITLE: A Deep Reinforcement Learning Approach to Concurrent Bilateral Negotiation
<https://www.ijcai.org/proceedings/2020/42>
AUTHORS: Pallavi Bagga, Nicola Paoletti, Bedour Alrayes, Kostas Stathis
HIGHLIGHT: We present a novel negotiation model that allows an agent to learn how to negotiate during concurrent bilateral negotiations in unknown and dynamic e-markets.
- 43, TITLE: Computational Aspects of Conditional Minisum Approval Voting in Elections with Interdependent Issues
<https://www.ijcai.org/proceedings/2020/43>
AUTHORS: Evangelos Markakis, Georgios Papsotiropoulos
HIGHLIGHT: Motivated by this, we focus on the computational aspects of Conditional Minisum, where progress has been rather scarce so far. We identify restrictions to every voter's dependencies, under which we provide the first multiplicative approximation algorithms for the problem.
- 44, TITLE: Combining Direct Trust and Indirect Trust in Multi-Agent Systems
<https://www.ijcai.org/proceedings/2020/44>
AUTHORS: Elham Parhizkar, Mohammad Hossein Nikravan, Robert C. Holte, Sandra Zilles
HIGHLIGHT: This paper provides the first systematic study on when it is beneficial to combine these two types of trust as opposed to relying on only one of them.
- 45, TITLE: Keeping Your Friends Close: Land Allocation with Friends
<https://www.ijcai.org/proceedings/2020/45>
AUTHORS: Edith Elkind, Neel Patel, Alan Tsang, Yair Zick
HIGHLIGHT: We examine the problem of assigning plots of land to prospective buyers who prefer living next to their friends.
- 46, TITLE: Verifying Fault-Tolerance in Probabilistic Swarm Systems
<https://www.ijcai.org/proceedings/2020/46>
AUTHORS: Alessio Lomuscio, Edoardo Pirovano
HIGHLIGHT: We present a method for reasoning about fault-tolerance in unbounded robotic swarms.
- 47, TITLE: Efficient Algorithms for Learning Revenue-Maximizing Two-Part Tariffs
<https://www.ijcai.org/proceedings/2020/47>
AUTHORS: Maria-Florina Balcan, Siddharth Prasad, Tuomas Sandholm
HIGHLIGHT: We present a polynomial time algorithm for optimizing one two-part tariff.
- 48, TITLE: Model-Free Real-Time Autonomous Energy Management for a Residential Multi-Carrier Energy System: A Deep Reinforcement Learning Approach
<https://www.ijcai.org/proceedings/2020/48>
AUTHORS: Yujian Ye, Dawei Qiu, Jonathan Ward, Marcin Abram
HIGHLIGHT: This paper showcases the first application of deep reinforcement learning (DRL) to real-time autonomous energy management for a multi-carrier energy system.
- 49, TITLE: Altruism in Coalition Formation Games
<https://www.ijcai.org/proceedings/2020/49>
AUTHORS: Anna Maria Kerkmann, Jölrg Rothe
HIGHLIGHT: Nguyen et al. [2016] introduced altruistic hedonic games in which agents' utilities depend not only on their own preferences but also on those of their friends in the same coalition. We propose to extend their model to coalition formation games in general, considering also the friends in other coalitions.

- 50, TITLE: A Multi-Objective Approach to Mitigate Negative Side Effects
<https://www.ijcai.org/proceedings/2020/50>
AUTHORS: Sandhya Saisubramanian, Ece Kamar, Shlomo Zilberstein
HIGHLIGHT: We formulate the problem of mitigating the impact of NSE as a multi-objective Markov decision process with lexicographic reward preferences and slack.
- 51, TITLE: The Competitive Effects of Variance-based Pricing
<https://www.ijcai.org/proceedings/2020/51>
AUTHORS: Ludwig Dierks, Sven Seuken
HIGHLIGHT: In this paper, we study a variance-based pricing rule in a two-provider market setting and perform a game-theoretic analysis of the resulting competitive effects.
- 52, TITLE: When to Follow the Tip: Security Games with Strategic Informants
<https://www.ijcai.org/proceedings/2020/52>
AUTHORS: Weiran Shen, Weizhe Chen, Taoan Huang, Rohit Singh, Fei Fang
HIGHLIGHT: In this paper, we introduce a new player -- a strategic informant, who can observe and report upcoming attacks - to the defender-attacker security game setting.
- 53, TITLE: Competition Among Contests: a Safety Level Analysis
<https://www.ijcai.org/proceedings/2020/53>
AUTHORS: Ron Lavi, Omer Shiran-Shvarzbard
HIGHLIGHT: We study a competition among two contests, where each contest designer aims to attract as much effort as possible.
- 54, TITLE: Participatory Budgeting with Project Interactions
<https://www.ijcai.org/proceedings/2020/54>
AUTHORS: Pallavi Jain, Krzysztof Sornat, Nimrod Talmon
HIGHLIGHT: We study the computational complexity of finding bundles that maximize voter utility, as defined with respect to such functions.
- 55, TITLE: PeerNomination: Relaxing Exactness for Increased Accuracy in Peer Selection
<https://www.ijcai.org/proceedings/2020/55>
AUTHORS: Nicholas Mattei, Paolo Turrini, Stanislav Zhydkov
HIGHLIGHT: Here, we present a novel algorithm for impartial peer selection, PeerNomination, and provide a theoretical analysis of its accuracy.
- 56, TITLE: Budgeted Facility Location Games with Strategic Facilities
<https://www.ijcai.org/proceedings/2020/56>
AUTHORS: Minming Li, Chenhao Wang, Mengqi Zhang
HIGHLIGHT: This paper studies the facility location games with payments, where facilities are strategic players.
- 57, TITLE: Monte-Carlo Tree Search for Scalable Coalition Formation
<https://www.ijcai.org/proceedings/2020/57>
AUTHORS: Feng Wu, Sarvapali D. Ramchurn
HIGHLIGHT: We propose a novel algorithm based on Monte-Carlo tree search for the problem of coalition structure generation (CSG).
- 58, TITLE: Modelling Bounded Rationality in Multi-Agent Interactions by Generalized Recursive Reasoning
<https://www.ijcai.org/proceedings/2020/58>
AUTHORS: Ying Wen, Yaodong Yang, Jun Wang
HIGHLIGHT: In this paper, we introduce generalized recursive reasoning (GR2) as a novel framework to model agents with different levels of rationality; our framework enables agents to exhibit varying levels of "thinking" ability thereby allowing higher-level agents to best respond to various less sophisticated learners.
- 59, TITLE: Sybil-proof Answer Querying Mechanism
<https://www.ijcai.org/proceedings/2020/59>
AUTHORS: Yao Zhang, Xiuzhen Zhang, Dengji Zhao
HIGHLIGHT: We study a question answering problem on a social network, where a requester is seeking an answer from the agents on the network.

- 60, TITLE: WEFE: The Word Embeddings Fairness Evaluation Framework
<https://www.ijcai.org/proceedings/2020/60>
AUTHORS: Pablo Badilla, Felipe Bravo-Marquez, Jorge Pérez
HIGHLIGHT: In this paper we propose WEFE, the word embeddings fairness evaluation framework, to encapsulate, evaluate and compare fairness metrics.
- 61, TITLE: Individual Fairness Revisited: Transferring Techniques from Adversarial Robustness
<https://www.ijcai.org/proceedings/2020/61>
AUTHORS: Samuel Yeom, Matt Fredrikson
HIGHLIGHT: Our contributions are twofold: First, we introduce the definition of a minimal metric and characterize the behavior of models in terms of minimal metrics. Second, for more complicated models, we apply the mechanism of randomized smoothing from adversarial robustness to make them individually fair under a given weighted L_p metric.
- 62, TITLE: Achieving Outcome Fairness in Machine Learning Models for Social Decision Problems
<https://www.ijcai.org/proceedings/2020/62>
AUTHORS: Boli Fang, Miao Jiang, Pei-yi Cheng, Jerry Shen, Yi Fang
HIGHLIGHT: In view of such an issue, we propose in this paper the strategy of fairgroups, based on the legal doctrine of disparate impact, to improve fairness in prediction outcomes.
- 63, TITLE: Relation-Based Counterfactual Explanations for Bayesian Network Classifiers
<https://www.ijcai.org/proceedings/2020/63>
AUTHORS: Emanuele Albini, Antonio Rago, Pietro Baroni, Francesca Toni
HIGHLIGHT: We propose a general method for generating counterfactual explanations (CFXs) for a range of Bayesian Network Classifiers (BCs), e.g. single- or multi-label, binary or multidimensional.
- 64, TITLE: Metamorphic Testing and Certified Mitigation of Fairness Violations in NLP Models
<https://www.ijcai.org/proceedings/2020/64>
AUTHORS: Pingchuan Ma, Shuai Wang, Jin Liu
HIGHLIGHT: In this paper, we propose a novel framework employing metamorphic testing, a well-established software testing scheme, to test NLP models and find discriminatory inputs that provoke fairness violations.
- 65, TITLE: Channel-Level Variable Quantization Network for Deep Image Compression
<https://www.ijcai.org/proceedings/2020/65>
AUTHORS: Zhisheng Zhong, Hiroaki Akutsu, Kiyoharu Aizawa
HIGHLIGHT: In this paper, we propose a channel-level variable quantization network to dynamically allocate more bitrates for significant channels and withdraw bitrates for negligible channels.
- 66, TITLE: Disentangled Feature Learning Network for Vehicle Re-Identification
<https://www.ijcai.org/proceedings/2020/66>
AUTHORS: Yan Bai, Yihang Lou, Yongxing Dai, Jun Liu, Ziqian Chen, Ling-Yu Duan
HIGHLIGHT: Here we propose a Disentangled Feature Learning Network (DFLNet) to learn orientation specific and common features concurrently, which are discriminative at details and invariant to orientations, respectively.
- 67, TITLE: EViLBERT: Learning Task-Agnostic Multimodal Sense Embeddings
<https://www.ijcai.org/proceedings/2020/67>
AUTHORS: Agostina Calabrese, Michele Bevilacqua, Roberto Navigli
HIGHLIGHT: To address this issue, we introduce EViLBERT, an approach which is able to perform image classification over an open set of concepts, both concrete and non-concrete.
- 68, TITLE: Collaborative Learning of Depth Estimation, Visual Odometry and Camera Relocalization from Monocular Videos
<https://www.ijcai.org/proceedings/2020/68>
AUTHORS: Haimei Zhao, Wei Bian, Bo Yuan, Dacheng Tao
HIGHLIGHT: Therefore, we present a collaborative learning framework, consisting of DepthNet, LocalPoseNet and GlobalPoseNet with a joint optimization loss to estimate depth, VO and camera localization unitedly.
- 69, TITLE: A 3D Convolutional Approach to Spectral Object Segmentation in Space and Time
<https://www.ijcai.org/proceedings/2020/69>
AUTHORS: Elena Burceanu, Marius Leordeanu
HIGHLIGHT: We formulate object segmentation in video as a spectral graph clustering problem in space and time, in which nodes are pixels and their relations form local neighbourhoods.

- 70, TITLE: Reference Guided Face Component Editing
<https://www.ijcai.org/proceedings/2020/70>
AUTHORS: Qiyao Deng, Jie Cao, Yunfan Liu, Zhenhua Chai, Qi Li, Zhenan Sun
HIGHLIGHT: To break the limitations (e.g. shape, mask or sketch) of the existing methods, we propose a novel framework termed rFACE (Reference Guided FAcE Component Editing) for diverse and controllable face component editing with geometric changes.
- 71, TITLE: When Pedestrian Detection Meets Nighttime Surveillance: A New Benchmark
<https://www.ijcai.org/proceedings/2020/71>
AUTHORS: Xiao Wang, Jun Chen, Zheng Wang, Wu Liu, Shin'ichi Satoh, Chao Liang, Chia-Wen Lin
HIGHLIGHT: In this paper, we build a novel pedestrian detection dataset from the nighttime surveillance aspect: NightSurveillance1.
- 72, TITLE: TextFuseNet: Scene Text Detection with Richer Fused Features
<https://www.ijcai.org/proceedings/2020/72>
AUTHORS: Jian Ye, Zhe Chen, Juhua Liu, Bo Du
HIGHLIGHT: Unlike existing text detection approaches that only perceive texts based on limited feature representations, we propose a novel framework, namely TextFuseNet, to exploit the use of richer features fused for text detection.
- 73, TITLE: SelectScale: Mining More Patterns from Images via Selective and Soft Dropout
<https://www.ijcai.org/proceedings/2020/73>
AUTHORS: Zhengsu Chen, Jianwei Niu, Xuefeng Liu, Shaojie Tang
HIGHLIGHT: To tackle this problem, we propose SelectScale. Instead of randomly dropping units, SelectScale selects the important features in networks and adjusts them during training.
- 74, TITLE: GSM: Graph Similarity Model for Multi-Object Tracking
<https://www.ijcai.org/proceedings/2020/74>
AUTHORS: Qiankun Liu, Qi Chu, Bin Liu, Nenghai Yu
HIGHLIGHT: In this paper, we focus on leveraging the relations among objects to improve robustness of the similarity model.
- 75, TITLE: Deep Interleaved Network for Single Image Super-Resolution with Asymmetric Co-Attention
<https://www.ijcai.org/proceedings/2020/75>
AUTHORS: Feng Li, Runmin Cong, Huihui Bai, Yifan He
HIGHLIGHT: In this paper, to tackle this problem, we propose a deep interleaved network (DIN) to learn how information at different states should be combined for image SR where shallow information guides deep representative features prediction.
- 76, TITLE: Meta Segmentation Network for Ultra-Resolution Medical Images
<https://www.ijcai.org/proceedings/2020/76>
AUTHORS: Tong Wu, Bicheng Dai, Shuxin Chen, Yanyun Qu, Yuan Xie
HIGHLIGHT: However, the fusion structure in these methods require to be designed elaborately to achieve desirable result, which leads to model redundancy. In this paper, we propose Meta Segmentation Network (MSN) to solve this challenging problem.
- 77, TITLE: Lifelong Zero-Shot Learning
<https://www.ijcai.org/proceedings/2020/77>
AUTHORS: Kun Wei, Cheng Deng, Xu Yang
HIGHLIGHT: In this paper, we propose a new ZSL setting, named as Lifelong Zero-Shot Learning (LZSL), which aims to accumulate the knowledge during the learning from multiple datasets and recognize unseen classes of all trained datasets.
- 78, TITLE: Large Scale Audiovisual Learning of Sounds with Weakly Labeled Data
<https://www.ijcai.org/proceedings/2020/78>
AUTHORS: Haytham M. Fayek, Anurag Kumar
HIGHLIGHT: In this paper, we advocate that sound recognition is inherently a multi-modal audiovisual task in that it is easier to differentiate sounds using both the audio and visual modalities as opposed to one or the other.
- 79, TITLE: JPEG Artifacts Removal via Compression Quality Ranker-Guided Networks
<https://www.ijcai.org/proceedings/2020/79>
AUTHORS: Menglu Wang, Xueyang Fu, Zepei Sun, Zheng-Jun Zha
HIGHLIGHT: To solve this problem, we propose compression quality ranker-guided networks for this specific JPEG artifacts removal.

- 80, TITLE: SimPropNet: Improved Similarity Propagation for Few-shot Image Segmentation
<https://www.ijcai.org/proceedings/2020/80>
AUTHORS: Siddhartha Gairola, Mayur Hemani, Ayush Chopra, Balaji Krishnamurthy
HIGHLIGHT: In this work, we demonstrate gaps in the utilization of this similarity information in existing methods, and present a framework - SimPropNet, to bridge those gaps.
- 81, TITLE: Multi-graph Fusion for Functional Neuroimaging Biomarker Detection
<https://www.ijcai.org/proceedings/2020/81>
AUTHORS: Jiangzhang Gan, Xiaofeng Zhu, Rongyao Hu, Yonghua Zhu, Junbo Ma, Ziwen Peng, Guorong Wu
HIGHLIGHT: In this paper, we first propose a new multi-graph fusion framework to fine-tune the original representation derived from Pearson correlation analysis, and then employ L1-SVM on fine-tuned representations to conduct joint brain region selection and disease diagnosis for avoiding the issue of the curse of dimensionality on high-dimensional data.
- 82, TITLE: Learning from the Scene and Borrowing from the Rich: Tackling the Long Tail in Scene Graph Generation
<https://www.ijcai.org/proceedings/2020/82>
AUTHORS: Tao He, Lianli Gao, Jingkuan Song, Jianfei Cai, Yuan-Fang Li
HIGHLIGHT: In this paper, we tackle this issue from another two aspects: (1) scene-object interaction aiming at learning specific knowledge from a scene via an additive attention mechanism; and (2) long-tail knowledge transfer which tries to transfer the rich knowledge learned from the head into the tail.
- 83, TITLE: Bottom-up and Top-down: Bidirectional Additive Net for Edge Detection
<https://www.ijcai.org/proceedings/2020/83>
AUTHORS: Lianli Gao, Zhilong Zhou, Heng Tao Shen, Jingkuan Song
HIGHLIGHT: In this paper, we propose an effective and end-to-end framework, named Bidirectional Additive Net (BAN), for image edge detection.
- 84, TITLE: SceneEncoder: Scene-Aware Semantic Segmentation of Point Clouds with A Learnable Scene Descriptor
<https://www.ijcai.org/proceedings/2020/84>
AUTHORS: Jiachen Xu, Jingyu Gong, Jie Zhou, Xin Tan, Yuan Xie, Lizhuang Ma
HIGHLIGHT: In this paper, we propose a SceneEncoder module to impose a scene-aware guidance to enhance the effect of global information.
- 85, TITLE: Characterizing Similarity of Visual Stimulus from Associated Neuronal Response
<https://www.ijcai.org/proceedings/2020/85>
AUTHORS: Vikram Ravindra, Ananth Grama
HIGHLIGHT: In this paper, we present a novel methodological framework for deconvolving the brain's response to mixed stimuli into its constituent responses to underlying pure factors.
- 86, TITLE: Spatiotemporal Super-Resolution with Cross-Task Consistency and Its Semi-supervised Extension
<https://www.ijcai.org/proceedings/2020/86>
AUTHORS: Han-Yi Lin, Pi-Cheng Hsiu, Tei-Wei Kuo, Yen-Yu Lin
HIGHLIGHT: We design a two-stream network for spatiotemporal SR in this work.
- 87, TITLE: Generating Person Images with Appearance-aware Pose Stylizer
<https://www.ijcai.org/proceedings/2020/87>
AUTHORS: Siyu Huang, Haoyi Xiong, Zhi-Qi Cheng, Qingzhong Wang, Xingran Zhou, Bihan Wen, Jun Huan, Dejing Dou
HIGHLIGHT: In this paper, we present a novel end-to-end framework to generate realistic person images based on given person poses and appearances.
- 88, TITLE: SBAT: Video Captioning with Sparse Boundary-Aware Transformer
<https://www.ijcai.org/proceedings/2020/88>
AUTHORS: Tao Jin, Siyu Huang, Ming Chen, Yingming Li, Zhongfei Zhang
HIGHLIGHT: In this paper, we focus on the problem of applying the transformer structure to video captioning effectively.
- 89, TITLE: Multichannel Color Image Denoising via Weighted Schatten p-norm Minimization
<https://www.ijcai.org/proceedings/2020/89>
AUTHORS: Xinjian Huang, Bo Du, Weiwei Liu
HIGHLIGHT: In this paper, based on the non-local self-similarity of an image and the different noise strength across each channel, we propose a MultiChannel Weighted Schatten p-Norm Minimization (MCWSNM) model for RGB color image denoising.

- 90, TITLE: Super-Resolution and Inpainting with Degraded and Upgraded Generative Adversarial Networks
<https://www.ijcai.org/proceedings/2020/90>
AUTHORS: Yawen Huang, Feng Zheng, Danyang Wang, Junyu Jiang, Xiaoqian Wang, Ling Shao
HIGHLIGHT: In this paper, we explore the possibility of super-resolving and inpainting images to handle multiple degradations and therefore improve their usability.
- 91, TITLE: Real-World Automatic Makeup via Identity Preservation Makeup Net
<https://www.ijcai.org/proceedings/2020/91>
AUTHORS: Zhikun Huang, Zhedong Zheng, Chenggang Yan, Hongtao Xie, Yaoqi Sun, Jianzhong Wang, Jiyong Zhang
HIGHLIGHT: To address these two challenges, we introduce a new makeup model, called Identity Preservation Makeup Net (IPM-Net), which preserves not only the background but the critical patterns of the original identity.
- 92, TITLE: Human Consensus-Oriented Image Captioning
<https://www.ijcai.org/proceedings/2020/92>
AUTHORS: Ziwei Wang, Zi Huang, Yadan Luo
HIGHLIGHT: In this work, we explicitly engage human consensus to measure the quality of ground truth captions in advance, and directly encourage the model to learn high quality captions with high priority.
- 93, TITLE: Biased Feature Learning for Occlusion Invariant Face Recognition
<https://www.ijcai.org/proceedings/2020/93>
AUTHORS: Changbin Shao, Jing Huo, Lei Qi, Zhen-Hua Feng, Wenbin Li, Chuanqi Dong, Yang Gao
HIGHLIGHT: To address the challenges posed by unknown occlusions, we propose a Biased Feature Learning (BFL) framework for occlusion-invariant face recognition.
- 94, TITLE: Channel Pruning via Automatic Structure Search
<https://www.ijcai.org/proceedings/2020/94>
AUTHORS: Mingbao Lin, Rongrong Ji, Yuxin Zhang, Baochang Zhang, Yongjian Wu, Yonghong Tian
HIGHLIGHT: In this paper, we propose a new channel pruning method based on artificial bee colony algorithm (ABC), dubbed as ABCPruner, which aims to efficiently find optimal pruned structure, i.e., channel number in each layer, rather than selecting “important” channels as previous works did.
- 95, TITLE: GestureDet: Real-time Student Gesture Analysis with Multi-dimensional Attention-based Detector
<https://www.ijcai.org/proceedings/2020/95>
AUTHORS: Rui Zheng, Fei Jiang, Ruimin Shen
HIGHLIGHT: Due to limited computational resources in primary and secondary schools, we propose a real-time student behavior detector based on light-weight MobileNetV2-SSD to reduce the dependency of GPUs.
- 96, TITLE: DAM: Deliberation, Abandon and Memory Networks for Generating Detailed and Non-repetitive Responses in Visual Dialogue
<https://www.ijcai.org/proceedings/2020/96>
AUTHORS: Xiaoze Jiang, Jing Yu, Yajing Sun, Zengchang Qin, Zihao Zhu, Yue Hu, Qi Wu
HIGHLIGHT: In this paper, we propose a novel generative decoding architecture to generate high-quality responses, which moves away from decoding the whole encoded semantics towards the design that advocates both transparency and flexibility.
- 97, TITLE: Pay Attention to Devils: A Photometric Stereo Network for Better Details
<https://www.ijcai.org/proceedings/2020/97>
AUTHORS: Yakun Ju, Kin-Man Lam, Yang Chen, Lin Qi, Junyu Dong
HIGHLIGHT: We present an attention-weighted loss in a photometric stereo neural network to improve 3D surface recovery accuracy in complex-structured areas, such as edges and crinkles, where existing learning-based methods often failed.
- 98, TITLE: E3SN: Efficient End-to-End Siamese Network for Video Object Segmentation
<https://www.ijcai.org/proceedings/2020/98>
AUTHORS: Meng Lan, Yipeng Zhang, Qinning Xu, Lefei Zhang
HIGHLIGHT: This paper proposes an efficient end-to-end Siamese network for VOS.
- 99, TITLE: TLPG-Tracker: Joint Learning of Target Localization and Proposal Generation for Visual Tracking
<https://www.ijcai.org/proceedings/2020/99>
AUTHORS: Siyuan Li, Zhi Zhang, Ziyu Liu, Anna Wang, Linglong Qiu, Feng Du

HIGHLIGHT: In this paper, we propose an efficient two-stage architecture which makes full use of the complementarity of two subtasks to achieve robust localization and high-quality proposals generation of the target jointly.

100, **TITLE:** Learning Task-aware Local Representations for Few-shot Learning

<https://www.ijcai.org/proceedings/2020/100>

AUTHORS: Chuanqi Dong, Wenbin Li, Jing Huo, Zheng Gu, Yang Gao

HIGHLIGHT: This paper proposes an Adaptive Task-aware Local Representations Network (ATL-Net) to address this limitation by introducing episodic attention, which can adaptively select the important local patches among the entire task, as the process of human recognition.

101, **TITLE:** Bi-level Probabilistic Feature Learning for Deformable Image Registration

<https://www.ijcai.org/proceedings/2020/101>

AUTHORS: Risheng Liu, Zi Li, Yuxi Zhang, Xin Fan, Zhongxuan Luo

HIGHLIGHT: In this paper, we propose a novel bi-level optimization model that enables jointly learning deformation maps and features for image registration.

102, **TITLE:** G2RL: Geometry-Guided Representation Learning for Facial Action Unit Intensity Estimation

<https://www.ijcai.org/proceedings/2020/102>

AUTHORS: Yingruo Fan, Zhaojiang Lin

HIGHLIGHT: To this end, we propose a novel geometry-guided representation learning (G2RL) method for facial AU intensity estimation.

103, **TITLE:** Visual Encoding and Decoding of the Human Brain Based on Shared Features

<https://www.ijcai.org/proceedings/2020/103>

AUTHORS: Chao Li, Baolin Liu, Jianguo Wei

HIGHLIGHT: In this paper, we assume that only a portion of neural network features is directly related to human brain signals, which we call shared features.

104, **TITLE:** Learning to Discretely Compose Reasoning Module Networks for Video Captioning

<https://www.ijcai.org/proceedings/2020/104>

AUTHORS: Ganchao Tan, Daqing Liu, Meng Wang, Zheng-Jun Zha

HIGHLIGHT: In this paper, we propose a novel visual reasoning approach for video captioning, named Reasoning Module Networks (RMN), to equip the existing encoder-decoder framework with the above reasoning capacity.

105, **TITLE:** Multi-Scale Spatial-Temporal Integration Convolutional Tube for Human Action Recognition

<https://www.ijcai.org/proceedings/2020/105>

AUTHORS: Haoze Wu, Jiawei Liu, Xierong Zhu, Meng Wang, Zheng-Jun Zha

HIGHLIGHT: In this work, we propose a novel and efficient Multi-Scale Spatial-Temporal Integration Convolutional Tube (MSTI) aiming at achieving accurate recognition of actions with lower computational cost.

106, **TITLE:** Latent Regularized Generative Dual Adversarial Network For Abnormal Detection

<https://www.ijcai.org/proceedings/2020/106>

AUTHORS: Chengwei Chen, Jing Liu, Yuan Xie, Yin Xiao Ban, Chunyun Wu, Yiqing Tao, Haichuan Song

HIGHLIGHT: Due to the training instability issues existed in previous generative adversarial networks (GANs) based methods, in this paper we propose a dual auxiliary autoencoder to make a tradeoff between the capability of generator and discriminator, leading to a more stable training process and high-quality image reconstruction.

107, **TITLE:** Non-Autoregressive Image Captioning with Counterfactuals-Critical Multi-Agent Learning

<https://www.ijcai.org/proceedings/2020/107>

AUTHORS: Longteng Guo, Jing Liu, Xinxin Zhu, Xingjian He, Jie Jiang, Hanqing Lu

HIGHLIGHT: In this paper, we propose a Non-Autoregressive Image Captioning (NAIC) model with a novel training paradigm: Counterfactuals-critical Multi-Agent Learning (CMAL).

108, **TITLE:** k-SDPP: Fixed-Size Video Summarization via Sequential Determinantal Point Processes

<https://www.ijcai.org/proceedings/2020/108>

AUTHORS: Jiping Zheng, Ganfeng Lu

HIGHLIGHT: In this paper, we propose a new model in the DPP lineage named k-SDPP in vein of sequential determinantal point processes but with fixed user specified size k.

109, **TITLE:** Semi-Dynamic Hypergraph Neural Network for 3D Pose Estimation

<https://www.ijcai.org/proceedings/2020/109>

AUTHORS: Shengyuan Liu, Pei Lv, Yuzhen Zhang, Jie Fu, Junjin Cheng, Wanqing Li, Bing Zhou, Mingliang Xu
HIGHLIGHT: This paper proposes a novel Semi-Dynamic Hypergraph Neural Network (SD-HNN) to estimate 3D human pose from a single image.

110, TITLE: AttAN: Attention Adversarial Networks for 3D Point Cloud Semantic Segmentation

<https://www.ijcai.org/proceedings/2020/110>

AUTHORS: Gege Zhang, Qinghua Ma, Licheng Jiao, Fang Liu, Qigong Sun
HIGHLIGHT: To address this problem, we first extend adversarial learning to this task and propose a novel framework Attention Adversarial Networks (AttAN). With high-order correlations in label sets learned from the adversarial learning, segmentation network can predict labels closer to the real ones and correct noisy results.

111, TITLE: Position-Aware Recalibration Module: Learning From Feature Semantics and Feature Position

<https://www.ijcai.org/proceedings/2020/111>

AUTHORS: Xu Ma, Song Fu
HIGHLIGHT: We present a new method to improve the representational power of the features in Convolutional Neural Networks (CNNs).

112, TITLE: Transductive Relation-Propagation Network for Few-shot Learning

<https://www.ijcai.org/proceedings/2020/112>

AUTHORS: Yuqing Ma, Shihao Bai, Shan An, Wei Liu, Aishan Liu, Xiantong Zhen, Xianglong Liu
HIGHLIGHT: We propose a transductive relation-propagation graph neural network (TRPN) to explicitly model and propagate such relations across support-query pairs.

113, TITLE: Few-shot Visual Learning with Contextual Memory and Fine-grained Calibration

<https://www.ijcai.org/proceedings/2020/113>

AUTHORS: Yuqing Ma, Wei Liu, Shihao Bai, Qingyu Zhang, Aishan Liu, Weimin Chen, Xianglong Liu
HIGHLIGHT: Inspired by the inverted pyramid theory, to address this problem, we propose an inverted pyramid network (IPN) that intimates the human's coarse-to-fine cognition paradigm.

114, TITLE: Dynamic Language Binding in Relational Visual Reasoning

<https://www.ijcai.org/proceedings/2020/114>

AUTHORS: Thao Minh Le, Vuong Le, Svetha Venkatesh, Truyen Tran
HIGHLIGHT: We present Language-binding Object Graph Network, the first neural reasoning method with dynamic relational structures across both visual and textual domains with applications in visual question answering.

115, TITLE: Deep Polarized Network for Supervised Learning of Accurate Binary Hashing Codes

<https://www.ijcai.org/proceedings/2020/115>

AUTHORS: Lixin Fan, Kam Woh Ng, Ce Ju, Tianyu Zhang, Chee Seng Chan
HIGHLIGHT: This paper proposes a novel deep polarized network (DPN) for learning to hash, in which each channel in the network outputs is pushed far away from zero by employing a differentiable bit-wise hinge-like loss which is dubbed as polarization loss.

116, TITLE: BARNet: Bilinear Attention Network with Adaptive Receptive Fields for Surgical Instrument Segmentation

<https://www.ijcai.org/proceedings/2020/116>

AUTHORS: Zhen-Liang Ni, Gui-Bin Bian, Guan-An Wang, Xiao-Hu Zhou, Zeng-Guang Hou, Xiao-Liang Xie, Zhen Li, Yu-Han Wang
HIGHLIGHT: In this paper, we propose a bilinear attention network with adaptive receptive fields to address these two issues.

117, TITLE: Hierarchical Instance Feature Alignment for 2D Image-Based 3D Shape Retrieval

<https://www.ijcai.org/proceedings/2020/117>

AUTHORS: Heyu Zhou, Weizhi Nie, Wenhui Li, Dan Song, An-An Liu
HIGHLIGHT: To overcome these problems, we propose a novel hierarchical instance feature alignment (HIFA) method for this task.

118, TITLE: Few-shot Human Motion Prediction via Learning Novel Motion Dynamics

<https://www.ijcai.org/proceedings/2020/118>

AUTHORS: Chuanqi Zang, Mingtao Pei, Yu Kong
HIGHLIGHT: In our work, we propose a novel approach named Motion Prediction Network (MoPredNet) for few-shot human motion prediction.

- 119, TITLE: Set and Rebase: Determining the Semantic Graph Connectivity for Unsupervised Cross-Modal Hashing
<https://www.ijcai.org/proceedings/2020/119>
AUTHORS: Weiwei Wang, Yuming Shen, Haofeng Zhang, Yazhou Yao, Li Liu
HIGHLIGHT: To address the problem above, in this paper, we propose a novel unsupervised hashing method called Semantic-Rebased Cross-modal Hashing (SRCH).
- 120, TITLE: Weakly Supervised Few-shot Object Segmentation using Co-Attention with Visual and Semantic Embeddings
<https://www.ijcai.org/proceedings/2020/120>
AUTHORS: Mennatullah Siam, Naren Doraiswamy, Boris N. Oreshkin, Hengshuai Yao, Martin Jagersand
HIGHLIGHT: We propose a novel multi-modal interaction module for few-shot object segmentation that utilizes a co-attention mechanism using both visual and word embedding.
- 121, TITLE: Overflow Aware Quantization: Accelerating Neural Network Inference by Low-bit Multiply-Accumulate Operations
<https://www.ijcai.org/proceedings/2020/121>
AUTHORS: Hongwei Xie, Yafei Song, Ling Cai, Mingyang Li
HIGHLIGHT: To address this problem, we propose an overflow aware quantization method by designing trainable adaptive fixed-point representation, to optimize the number of bits for each input tensor while prohibiting numeric overflow during the computation.
- 122, TITLE: Detecting Adversarial Attacks via Subset Scanning of Autoencoder Activations and Reconstruction Error
<https://www.ijcai.org/proceedings/2020/122>
AUTHORS: Celia Cintas, Skyler Speakman, Victor Akinwande, William Ogallo, Komminist Weldemariam, Srihari Sridharan, Edward McFowland
HIGHLIGHT: We propose an unsupervised method for detecting adversarial attacks in inner layers of autoencoder (AE) networks by maximizing a non-parametric measure of anomalous node activations.
- 123, TITLE: Consistent Domain Structure Learning and Domain Alignment for 2D Image-Based 3D Objects Retrieval
<https://www.ijcai.org/proceedings/2020/123>
AUTHORS: Yuting Su, Yuqian Li, Dan Song, Weizhi Nie, Wenhui Li, An-An Liu
HIGHLIGHT: In this paper, we propose a domain alignment framework with consistent domain structure learning to reduce the large gap between 2D images and 3D objects.
- 124, TITLE: Diagnosing the Environment Bias in Vision-and-Language Navigation
<https://www.ijcai.org/proceedings/2020/124>
AUTHORS: Yubo Zhang, Hao Tan, Mohit Bansal
HIGHLIGHT: In this work, we design novel diagnosis experiments via environment re-splitting and feature replacement, looking into possible reasons for this environment bias.
- 125, TITLE: Self-Supervised Gait Encoding with Locality-Aware Attention for Person Re-Identification
<https://www.ijcai.org/proceedings/2020/125>
AUTHORS: Haocong Rao, Siqi Wang, Xiping Hu, Mingkui Tan, Huang Da, Jun Cheng, Bin Hu
HIGHLIGHT: Unlike previous methods, we for the first time propose a generic gait encoding approach that can utilize unlabeled skeleton data to learn gait representations in a self-supervised manner.
- 126, TITLE: Zero-Shot Object Detection via Learning an Embedding from Semantic Space to Visual Space
<https://www.ijcai.org/proceedings/2020/126>
AUTHORS: Licheng Zhang, Xianzhi Wang, Lina Yao, Lin Wu, Feng Zheng
HIGHLIGHT: In this paper, instead, we propose to learn a deep embedding from the semantic space to the visual space, which enables to well alleviate the hubness problem, because, compared with semantic space or joint embedding space, the distribution in visual space has smaller variance.
- 127, TITLE: Unsupervised Vehicle Re-identification with Progressive Adaptation
<https://www.ijcai.org/proceedings/2020/127>
AUTHORS: Jinjia Peng, Yang Wang, Huibing Wang, Zhao Zhang, Xianping Fu, Meng Wang
HIGHLIGHT: To tackle these challenges, we propose a novel Progressive Adaptation Learning method for vehicle reID, named PAL, which infers from the abundant data without annotations.
- 128, TITLE: Recurrent Relational Memory Network for Unsupervised Image Captioning
<https://www.ijcai.org/proceedings/2020/128>

AUTHORS: Dan Guo, Yang Wang, Peipei Song, Meng Wang
HIGHLIGHT: In this paper, we propose a novel memory-based network rather than GAN, named Recurrent Relational Memory Network (R2M).

129, TITLE: Temporal Adaptive Alignment Network for Deep Video Inpainting
<https://www.ijcai.org/proceedings/2020/129>
AUTHORS: Ruixin Liu, Zhenyu Weng, Yuesheng Zhu, Bairong Li
HIGHLIGHT: To alleviate above problem, we propose a novel end-to-end Temporal Adaptive Alignment Network(TAAN) for video inpainting.

130, TITLE: Bidirectional Adversarial Training for Semi-Supervised Domain Adaptation
<https://www.ijcai.org/proceedings/2020/130>
AUTHORS: Pin Jiang, Aming Wu, Yahong Han, Yunfeng Shao, Meiyu Qi, Bingshuai Li
HIGHLIGHT: In this work, we devise a general bidirectional adversarial training method and employ gradient to guide adversarial examples across the domain gap, i.e., the Adaptive Adversarial Training (AAT) for source to target domain and Entropy-penalized Virtual Adversarial Training (E-VAT) for target to source domain.

131, TITLE: Hierarchical Attention Based Spatial-Temporal Graph-to-Sequence Learning for Grounded Video Description
<https://www.ijcai.org/proceedings/2020/131>
AUTHORS: Kai Shen, Lingfei Wu, Fangli Xu, Siliang Tang, Jun Xiao, Yueting Zhuang
HIGHLIGHT: To address these issues, we cast the GVD task as a spatial-temporal Graph-to-Sequence learning problem, where we model video frames as spatial-temporal sequence graph in order to better capture implicit structural relationships.

132, TITLE: Polar Relative Positional Encoding for Video-Language Segmentation
<https://www.ijcai.org/proceedings/2020/132>
AUTHORS: Ke Ning, Lingxi Xie, Fei Wu, Qi Tian
HIGHLIGHT: In this paper, we tackle a challenging task named video-language segmentation.

133, TITLE: Label-Attended Hashing for Multi-Label Image Retrieval
<https://www.ijcai.org/proceedings/2020/133>
AUTHORS: Yanzhao Xie, Yu Liu, Yangtao Wang, Lianli Gao, Peng Wang, Ke Zhou
HIGHLIGHT: We propose a Label-Attended Hashing (LAH) algorithm which enables an end-to-end hash model with inter-dependency feature extraction.

134, TITLE: Self-supervised Monocular Depth and Visual Odometry Learning with Scale-consistent Geometric Constraints
<https://www.ijcai.org/proceedings/2020/134>
AUTHORS: Mingkang Xiong, Zhenghong Zhang, Weilin Zhong, Jinsheng Ji, Jiyuan Liu, Huilin Xiong
HIGHLIGHT: In this paper, robust geometric losses are proposed to deal with this problem.

135, TITLE: DIDFuse: Deep Image Decomposition for Infrared and Visible Image Fusion
<https://www.ijcai.org/proceedings/2020/135>
AUTHORS: Zixiang Zhao, Shuang Xu, Chunxia Zhang, Junmin Liu, Jianshe Zhang, Pengfei Li
HIGHLIGHT: This paper proposes a novel auto-encoder (AE) based fusion network.

136, TITLE: TRP: Trained Rank Pruning for Efficient Deep Neural Networks
<https://www.ijcai.org/proceedings/2020/136>
AUTHORS: Yuhui Xu, Yuxi Li, Shuai Zhang, Wei Wen, Botao Wang, Yingyong Qi, Yiran Chen, Weiyao Lin, Hongkai Xiong
HIGHLIGHT: We propose Trained Rank Pruning (TRP), which alternates between low rank approximation and training.

137, TITLE: Progressive Domain-Independent Feature Decomposition Network for Zero-Shot Sketch-Based Image Retrieval
<https://www.ijcai.org/proceedings/2020/137>
AUTHORS: Xinxun Xu, Muli Yang, Yanhua Yang, Hao Wang
HIGHLIGHT: In this paper, we propose a Progressive Domain-independent Feature Decomposition (PDFD) network for ZS-SBIR.

138, TITLE: HAF-SVG: Hierarchical Stochastic Video Generation with Aligned Features
<https://www.ijcai.org/proceedings/2020/138>
AUTHORS: Zhihui Lin, Chun Yuan, Maomao Li

HIGHLIGHT: In this paper, we propose a hierarchical recurrent VAE with a feature aligner, which can not only relax the independence assumption in typical VAE but also use a feature aligner to enable the decoder to obtain the aligned spatial information from the last observed frames.

139, **TITLE:** Feature Augmented Memory with Global Attention Network for VideoQA
<https://www.ijcai.org/proceedings/2020/139>

AUTHORS: Jiayin Cai, Chun Yuan, Cheng Shi, Lei Li, Yangyang Cheng, Ying Shan

HIGHLIGHT: To tackle these problems, we propose a novel VideoQA framework which progressively refines the representations of videos and questions from fine to coarse grain in a sequence-sensitive manner.

140, **TITLE:** Exploiting Visual Semantic Reasoning for Video-Text Retrieval
<https://www.ijcai.org/proceedings/2020/140>

AUTHORS: Zerun Feng, Zhimin Zeng, Caili Guo, Zheng Li

HIGHLIGHT: To address this issue, we propose a Visual Semantic Enhanced Reasoning Network (ViSERN) to exploit reasoning between frame regions.

141, **TITLE:** Co-Saliency Spatio-Temporal Interaction Network for Person Re-Identification in Videos
<https://www.ijcai.org/proceedings/2020/141>

AUTHORS: Jiawei Liu, Zheng-Jun Zha, Xierong Zhu, Na Jiang

HIGHLIGHT: In this work, we propose a novel Co-Saliency Spatio-Temporal Interaction Network (CSTNet) for person re-identification in videos.

142, **TITLE:** Self-Supervised Tuning for Few-Shot Segmentation

<https://www.ijcai.org/proceedings/2020/142>

AUTHORS: Kai Zhu, Wei Zhai, Yang Cao

HIGHLIGHT: To address this issue, this paper presents an adaptive tuning framework, in which the distribution of latent features across different episodes is dynamically adjusted based on a self-segmentation scheme, augmenting category-specific descriptors for label prediction.

143, **TITLE:** A Similarity Inference Metric for RGB-Infrared Cross-Modality Person Re-identification

<https://www.ijcai.org/proceedings/2020/143>

AUTHORS: Mengxi Jia, Yunpeng Zhai, Shijian Lu, Siwei Ma, Jian Zhang

HIGHLIGHT: This paper presents a novel similarity inference metric (SIM) that exploits the intra-modality sample similarities to circumvent the cross-modality discrepancy targeting optimal cross-modality image matching.

144, **TITLE:** CP-NAS: Child-Parent Neural Architecture Search for 1-bit CNNs

<https://www.ijcai.org/proceedings/2020/144>

AUTHORS: Li'an Zhuo, Baochang Zhang, Hanlin Chen, Linlin Yang, Chen Chen, Yanjun Zhu, David Doermann

HIGHLIGHT: To this end, a Child-Parent model is introduced to a differentiable NAS to search the binarized architecture(Child) under the supervision of a full-precision model (Parent).

145, **TITLE:** Weakly Supervised Local-Global Relation Network for Facial Expression Recognition

<https://www.ijcai.org/proceedings/2020/145>

AUTHORS: Haifeng Zhang, Wen Su, Jun Yu, Zengfu Wang

HIGHLIGHT: To extract crucial local features and enhance the complementary relation between local and global features, this paper proposes a Weakly Supervised Local-Global Relation Network (WS-LGRN), which uses the attention mechanism to deal with part location and feature fusion problems.

146, **TITLE:** Cross-denoising Network against Corrupted Labels in Medical Image Segmentation with Domain Shift

<https://www.ijcai.org/proceedings/2020/146>

AUTHORS: Qinming Zhang, Luyan Liu, Kai Ma, Cheng Zhuo, Yefeng Zheng

HIGHLIGHT: In this paper, we propose a novel robust cross-denoising framework using two peer networks to address domain shift and corrupted label problems with a peer-review strategy.

147, **TITLE:** Dress like an Internet Celebrity: Fashion Retrieval in Videos

<https://www.ijcai.org/proceedings/2020/147>

AUTHORS: Hongrui Zhao, Jin Yu, Yanan Li, Donghui Wang, Jie Liu, Hongxia Yang, Fei Wu

HIGHLIGHT: In this paper, we propose a novel deep neural network, called Detect, Pick, and Retrieval Network (DPRNet), to break the gap between fashion products from videos and audiences.

- 148, TITLE: Video Question Answering on Screencast Tutorials
<https://www.ijcai.org/proceedings/2020/148>
AUTHORS: Wentian Zhao, Seokhwan Kim, Ning Xu, Hailin Jin
HIGHLIGHT: This paper presents a new video question answering task on screencast tutorials. We introduce a dataset including question, answer and context triples from the tutorial videos for a software.
- 149, TITLE: Object-Aware Multi-Branch Relation Networks for Spatio-Temporal Video Grounding
<https://www.ijcai.org/proceedings/2020/149>
AUTHORS: Zhu Zhang, Zhou Zhao, Zhijie Lin, Baoxing Huai, Jing Yuan
HIGHLIGHT: In this paper, we explore spatio-temporal video grounding on unaligned data and multi-form sentences.
- 150, TITLE: Unsupervised Scene Adaptation with Memory Regularization in vivo
<https://www.ijcai.org/proceedings/2020/150>
AUTHORS: Zhedong Zheng, Yi Yang
HIGHLIGHT: In this paper, we propose an orthogonal method, called memory regularization in vivo, to exploit the intra-domain knowledge and regularize the model training.
- 151, TITLE: Overcoming Language Priors with Self-supervised Learning for Visual Question Answering
<https://www.ijcai.org/proceedings/2020/151>
AUTHORS: Xi Zhu, Zhendong Mao, Chunxiao Liu, Peng Zhang, Bin Wang, Yongdong Zhang
HIGHLIGHT: In this paper, we introduce a self-supervised learning framework to solve this problem. Concretely, we first automatically generate labeled data to balance the biased data, and then propose a self-supervised auxiliary task to utilize the balanced data to assist the VQA model to overcome language priors.
- 152, TITLE: Multi-attention Meta Learning for Few-shot Fine-grained Image Recognition
<https://www.ijcai.org/proceedings/2020/152>
AUTHORS: Yaohui Zhu, Chenlong Liu, Shuqiang Jiang
HIGHLIGHT: In this work, we propose a multi-attention meta-learning (MattML) method for few-shot fine-grained image recognition (FSFGIR).
- 153, TITLE: Mucko: Multi-Layer Cross-Modal Knowledge Reasoning for Fact-based Visual Question Answering
<https://www.ijcai.org/proceedings/2020/153>
AUTHORS: Zihao Zhu, Jing Yu, Yujing Wang, Yajing Sun, Yue Hu, Qi Wu
HIGHLIGHT: In this paper, we depict an image by a multi-modal heterogeneous graph, which contains multiple layers of information corresponding to the visual, semantic and factual features.
- 154, TITLE: Action-Guided Attention Mining and Relation Reasoning Network for Human-Object Interaction Detection
<https://www.ijcai.org/proceedings/2020/154>
AUTHORS: Xue Lin, Qi Zou, Xixia Xu
HIGHLIGHT: In this paper, we propose an Action-Guided attention mining and Relation Reasoning (AGRR) network to solve the problems.
- 155, TITLE: A Graph-based Interactive Reasoning for Human-Object Interaction Detection
<https://www.ijcai.org/proceedings/2020/155>
AUTHORS: Dongming Yang, Yuexian Zou
HIGHLIGHT: In this paper, we present a novel graph-based interactive reasoning model called Interactive Graph (abbr).
- 156, TITLE: Diversity of Solutions: An Exploration Through the Lens of Fixed-Parameter Tractability Theory
<https://www.ijcai.org/proceedings/2020/156>
AUTHORS: Julien Baste, Michael R. Fellows, Lars Jaffke, Tomás Masa, Mateus de Oliveira Oliveira, Geevarghese Philip, Frances A. Rosamond
HIGHLIGHT: In this work we initiate a systematic study of diversity from the point of view of fixed-parameter tractability theory.
- 157, TITLE: Early and Efficient Identification of Useless Constraint Propagation for All-different Constraints
<https://www.ijcai.org/proceedings/2020/157>
AUTHORS: Xizhe Zhang, Jian Gao, Yizhi Lv, Weixiong Zhang
HIGHLIGHT: Here we present a novel theorem for identifying the edges in a value graph of all-different constraint whose removal can significantly reduce useless constraint propagation.

- 158, TITLE: Subgraph Isomorphism Meets Cutting Planes: Solving With Certified Solutions
<https://www.ijcai.org/proceedings/2020/158>
AUTHORS: Stephan Gocht, Ciaran McCreesh, Jakob Nordström
HIGHLIGHT: We show that all of this reasoning can be justified compactly using the cutting planes proofs studied in complexity theory.
- 159, TITLE: Extended Conjunctive Normal Form and An Efficient Algorithm for Cardinality Constraints
<https://www.ijcai.org/proceedings/2020/159>
AUTHORS: Zhendong Lei, Shaowei Cai, Chuan Luo
HIGHLIGHT: In this paper, we introduce Extended Conjunctive Normal Form (ECNF), which expresses cardinality constraints straightforward and does not need auxiliary variables or clauses.
- 160, TITLE: On Irrelevant Literals in Pseudo-Boolean Constraint Learning
<https://www.ijcai.org/proceedings/2020/160>
AUTHORS: Daniel Le Berre, Pierre Marquis, Stefan Mengel, Romain Wallon
HIGHLIGHT: In this paper, we show that PB constraints derived using cutting planes may contain irrelevant literals, i.e., literals whose assigned values (whatever they are) never change the truth value of the constraint.
- 161, TITLE: Fast and Parallel Decomposition of Constraint Satisfaction Problems
<https://www.ijcai.org/proceedings/2020/161>
AUTHORS: Georg Gottlob, Cem Okulmus, Reinhard Pichler
HIGHLIGHT: In this paper, we present a number of key algorithmic improvements and parallelisation techniques to compute so-called Generalized Hypertree Decompositions (GHDs) faster.
- 162, TITLE: Learning Sensitivity of RCPSP by Analyzing the Search Process
<https://www.ijcai.org/proceedings/2020/162>
AUTHORS: Marc-André Mard, Claude-Guy Quimper, Jonathan Gaudreault
HIGHLIGHT: We present a new method for sensitivity analysis applied to constraint programming.
- 163, TITLE: Learning Optimal Decision Trees with MaxSAT and its Integration in AdaBoost
<https://www.ijcai.org/proceedings/2020/163>
AUTHORS: Hao Hu, Mohamed Siala, Emmanuel Hebrard, Marie-José Huguet
HIGHLIGHT: In this paper we show how the SAT model proposed by [Narodytska et.al 2018] can be lifted to a MaxSAT approach, making it much more practically relevant.
- 164, TITLE: NLocalSAT: Boosting Local Search with Solution Prediction
<https://www.ijcai.org/proceedings/2020/164>
AUTHORS: Wenjie Zhang, Zeyu Sun, Qihao Zhu, Ge Li, Shaowei Cai, Yingfei Xiong, Lu Zhang
HIGHLIGHT: To address this problem, we propose NLocalSAT. NLocalSAT combines SLS with a solution prediction model, which boosts SLS by changing initialization assignments with a neural network.
- 165, TITLE: Bipartite Encoding: A New Binary Encoding for Solving Non-Binary CSPs
<https://www.ijcai.org/proceedings/2020/165>
AUTHORS: Ruiwei Wang, Roland H.C. Yap
HIGHLIGHT: We propose a new binary encoding, called Bipartite Encoding (BE) which uses the idea of partitioning constraints.
- 166, TITLE: Automatic Dominance Breaking for a Class of Constraint Optimization Problems
<https://www.ijcai.org/proceedings/2020/166>
AUTHORS: Jimmy Lee, Allen Zhong
HIGHLIGHT: We present a theoretical framework for a useful class of constraint optimization problems to detect dominance automatically and formulate the generation of the associated dominance breaking nogoods as constraint satisfaction.
- 167, TITLE: Cause-Effect Association between Event Pairs in Event Datasets
<https://www.ijcai.org/proceedings/2020/167>
AUTHORS: Debarun Bhattacharjya, Tian Gao, Nicholas Mattei, Dharmashankar Subramanian
HIGHLIGHT: In this paper, we consider datasets involving irregular occurrences of various types of events over the timeline. We propose a suite of scores and related algorithms for estimating the cause-effect association between pairs of events from such large event datasets.

- 168, TITLE: Inductive Link Prediction for Nodes Having Only Attribute Information
<https://www.ijcai.org/proceedings/2020/168>
AUTHORS: Yu Hao, Xin Cao, Yixiang Fang, Xike Xie, Sibao Wang
HIGHLIGHT: To solve this problem, we propose a model called DEAL, which consists of three components: two node embedding encoders and one alignment mechanism.
- 169, TITLE: Optimal Region Search with Submodular Maximization
<https://www.ijcai.org/proceedings/2020/169>
AUTHORS: Xuefeng Chen, Xin Cao, Yifeng Zeng, Yixiang Fang, Bin Yao
HIGHLIGHT: In this paper, we study the problem of optimal region search with submodular maximization (ORS-SM).
- 170, TITLE: Discrete Embedding for Latent Networks
<https://www.ijcai.org/proceedings/2020/170>
AUTHORS: Hong Yang, Ling Chen, Minglong Lei, Lingfeng Niu, Chuan Zhou, Peng Zhang
HIGHLIGHT: To address this issue, we present an end-to-end discrete network embedding model for latent networks DELN that can learn binary representations from underlying information cascades.
- 171, TITLE: GraphFlow: Exploiting Conversation Flow with Graph Neural Networks for Conversational Machine Comprehension
<https://www.ijcai.org/proceedings/2020/171>
AUTHORS: Yu Chen, Lingfei Wu, Mohammed J. Zaki
HIGHLIGHT: In this paper, we first propose a simple yet effective graph structure learning technique to dynamically construct a question and conversation history aware context graph at each conversation turn. Then we propose a novel Recurrent Graph Neural Network, and based on that, we introduce a flow mechanism to model the temporal dependencies in a sequence of context graphs.
- 172, TITLE: Motif-Preserving Temporal Network Embedding
<https://www.ijcai.org/proceedings/2020/172>
AUTHORS: Hong Huang, Zixuan Fang, Xiao Wang, Youshan Miao, Hai Jin
HIGHLIGHT: Specifically, we propose MTNE, a novel embedding model for temporal networks.
- 173, TITLE: Robustness of Autoencoders for Anomaly Detection Under Adversarial Impact
<https://www.ijcai.org/proceedings/2020/173>
AUTHORS: Adam Goodge, Bryan Hooi, See Kiong Ng, Wee Siong Ng
HIGHLIGHT: In this work, we study the effect of adversarial attacks on the performance of anomaly-detecting autoencoders using real data from a Cyber physical system (CPS) testbed with intervals of controlled, physical attacks as anomalies.
- 174, TITLE: Opinion Maximization in Social Trust Networks
<https://www.ijcai.org/proceedings/2020/174>
AUTHORS: Pinghua Xu, Wenbin Hu, Jia Wu, Weiwei Liu
HIGHLIGHT: In this study, we focus on social trust networks (STNs), which have the significant characteristics ignored in the previous studies.
- 175, TITLE: MR-GCN: Multi-Relational Graph Convolutional Networks based on Generalized Tensor Product
<https://www.ijcai.org/proceedings/2020/175>
AUTHORS: Zhichao Huang, Xutao Li, Yunming Ye, Michael K. Ng
HIGHLIGHT: In this paper, we propose the Multi-Relational Graph Convolutional Network (MR-GCN) framework by developing a novel convolution operator on multi-relational graphs.
- 176, TITLE: On the Enumeration of Association Rules: A Decomposition-based Approach
<https://www.ijcai.org/proceedings/2020/176>
AUTHORS: Yacine Izza, Said Jabbar, Badran Raddaoui, Abdelahmid Boudane
HIGHLIGHT: This paper introduces a practical SAT-based approach to discover efficiently (minimal non-redundant) association rules.
- 177, TITLE: Speeding up Very Fast Decision Tree with Low Computational Cost
<https://www.ijcai.org/proceedings/2020/177>
AUTHORS: Jian Sun, Hongyu Jia, Bo Hu, Xiao Huang, Hao Zhang, Hai Wan, Xibin Zhao
HIGHLIGHT: Compared with state-of-the-art algorithms, our method reduces split-attempts by about 5 to 10 times on average with much lower split-delay, which makes our algorithm run faster and more accurate.

178, TITLE: Simultaneous Arrival Matching for New Spatial Crowdsourcing Platforms
<https://www.ijcai.org/proceedings/2020/178>
AUTHORS: Boyang Li, Yurong Cheng, Ye Yuan, Guoren Wang, Lei Chen
HIGHLIGHT: Thus, in this paper, we propose a new Simultaneous Arrival Matching (SAM), which enables workers and users to arrive at their assigned workplace within a given tolerant time.

179, TITLE: Inductive Anomaly Detection on Attributed Networks
<https://www.ijcai.org/proceedings/2020/179>
AUTHORS: Kaize Ding, Jundong Li, Nitin Agarwal, Huan Liu
HIGHLIGHT: In this study, we propose to tackle the problem of inductive anomaly detection on attributed networks with a novel unsupervised framework: Aegis (adversarial graph differentiation networks).

180, TITLE: Enhancing Urban Flow Maps via Neural ODEs
<https://www.ijcai.org/proceedings/2020/180>
AUTHORS: Fan Zhou, Liang Li, Ting Zhong, Goce Trajcevski, Kunpeng Zhang, Jiahao Wang
HIGHLIGHT: We propose to tackle the urban flows inference using dynamic systems paradigm and present a new method FODE -- FSR with Ordinary Differential Equations (ODEs).

181, TITLE: When Do GNNs Work: Understanding and Improving Neighborhood Aggregation
<https://www.ijcai.org/proceedings/2020/181>
AUTHORS: Yiqing Xie, Sha Li, Carl Yang, Raymond Chi-Wing Wong, Jiawei Han
HIGHLIGHT: This paper aims to provide a better understanding of this mechanisms by asking the following question: Is neighborhood aggregation always necessary and beneficial?

182, TITLE: A Spatial Missing Value Imputation Method for Multi-view Urban Statistical Data
<https://www.ijcai.org/proceedings/2020/182>
AUTHORS: Yongshun Gong, Zhibin Li, Jian Zhang, Wei Liu, Bei Chen, Xiangjun Dong
HIGHLIGHT: Thus, in this paper, we propose a spatial missing data imputation method for multi-view urban statistical data.

183, TITLE: GoGNN: Graph of Graphs Neural Network for Predicting Structured Entity Interactions
<https://www.ijcai.org/proceedings/2020/183>
AUTHORS: Hanchen Wang, Defu Lian, Ying Zhang, Lu Qin, Xuemin Lin
HIGHLIGHT: In this paper, we propose a Graph of Graphs Neural Network, namely GoGNN, which extracts the features in both structured entity graphs and the entity interaction graph in a hierarchical way.

184, TITLE: GraphSleepNet: Adaptive Spatial-Temporal Graph Convolutional Networks for Sleep Stage Classification
<https://www.ijcai.org/proceedings/2020/184>
AUTHORS: Ziyu Jia, Youfang Lin, Jing Wang, Ronghao Zhou, Xiaojun Ning, Yuanlai He, Yaoshuai Zhao
HIGHLIGHT: In this paper, we propose a novel deep graph neural network, named GraphSleepNet, for automatic sleep stage classification.

185, TITLE: A Sequential Convolution Network for Population Flow Prediction with Explicitly Correlation Modelling
<https://www.ijcai.org/proceedings/2020/185>
AUTHORS: Jie Feng, Ziqian Lin, Tong Xia, Funing Sun, Diansheng Guo, Yong Li
HIGHLIGHT: In this paper, we propose Convolution based Sequential and Cross Network (CSCNet) to solve them.

186, TITLE: Rebalancing Expanding EV Sharing Systems with Deep Reinforcement Learning
<https://www.ijcai.org/proceedings/2020/186>
AUTHORS: Man Luo, Wenzhe Zhang, Tianyou Song, Kun Li, Hongming Zhu, Bowen Du, Hongkai Wen
HIGHLIGHT: We propose a novel approach of policy optimization with action cascading, which isolates the non-stationarity locally, and use two connected networks to solve the formulated MARL.

187, TITLE: Understanding the Success of Graph-based Semi-Supervised Learning using Partially Labelled Stochastic Block Model
<https://www.ijcai.org/proceedings/2020/187>
AUTHORS: Avirup Saha, Shreyas Sheshadri, Samik Datta, Niloy Ganguly, Disha Makhija, Priyank Patel
HIGHLIGHT: In this work, we draw upon the notion of recovery from the literature on community detection, and provide guarantees on accuracy for partially-labelled graphs generated from the Partially-Labelled Stochastic Block Model (PLSBM).

188, TITLE: Multi-Channel Graph Neural Networks

<https://www.ijcai.org/proceedings/2020/188>

AUTHORS: Kaixiong Zhou, Qingquan Song, Xiao Huang, Daochen Zha, Na Zou, Xia Hu
HIGHLIGHT: To compensate the shrinking loss and learn the various nodes' characteristics, we propose the multi-channel graph neural networks (MuchGNN).

189, TITLE: Online Semi-supervised Multi-label Classification with Label Compression and Local Smooth Regression

<https://www.ijcai.org/proceedings/2020/189>

AUTHORS: Peiyan Li, Honglian Wang, Christian Böhm, Junming Shao
HIGHLIGHT: In this paper, we present a novel Online Semi-supervised Multi-Label learning algorithm (OnSeML) based on label compression and local smooth regression, which allows real-time multi-label predictions in a semi-supervised setting and is robust to evolving label distributions.

190, TITLE: Network Schema Preserving Heterogeneous Information Network Embedding

<https://www.ijcai.org/proceedings/2020/190>

AUTHORS: Jianan Zhao, Xiao Wang, Chuan Shi, Zekuan Liu, Yanfang Ye
HIGHLIGHT: In this paper, we make the first attempt to study network schema preserving HIN embedding, and propose a novel model named NSHE.

191, TITLE: Recovering Accurate Labeling Information from Partially Valid Data for Effective Multi-Label Learning

<https://www.ijcai.org/proceedings/2020/191>

AUTHORS: Ximing Li, Yang Wang
HIGHLIGHT: In this paper, we propose to recover the ground-truth labels, i.e., estimating the ground-truth confidences, from the label enrichment, composed of the relevance degrees of candidate labels and irrelevance degrees of non-candidate labels.

192, TITLE: JANE: Jointly Adversarial Network Embedding

<https://www.ijcai.org/proceedings/2020/192>

AUTHORS: Liang Yang, Yuexue Wang, Junhua Gu, Chuan Wang, Xiaochun Cao, Yuanfang Guo
HIGHLIGHT: To overcome this vital issue, a novel Joint Adversarial Network Embedding (JANE) framework is proposed to jointly distinguish the real and fake combinations of the embeddings, topology information and node features.

193, TITLE: Evidence-Aware Hierarchical Interactive Attention Networks for Explainable Claim Verification

<https://www.ijcai.org/proceedings/2020/193>

AUTHORS: Lianwei Wu, Yuan Rao, Xiong Yang, Wanzhen Wang, Ambreen Nazir
HIGHLIGHT: In this paper, we propose Evidence-aware Hierarchical Interactive Attention Networks (EHIAN) by considering the capture of evidence fragments and the fusion of source credibility to explore more credible evidence semantics discussing the questionable parts of claims for explainable claim verification.

194, TITLE: Improving Attention Mechanism in Graph Neural Networks via Cardinality Preservation

<https://www.ijcai.org/proceedings/2020/194>

AUTHORS: Shuo Zhang, Lei Xie
HIGHLIGHT: In this work, we present a theoretical analysis of the representational properties of the GNN that adopts the attention mechanism as an aggregator.

195, TITLE: Graph Neural Architecture Search

<https://www.ijcai.org/proceedings/2020/195>

AUTHORS: Yang Gao, Hong Yang, Peng Zhang, Chuan Zhou, Yue Hu
HIGHLIGHT: In this paper, we present a graph neural architecture search method (GraphNAS) that enables automatic design of the best graph neural architecture based on reinforcement learning.

196, TITLE: Domain Adaptive Classification on Heterogeneous Information Networks

<https://www.ijcai.org/proceedings/2020/196>

AUTHORS: Shuwen Yang, Guojie Song, Yilun Jin, Lun Du
HIGHLIGHT: In this paper, we propose Multi-space Domain Adaptive Classification (MuSDAC) to handle the problem of DA on HINs.

197, TITLE: Rumor Detection on Social Media with Graph Structured Adversarial Learning

<https://www.ijcai.org/proceedings/2020/197>

AUTHORS: Xiaoyu Yang, Yuefei Lyu, Tian Tian, Yifei Liu, Yudong Liu, Xi Zhang
HIGHLIGHT: Our focus in this work is to develop a robust graph-based detector to identify rumors on social media from an adversarial perspective.

- 198, TITLE: Joint Representation Learning of Legislator and Legislation for Roll Call Prediction
<https://www.ijcai.org/proceedings/2020/198>
AUTHORS: Yuqiao Yang, Xiaoqiang Lin, Geng Lin, Zengfeng Huang, Changjian Jiang, Zhongyu Wei
HIGHLIGHT: In this paper, we explore to learn representations of legislation and legislator for the prediction of roll call results.
- 199, TITLE: Entity Synonym Discovery via Multipiece Bilateral Context Matching
<https://www.ijcai.org/proceedings/2020/199>
AUTHORS: Chenwei Zhang, Yaliang Li, Nan Du, Wei Fan, Philip S. Yu
HIGHLIGHT: To leverage diverse contexts where entities are mentioned, in this paper, we generalize the distributional hypothesis to a multi-context setting and propose a synonym discovery framework that detects entity synonyms from free-text corpora with considerations on effectiveness and robustness.
- 200, TITLE: BANANA: when Behavior ANALysis meets social Network Alignment
<https://www.ijcai.org/proceedings/2020/200>
AUTHORS: Fuxin Ren, Zhongbao Zhang, Jiawei Zhang, Sen Su, Li Sun, Guozhen Zhu, Congying Guo
HIGHLIGHT: Motivated by such an observation, we propose to jointly study the social network alignment problem and user behavior analysis problem.
- 201, TITLE: Proximal Gradient Algorithm with Momentum and Flexible Parameter Restart for Nonconvex Optimization
<https://www.ijcai.org/proceedings/2020/201>
AUTHORS: Yi Zhou, Zhe Wang, Kaiyi Ji, Yingbin Liang, Vahid Tarokh
HIGHLIGHT: In this paper, we propose a novel proximal gradient algorithm with momentum and parameter restart for solving nonconvex and nonsmooth problems.
- 202, TITLE: Bilinear Graph Neural Network with Neighbor Interactions
<https://www.ijcai.org/proceedings/2020/202>
AUTHORS: Hongmin Zhu, Fuli Feng, Xiangnan He, Xiang Wang, Yan Li, Kai Zheng, Yongdong Zhang
HIGHLIGHT: In this work, we argue the importance of modeling the interactions between neighbor nodes in GNN.
- 203, TITLE: Unsatisfiability Proofs for Weight 16 Codewords in Lam's Problem
<https://www.ijcai.org/proceedings/2020/203>
AUTHORS: Curtis Bright, Kevin K.H. Cheung, Brett Stevens, Ilias Kotsireas, Vijay Ganesh
HIGHLIGHT: We performed a verification of these searches by reducing the problem to the Boolean satisfiability problem (SAT).
- 204, TITLE: Two-goal Local Search and Inference Rules for Minimum Dominating Set
<https://www.ijcai.org/proceedings/2020/204>
AUTHORS: Shaowei Cai, Wenying Hou, Yiyuan Wang, Chuan Luo, Qingwei Lin
HIGHLIGHT: This paper develops an efficient local search algorithm for MinDS, which has two main ideas.
- 205, TITLE: Self-Guided Evolution Strategies with Historical Estimated Gradients
<https://www.ijcai.org/proceedings/2020/205>
AUTHORS: Fei-Yu Liu, Zi-Niu Li, Chao Qian
HIGHLIGHT: In this paper, we propose a new ES algorithm SGES, which utilizes historical estimated gradients to construct a low-dimensional subspace for sampling search directions, and adjusts the importance of this subspace adaptively.
- 206, TITLE: Vertex Weighting-Based Tabu Search for p-Center Problem
<https://www.ijcai.org/proceedings/2020/206>
AUTHORS: Qingyun Zhang, Zhipeng Li, Zhouxing Su, Chumin Li, Yuan Fang, Fuda Ma
HIGHLIGHT: In this paper, we transform the p-center problem into a series of set covering subproblems, and propose a vertex weighting-based tabu search (VWTS) algorithm to solve them.
- 207, TITLE: Exploration Based Language Learning for Text-Based Games
<https://www.ijcai.org/proceedings/2020/207>
AUTHORS: Andrea Madotto, Mahdi Namazifar, Joost Huizinga, Piero Molino, Adrien Ecoffet, Huaixiu Zheng, Alexandros Papangelis, Dian Yu, Chandra Khatri, Gokhan Tur
HIGHLIGHT: In this work, we propose to use the exploration approach of Go-Explore for solving text-based games.

- 208, TITLE: Intelligent Virtual Machine Provisioning in Cloud Computing
<https://www.ijcai.org/proceedings/2020/208>
AUTHORS: Chuan Luo, Bo Qiao, Xin Chen, Pu Zhao, Randolph Yao, Hongyu Zhang, Wei Wu, Andrew Zhou, Qingwei Lin
HIGHLIGHT: In this work, we formulate the practical scenario as the predictive VM provisioning (PreVMP) problem, where upcoming demands are unknown and need to be predicted in advance, and then the VM provisioning plan is optimized based on the predicted demands.
- 209, TITLE: NuCDS: An Efficient Local Search Algorithm for Minimum Connected Dominating Set
<https://www.ijcai.org/proceedings/2020/209>
AUTHORS: Bohan Li, Xindi Zhang, Shaowei Cai, Jinkun Lin, Yiyuan Wang, Christian Blum
HIGHLIGHT: In this paper, we propose two novel ideas, and develop a new local search algorithm for MCDS called NuCDS.
- 210, TITLE: Structured Probabilistic End-to-End Learning from Crowds
<https://www.ijcai.org/proceedings/2020/210>
AUTHORS: Zhijun Chen, Huimin Wang, Hailong Sun, Pengpeng Chen, Tao Han, Xudong Liu, Jie Yang
HIGHLIGHT: This paper presents SpeeLFC, a structured probabilistic model that incorporates the constraints of probability axioms for parameters of the crowd layer, which allows to explicitly model annotator reliability while benefiting from the end-to-end training of neural networks.
- 211, TITLE: LISNN: Improving Spiking Neural Networks with Lateral Interactions for Robust Object Recognition
<https://www.ijcai.org/proceedings/2020/211>
AUTHORS: Xiang Cheng, Yunzhe Hao, Jiaming Xu, Bo Xu
HIGHLIGHT: Inspired by Lateral Interactions in neuroscience, we propose a high-performance and noise-robust Spiking Neural Network (dubbed LISNN).
- 212, TITLE: Learning to Complement Humans
<https://www.ijcai.org/proceedings/2020/212>
AUTHORS: Bryan Wilder, Eric Horvitz, Ece Kamar
HIGHLIGHT: We demonstrate how an end-to-end learning strategy can be harnessed to optimize the combined performance of human-machine teams by considering the distinct abilities of people and machines.
- 213, TITLE: Performance as a Constraint: An Improved Wisdom of Crowds Using Performance Regularization
<https://www.ijcai.org/proceedings/2020/213>
AUTHORS: Jiyi Li, Yasushi Kawase, Yukino Baba, Hisashi Kashima
HIGHLIGHT: In this paper, we propose to utilize the worker performance as a global constraint for inferring the true answers.
- 214, TITLE: Aggregating Crowd Wisdom with Side Information via a Clustering-based Label-aware Autoencoder
<https://www.ijcai.org/proceedings/2020/214>
AUTHORS: Li'ang Yin, Yunfei Liu, Weinan Zhang, Yong Yu
HIGHLIGHT: In this paper, we propose a clustering-based label-aware autoencoder (CLA) to alleviate label noise.
- 215, TITLE: Incorporating Failure Events in Agents' Decision Making to Improve User Satisfaction
<https://www.ijcai.org/proceedings/2020/215>
AUTHORS: David Sarne, Chen Rozenshtein
HIGHLIGHT: In particular, we focus on the way an agent's failures should affect its decision making, as far as user satisfaction measures are concerned.
- 217, TITLE: Optimal Complex Task Assignment in Service Crowdsourcing
<https://www.ijcai.org/proceedings/2020/217>
AUTHORS: Feilong Tang
HIGHLIGHT: In this paper, we investigate how to realize optimal complex task assignment.
- 218, TITLE: Learning Regional Attention Convolutional Neural Network for Motion Intention Recognition Based on EEG Data
<https://www.ijcai.org/proceedings/2020/218>
AUTHORS: Zhijie Fang, Weiqun Wang, Shixin Ren, Jiaying Wang, Weiguo Shi, Xu Liang, Chen-Chen Fan, Zeng-Guang Hou
HIGHLIGHT: In this paper, we propose a novel regional attention convolutional neural network (RACNN) to take full advantage of spectral-spatial-temporal features for EEG motion intention recognition.

- 219, TITLE: Improving Knowledge Tracing via Pre-training Question Embeddings
<https://www.ijcai.org/proceedings/2020/219>
AUTHORS: Yunfei Liu, Yang Yang, Xianyu Chen, Jian Shen, Haifeng Zhang, Yong Yu
HIGHLIGHT: In this paper, we demonstrate that large gains on KT can be realized by pre-training embeddings for each question on abundant side information, followed by training deep KT models on the obtained embeddings.
- 220, TITLE: Boolean Games: Inferring Agents' Goals Using Taxation Queries
<https://www.ijcai.org/proceedings/2020/220>
AUTHORS: Abhijin Adiga, Sarit Kraus, Oleg Maksimov, S. S. Ravi
HIGHLIGHT: We present algorithms that show how taxation schemes can also be used to infer agents' goals.
- 221, TITLE: Pitfalls of Learning a Reward Function Online
<https://www.ijcai.org/proceedings/2020/221>
AUTHORS: Stuart Armstrong, Jan Leike, Laurent Orseau, Shane Legg
HIGHLIGHT: We consider a continual ("one life") learning approach where the agent both learns the reward function and optimises for it at the same time. We show that this comes with a number of pitfalls, such as deliberately manipulating the learning process in one direction, refusing to learn, "learning" facts already known to the agent, and making decisions that are strictly dominated (for all relevant reward functions).
- 222, TITLE: A Dataset Complexity Measure for Analogical Transfer
<https://www.ijcai.org/proceedings/2020/222>
AUTHORS: Fadi Badra
HIGHLIGHT: To alleviate this problem, this paper presents a dataset complexity measure that can be used either to select an optimal similarity measure, or if the similarity measure is given, to perform analogical transfer: among the potential outcomes of a new situation, the most plausible is the one which minimizes the dataset complexity.
- 223, TITLE: Answering Counting Queries over DL-Lite Ontologies
<https://www.ijcai.org/proceedings/2020/223>
AUTHORS: Meghyn Bienvenu, Quentin Manière, Michaël Thomazo
HIGHLIGHT: In this paper, we introduce a general form of counting query, relate it to previous proposals, and study the complexity of answering such queries in the presence of DL-Lite ontologies.
- 224, TITLE: Implementing Theory of Mind on a Robot Using Dynamic Epistemic Logic
<https://www.ijcai.org/proceedings/2020/224>
AUTHORS: Lasse Dissing, Thomas Bolander
HIGHLIGHT: This paper provides evidence for the claims by documenting the implementation of a DEL-based reasoning system on a humanoid robot.
- 225, TITLE: Maximizing the Spread of an Opinion in Few Steps: Opinion Diffusion in Non-Binary Networks
<https://www.ijcai.org/proceedings/2020/225>
AUTHORS: Robert Brederbeck, Lilian Jacobs, Leon Kellerhals
HIGHLIGHT: We consider the setting of asynchronous opinion diffusion with majority threshold: given a social network with each agent assigned to one opinion, an agent will update its opinion if more than half of its neighbors agree on a different opinion.
- 226, TITLE: Diagnosing Software Faults Using Multiverse Analysis
<https://www.ijcai.org/proceedings/2020/226>
AUTHORS: Prantik Chatterjee, Abhijit Chatterjee, Jose Campos, Rui Abreu, Subhajit Roy
HIGHLIGHT: In this work, we propose a different approach, Multiverse Analysis, that considers multiple hypothetical universes, each corresponding to a scenario where one of the components is assumed to be faulty, to generate a spectrum that attempts to reduce the expected worst-case wasted effort over all the universes.
- 227, TITLE: Deductive Module Extraction for Expressive Description Logics
<https://www.ijcai.org/proceedings/2020/227>
AUTHORS: Patrick Koopmann, Jieying Chen
HIGHLIGHT: We present methods based on uniform interpolation for extracting different variants of deductive modules, satisfying properties such as completeness, minimality and robustness under replacements, the latter being particularly relevant for ontology reuse.
- 228, TITLE: Neural Entity Summarization with Joint Encoding and Weak Supervision
<https://www.ijcai.org/proceedings/2020/228>
AUTHORS: Junyong Li, Gong Cheng, Qingxia Liu, Wen Zhang, Evgeny Kharlamov, Kalpa Gunaratna, Huajun Chen

HIGHLIGHT: In this paper, we present a supervised approach NEST that is based on our novel neural model to jointly encode graph structure and text in KGs and generate high-quality diversified summaries.

229, **TITLE:** Switch-List Representations in a Knowledge Compilation Map

<https://www.ijcai.org/proceedings/2020/229>

AUTHORS: Ondřej Štepek, Miloš Chromý

HIGHLIGHT: In this paper we focus on a less usual way to represent Boolean functions, namely on representations by switch-lists.

230, **TITLE:** Counting Query Answers over a DL-Lite Knowledge Base

<https://www.ijcai.org/proceedings/2020/230>

AUTHORS: Diego Calvanese, Julien Corman, Davide Lanti, Simon Razniewski

HIGHLIGHT: In this paper we focus on counting answers over a Knowledge Base (KB), which may be viewed as a database enriched with background knowledge about the domain under consideration.

231, **TITLE:** Deep Learning for Abstract Argumentation Semantics

<https://www.ijcai.org/proceedings/2020/231>

AUTHORS: Dennis Craandijk, Floris Bex

HIGHLIGHT: In this paper, we present a learning-based approach to determining acceptance of arguments under several abstract argumentation semantics.

232, **TITLE:** Synthesizing strategies under expected and exceptional environment behaviors

<https://www.ijcai.org/proceedings/2020/232>

AUTHORS: Benjamin Aminof, Giuseppe De Giacomo, Alessio Lomuscio, Aniello Murano, Sasha Rubin

HIGHLIGHT: We formalize these concepts in the context of linear-temporal logic, and give an algorithm for solving this problem.

233, **TITLE:** A Framework for Reasoning about Dynamic Axioms in Description Logics

<https://www.ijcai.org/proceedings/2020/233>

AUTHORS: Bartosz Bednarczyk, Stephane Demri, Alessio Mansutti

HIGHLIGHT: In the paper, we focus on ALC and EL augmented with dynamic axioms, or to their subclass of positive dynamic axioms.

234, **TITLE:** Overcoming the Grounding Bottleneck Due to Constraints in ASP Solving: Constraints Become Propagators

<https://www.ijcai.org/proceedings/2020/234>

AUTHORS: Bernardo Cuteri, Carmine Dodaro, Francesco Ricca, Peter Schüller

HIGHLIGHT: In this paper, we develop an innovative approach for evaluating ASP programs, where some of the constraints of the input program are not grounded but automatically translated into propagators of the CDCL algorithm that work on partial interpretations.

235, **TITLE:** A Logic of Directions

<https://www.ijcai.org/proceedings/2020/235>

AUTHORS: Heshan Du, Natasha Alechina, Anthony G. Cohn

HIGHLIGHT: We propose a logic of directions for points (LD) over 2D Euclidean space, which formalises primary direction relations east (E), west (W), and indeterminate east/west (Iew), north (N), south (S) and indeterminate north/south (Ins).

236, **TITLE:** Automatic Synthesis of Generalized Winning Strategies of Impartial Combinatorial Games Using SMT Solvers

<https://www.ijcai.org/proceedings/2020/236>

AUTHORS: Kaisheng Wu, Liangda Fang, Liping Xiong, Zhao-Rong Lai, Yong Qiao, Kaidong Chen, Fei Rong

HIGHLIGHT: In this paper, we investigate synthesizing generalized winning strategies for ICGs.

237, **TITLE:** Revisiting the Notion of Extension over Incomplete Abstract Argumentation Frameworks

<https://www.ijcai.org/proceedings/2020/237>

AUTHORS: Bettina Fazzinga, Sergio Flesca, Filippo Furfaro

HIGHLIGHT: Thus, we introduce the alternative notion of i^* -extension overcoming the highlighted problems, and provide a thorough complexity characterization of the corresponding verification problem.

238, **TITLE:** All-Instances Oblivious Chase Termination is Undecidable for Single-Head Binary TGDs

<https://www.ijcai.org/proceedings/2020/238>

AUTHORS: Bartosz Bednarczyk, Robert Ferens, Piotr Ostropolski-Nalewaja

HIGHLIGHT: In this work, we show that undecidability occurs already for sets of single-head TGD over binary vocabularies.

239, **TITLE:** Semantic Width and the Fixed-Parameter Tractability of Constraint Satisfaction Problems

<https://www.ijcai.org/proceedings/2020/239>

AUTHORS: Hubie Chen, Georg Gottlob, Matthias Lanzinger, Reinhard Pichler

HIGHLIGHT: The presented work resolves a long-standing open problem and yields powerful new tools for complexity research in AI and database theory.

240, **TITLE:** Smart Voting

<https://www.ijcai.org/proceedings/2020/240>

AUTHORS: Rachael Colley, Umberto Grandi, Arianna Novaro

HIGHLIGHT: We propose a generalisation of liquid democracy in which a voter can either vote directly on the issues at stake, delegate her vote to another voter, or express complex delegations to a set of trusted voters.

241, **TITLE:** The Complexity Landscape of Resource-Constrained Scheduling

<https://www.ijcai.org/proceedings/2020/241>

AUTHORS: Robert Ganian, Thekla Hamm, Guillaume Mescoff

HIGHLIGHT: In the first part of our paper, we develop new algorithms and give hardness-proofs in order to obtain a detailed complexity map of (M)RCSP that settles the complexity of all 1024 considered variants of the problem defined in terms of explicit restrictions of natural parameters of instances.

242, **TITLE:** Enriching Documents with Compact, Representative, Relevant Knowledge Graphs

<https://www.ijcai.org/proceedings/2020/242>

AUTHORS: Shuxin Li, Zixian Huang, Gong Cheng, Evgeny Kharlamov, Kalpa Gunaratna

HIGHLIGHT: To find compact, representative, and relevant ERGs for effective enrichment, we propose an efficient best-first search algorithm to solve a new combinatorial optimization problem that achieves a trade-off between representativeness and compactness, and then we exploit ontological knowledge to rank ERGs by entity-based document-KG and intra-KG relevance.

243, **TITLE:** NeurASP: Embracing Neural Networks into Answer Set Programming

<https://www.ijcai.org/proceedings/2020/243>

AUTHORS: Zhun Yang, Adam Ishay, Joohyung Lee

HIGHLIGHT: We present NeurASP, a simple extension of answer set programs by embracing neural networks.

244, **TITLE:** Belief Merging Operators as Maximum Likelihood Estimators

<https://www.ijcai.org/proceedings/2020/244>

AUTHORS: Patricia Everaere, Sebastien Konieczny, Pierre Marquis

HIGHLIGHT: In this paper, some logical connections between the rationality postulates for belief merging (IC postulates) and simple conditions over the noise model under consideration are exhibited.

245, **TITLE:** On Computational Aspects of Iterated Belief Change

<https://www.ijcai.org/proceedings/2020/245>

AUTHORS: Nicolas Schwind, Sebastien Konieczny, Jean-Marie Lagniez, Pierre Marquis

HIGHLIGHT: This paper focuses on the inference problem for iterated belief change, when belief states are represented as a special kind of stratified belief bases.

246, **TITLE:** Rewriting the Description Logic ALCHIQ to Disjunctive Existential Rules

<https://www.ijcai.org/proceedings/2020/246>

AUTHORS: David Carral, Markus Krötzsch

HIGHLIGHT: We therefore develop small rewritings for the DL \backslash ALCHIQ -- featuring disjunction, number restrictions, and inverse roles -- to disjunctive Datalog.

247, **TITLE:** Lower Bounds and Faster Algorithms for Equality Constraints

<https://www.ijcai.org/proceedings/2020/247>

AUTHORS: Peter Jonsson, Victor Lagerkvist

HIGHLIGHT: We study the fine-grained complexity of NP-complete, infinite-domain constraint satisfaction problems (CSPs) parameterised by a set of first-order definable relations (with equality).

248, **TITLE:** Controlled Query Evaluation in Description Logics Through Instance Indistinguishability

<https://www.ijcai.org/proceedings/2020/248>

AUTHORS: Gianluca Cima, Domenico Lembo, Riccardo Rosati, Domenico Fabio Savo

HIGHLIGHT: Specifically, we consider the approach of controlled query evaluation (CQE) based on the notion of instance indistinguishability.

249, **TITLE:** On the Decidability of Intuitionistic Tense Logic without Disjunction

<https://www.ijcai.org/proceedings/2020/249>

AUTHORS: Fei Liang, Zhe Lin

HIGHLIGHT: In this paper, we consider the variety IST of the expansions of implicative semi-lattices with tense modal operators, which are algebraic models of the disjunction-free fragment of intuitionistic tense logic.

250, **TITLE:** A Modal Logic for Joint Abilities under Strategy Commitments

<https://www.ijcai.org/proceedings/2020/250>

AUTHORS: Zhaoshuai Liu, Liping Xiong, Yongmei Liu, Yves Lespérance, Ronghai Xu, Hongyi Shi

HIGHLIGHT: In this paper, we propose JAADL, a modal logic for joint abilities under strategy commitments, which is an extension of ATL.

251, **TITLE:** On Robustness in Qualitative Constraint Networks

<https://www.ijcai.org/proceedings/2020/251>

AUTHORS: Michael Sioutis, Zhiguo Long, Tomi Janhunen

HIGHLIGHT: We introduce and study a notion of robustness in Qualitative Constraint Networks (QCNs), which are typically used to represent and reason about abstract spatial and temporal information.

252, **TITLE:** Cone Semantics for Logics with Negation

<https://www.ijcai.org/proceedings/2020/252>

AUTHORS: Zhenyu Li, Meng Wang, Zhenyu Li, Mena Leemhuis, Diedrich Wolter

HIGHLIGHT: This paper presents an embedding of ontologies expressed in the ALC description logic into a real-valued vector space, comprising restricted existential and universal quantifiers, as well as concept negation and concept disjunction.

253, **TITLE:** A Journey into Ontology Approximation: From Non-Horn to Horn

<https://www.ijcai.org/proceedings/2020/253>

AUTHORS: Anneke Haga, Carsten Lutz, Johannes Marti, Frank Wolter

HIGHLIGHT: We study complete approximations of an ontology formulated in a non-Horn description logic (DL) such as ALC in a Horn DL such as EL.

254, **TITLE:** Lower Bounds for Approximate Knowledge Compilation

<https://www.ijcai.org/proceedings/2020/254>

AUTHORS: Alexis de Colnet, Stefan Mengel

HIGHLIGHT: In this paper we formalize two notions of approximation: weak approximation which has been studied before in the decision diagram literature and strong approximation which has been used in recent algorithmic results.

255, **TITLE:** A Fully Rational Account of Structured Argumentation Under Resource Bounds

<https://www.ijcai.org/proceedings/2020/255>

AUTHORS: Marcello D'Agostino, Sanjay Modgil

HIGHLIGHT: In this paper we present a new version of ASPIC+ – Dialectical ASPIC+ – that is fully rational under resource bounds.

256, **TITLE:** Solving Analogies on Words based on Minimal Complexity Transformation

<https://www.ijcai.org/proceedings/2020/256>

AUTHORS: Pierre-Alexandre Murena, Marie Al-Ghossein, Jean-Louis Dessalles, Antoine Cornu

HIGHLIGHT: In this paper, we propose an alternative approach, based on the assumption that optimal word inflections are transformations of minimal complexity.

257, **TITLE:** Controllability of Control Argumentation Frameworks

<https://www.ijcai.org/proceedings/2020/257>

AUTHORS: Andreas Niskanen, Daniel Neugebauer, Matti Järvisalo

HIGHLIGHT: We establish a complete computational complexity map of the central computational problem of controllability in CAFs for five key semantics.

258, **TITLE:** Provenance for the Description Logic ELHr

<https://www.ijcai.org/proceedings/2020/258>

AUTHORS: Camille Bourgaux, Ana Ozaki, Rafael Penaloza, Livia Predoiu

- HIGHLIGHT: We address the problem of handling provenance information in ELHr ontologies.
- 259, TITLE: On the Learnability of Possibilistic Theories
<https://www.ijcai.org/proceedings/2020/259>
AUTHORS: Cosimo Persia, Ana Ozaki
HIGHLIGHT: We investigate learnability of possibilistic theories from entailments in light of Angluin’s exact learning model.
- 260, TITLE: Concurrent Games in Dynamic Epistemic Logic
<https://www.ijcai.org/proceedings/2020/260>
AUTHORS: Bastien Maubert, Sophie Pinchinat, Francois Schwarzentruber, Silvia Stranieri
HIGHLIGHT: In this work we define a concurrent DEL product, propose a mechanism to resolve conflicts between actions, and define concurrent DEL games.
- 261, TITLE: Model-Based Synthesis of Incremental and Correct Estimators for Discrete Event Systems
<https://www.ijcai.org/proceedings/2020/261>
AUTHORS: Stéphanie Roussel, Xavier Pucel, Valentin Bouziat, Louise Travé-Massuyès
HIGHLIGHT: In this paper, we show that single-state trackability can be expressed in terms of the simulation relation between automata.
- 262, TITLE: Inconsistency Measurement for Improving Logical Formula Clustering
<https://www.ijcai.org/proceedings/2020/262>
AUTHORS: Yakoub Salhi
HIGHLIGHT: This study proposes an approach for defining clustering methods that deal with bases of propositional formulas in classical logic, i.e., methods for dividing formula bases into meaningful groups.
- 263, TITLE: Threshold Treewidth and Hypertree Width
<https://www.ijcai.org/proceedings/2020/263>
AUTHORS: Robert Ganian, Andre Schidler, Manuel Sorge, Stefan Szeider
HIGHLIGHT: Here we introduce an enhancement of tree and hypertree width through a novel notion of thresholds, allowing the associated decompositions to take into account information about the computational costs associated with solving the given CSP instance.
- 264, TITLE: Adversarial Oracular Seq2seq Learning for Sequential Recommendation
<https://www.ijcai.org/proceedings/2020/264>
AUTHORS: Pengyu Zhao, Tianxiao Shui, Yuanxing Zhang, Kecheng Xiao, Kaigui Bian
HIGHLIGHT: In this paper, we introduce the Adversarial Oracular Seq2seq learning for sequential Recommendation (AOS4Rec), which formulates the sequential recommendation as a seq2seq learning problem to portray time-varying interactions in the recommendation, and exploits the oracular learning and adversarial learning to enhance the recommendation quality.
- 265, TITLE: Ranking Semantics for Argumentation Systems With Necessities
<https://www.ijcai.org/proceedings/2020/265>
AUTHORS: Dragan Doder, Srdjan Vesic, Madalina Croitoru
HIGHLIGHT: To this end, we (1) provide a set of postulates specifically designed for necessities and (2) propose the first ranking-based semantics in the literature to be shown to respect these postulates.
- 266, TITLE: Tractable Fragments of Datalog with Metric Temporal Operators
<https://www.ijcai.org/proceedings/2020/266>
AUTHORS: Przemysław A. Ważg, Bernardo Cuenca Grau, Mark Kaminski, Egor V. Kostylev
HIGHLIGHT: Intractability prompts us to also limit the kinds of temporal operators allowed in rules, and we propose a practical core fragment for which reasoning becomes TC0-complete.
- 267, TITLE: Reasoning Like Human: Hierarchical Reinforcement Learning for Knowledge Graph Reasoning
<https://www.ijcai.org/proceedings/2020/267>
AUTHORS: Guojia Wan, Shirui Pan, Chen Gong, Chuan Zhou, Gholamreza Haffari
HIGHLIGHT: In order to deal with the situation, we propose a novel Hierarchical Reinforcement Learning framework to learn chains of reasoning from a Knowledge Graph automatically.
- 268, TITLE: Query Answering for Existential Rules via Efficient Datalog Rewriting
<https://www.ijcai.org/proceedings/2020/268>
AUTHORS: Zhe Wang, Peng Xiao, Kewen Wang, Zhiqiang Zhuang, Hai Wan

HIGHLIGHT: In this paper, we fill the gap by proposing an efficient datalog rewriting approach for answering conjunctive queries over existential rules, and identify and combine existing fragments of existential rules for which our rewriting method terminates.

269, **TITLE:** Model-theoretic Characterizations of Existential Rule Languages

<https://www.ijcai.org/proceedings/2020/269>

AUTHORS: Heng Zhang, Yan Zhang, Guifei Jiang

HIGHLIGHT: Towards a deep understanding of these languages in model theory, we establish model-theoretic characterizations for a number of existential rule languages such as (disjunctive) embedded dependencies, tuple-generating dependencies (TGDs), (frontier-)guarded TGDs and linear TGDs.

270, **TITLE:** Learning and Solving Regular Decision Processes

<https://www.ijcai.org/proceedings/2020/270>

AUTHORS: Eden Abadi, Ronen I. Brafman

HIGHLIGHT: Our approach rests on a new representation for RDPs using Mealy Machines that emit a distribution and an expected reward for each state-action pair. Building on this representation, we combine automata learning techniques with history clustering to learn such a Mealy machine and solve it by adapting MCTS to it.

271, **TITLE:** Stabilizing Adversarial Invariance Induction from Divergence Minimization Perspective

<https://www.ijcai.org/proceedings/2020/271>

AUTHORS: Yusuke Iwasawa, Kei Akuzawa, Yutaka Matsuo

HIGHLIGHT: This paper presents an analysis of the reasons for the optimization difficulties and provides a better optimization procedure by rethinking AII from a divergence minimization perspective.

272, **TITLE:** Learning With Subquadratic Regularization : A Primal-Dual Approach

<https://www.ijcai.org/proceedings/2020/272>

AUTHORS: Raman Sankaran, Francis Bach, Chiranjib Bhattacharyya

HIGHLIGHT: In this paper, we study the computational aspects of learning with subquadratic norms in a general setup.

273, **TITLE:** Learning Interpretable Representations with Informative Entanglements

<https://www.ijcai.org/proceedings/2020/273>

AUTHORS: Ege Beyazıt, Doruk Tuncel, Xu Yuan, Nian-Feng Tzeng, Xindong Wu

HIGHLIGHT: In this paper, we propose a new method to enable Generative Adversarial Networks (GANs) to discover salient features that may be entangled in an informative manner, instead of extracting only disentangled features.

274, **TITLE:** Order-Dependent Event Models for Agent Interactions

<https://www.ijcai.org/proceedings/2020/274>

AUTHORS: Debarun Bhattacharjya, Tian Gao, Dharmashankar Subramanian

HIGHLIGHT: We propose an algorithm to discover these causal events and learn the most influential orders using time-stamped event occurrence data.

275, **TITLE:** Neural Representation and Learning of Hierarchical 2-additive Choquet Integrals

<https://www.ijcai.org/proceedings/2020/275>

AUTHORS: Roman Bresson, Johanne Cohen, Eyke Hellermeier, Christophe Labreuche, Michèle Sebag

HIGHLIGHT: The paper presents a machine learning-based approach for the automatic identification of hierarchical MCDM models, composed of 2-additive Choquet integral aggregators and of marginal utility functions on the raw features from data reflecting expert preferences.

276, **TITLE:** Reinforcement Learning with Dynamic Boltzmann Softmax Updates

<https://www.ijcai.org/proceedings/2020/276>

AUTHORS: Ling Pan, Qingpeng Cai, Qi Meng, Wei Chen, Longbo Huang

HIGHLIGHT: In this paper, we propose to update the value function with dynamic Boltzmann softmax (DBS) operator, which has good convergence property in the setting of planning and learning.

277, **TITLE:** A New Attention Mechanism to Classify Multivariate Time Series

<https://www.ijcai.org/proceedings/2020/277>

AUTHORS: Yifan Hao, Huiping Cao

HIGHLIGHT: To address these aforementioned issues, we propose a novel Cross Attention Stabilized Fully Convolutional Neural Network (CA-SFCN) to classify MTS data.

- 278, TITLE: Explainable Inference on Sequential Data via Memory-Tracking
<https://www.ijcai.org/proceedings/2020/278>
AUTHORS: Biagio La Rosa, Roberto Capobianco, Daniele Nardi
HIGHLIGHT: In this paper we present a novel mechanism to get explanations that allow to better understand network predictions when dealing with sequential data.
- 279, TITLE: Positive Unlabeled Learning with Class-prior Approximation
<https://www.ijcai.org/proceedings/2020/279>
AUTHORS: Shizhen Chang, Bo Du, Liangpei Zhang
HIGHLIGHT: In this paper, we formulate a convex formulation to jointly solve the class-prior unknown problem and train an accurate classifier with no need of any class-prior assumptions or additional negative samples.
- 280, TITLE: IR-VIC: Unsupervised Discovery of Sub-goals for Transfer in RL
<https://www.ijcai.org/proceedings/2020/280>
AUTHORS: Nirbhay Modhe, Prithvijit Chattopadhyay, Mohit Sharma, Abhishek Das, Devi Parikh, Dhruv Batra, Ramakrishna Vedantam
HIGHLIGHT: We propose a novel framework to identify sub-goals useful for exploration in sequential decision making tasks under partial observability.
- 281, TITLE: Switching Poisson Gamma Dynamical Systems
<https://www.ijcai.org/proceedings/2020/281>
AUTHORS: Wenchao Chen, Bo Chen, Yicheng Liu, Qianru Zhao, Mingyuan Zhou
HIGHLIGHT: We propose Switching Poisson gamma dynamical systems (SPGDS) to model sequentially observed multivariate count data.
- 282, TITLE: Variational Learning of Bayesian Neural Networks via Bayesian Dark Knowledge
<https://www.ijcai.org/proceedings/2020/282>
AUTHORS: Gehui Shen, Xi Chen, Zhihong Deng
HIGHLIGHT: In this paper, we aim to combine the advantages of above two methods by distilling MCMC samples into an approximate variational posterior.
- 283, TITLE: Bayesian Decision Process for Budget-efficient Crowdsourced Clustering
<https://www.ijcai.org/proceedings/2020/283>
AUTHORS: Xiaozhou Wang, Xi Chen, Qihang Lin, Weidong Liu
HIGHLIGHT: We propose an optimistic knowledge gradient policy where the assignment of items in each stage is based on the minimum-weight K-cut defined on a similarity graph.
- 284, TITLE: An Online Learning Framework for Energy-Efficient Navigation of Electric Vehicles
<https://www.ijcai.org/proceedings/2020/284>
AUTHORS: Niklas & Aring;kerblom, Yuxin Chen, Morteza Haghiri Chehreghani
HIGHLIGHT: We employ a Bayesian approach to model the energy consumption at road segments for efficient navigation.
- 285, TITLE: Compressed Self-Attention for Deep Metric Learning with Low-Rank Approximation
<https://www.ijcai.org/proceedings/2020/285>
AUTHORS: Ziye Chen, Mingming Gong, Lingjuan Ge, Bo Du
HIGHLIGHT: In this paper, we apply self-attention (SA) mechanism to boost the performance of deep metric learning.
- 286, TITLE: Flow-based Intrinsic Curiosity Module
<https://www.ijcai.org/proceedings/2020/286>
AUTHORS: Hsuan-Kung Yang, Po-Han Chiang, Min-Fong Hong, Chun-Yi Lee
HIGHLIGHT: In this paper, we focus on a prediction-based novelty estimation strategy upon the deep reinforcement learning (DRL) framework, and present a flow-based intrinsic curiosity module (FICM) to exploit the prediction errors from optical flow estimation as exploration bonuses.
- 287, TITLE: Learning Large Logic Programs By Going Beyond Entailment
<https://www.ijcai.org/proceedings/2020/287>
AUTHORS: Andrew Cropper, Sebastijan Duman?ic
HIGHLIGHT: We implement our idea in Brute, a new ILP system which uses best-first search, guided by an example-dependent loss function, to incrementally build programs.

- 288, TITLE: Fully Nested Neural Network for Adaptive Compression and Quantization
<https://www.ijcai.org/proceedings/2020/288>
AUTHORS: Yufei Cui, Ziquan Liu, Wuguannan Yao, Qiao Li, Antoni B. Chan, Tei-wei Kuo, Chun Jason Xue
HIGHLIGHT: In this work, we propose a fully nested neural network (FN3) that runs only once to build a nested set of compressed/quantized models, which is optimal for different resource constraints.
- 289, TITLE: SI-VDNAS: Semi-Implicit Variational Dropout for Hierarchical One-shot Neural Architecture Search
<https://www.ijcai.org/proceedings/2020/289>
AUTHORS: Yaoming Wang, Wenrui Dai, Chenglin Li, Junni Zou, Hongkai Xiong
HIGHLIGHT: In this paper, we propose a novel probabilistic approach, namely Semi-Implicit Variational Dropout one-shot Neural Architecture Search (SI-VDNAS), that leverages semi-implicit variational dropout to support architecture search with variable operations and edges.
- 290, TITLE: Potential Driven Reinforcement Learning for Hard Exploration Tasks
<https://www.ijcai.org/proceedings/2020/290>
AUTHORS: Enmin Zhao, Shihong Deng, Yifan Zang, Yongxin Kang, Kai Li, Junliang Xing
HIGHLIGHT: Inspired by the potential energy in physics, this work introduces the artificial potential field into experience replay and develops Potentialized Experience Replay (PotER) as a new and effective sampling algorithm for RL in hard exploration tasks with sparse rewards.
- 291, TITLE: The Sparse MinMax k-Means Algorithm for High-Dimensional Clustering
<https://www.ijcai.org/proceedings/2020/291>
AUTHORS: Sayak Dey, Swagatam Das, Rammohan Mallipeddi
HIGHLIGHT: We propose a Sparse MinMax k-Means Clustering approach by reformulating the objective of the MinMax k-Means algorithm (a variation of classical k-Means that minimizes the maximum intra-cluster variance instead of the sum of intra-cluster variances), into a new weighted between-cluster sum of squares (BCSS) form.
- 292, TITLE: Direct Quantization for Training Highly Accurate Low Bit-width Deep Neural Networks
<https://www.ijcai.org/proceedings/2020/292>
AUTHORS: Tuan Hoang, Thanh-Toan Do, Tam V. Nguyen, Ngai-Man Cheung
HIGHLIGHT: This paper proposes two novel techniques to train deep convolutional neural networks with low bit-width weights and activations.
- 293, TITLE: Marthe: Scheduling the Learning Rate Via Online Hypergradients
<https://www.ijcai.org/proceedings/2020/293>
AUTHORS: Michele Donini, Luca Franceschi, Orchid Majumder, Massimiliano Pontil, Paolo Frasconi
HIGHLIGHT: Based on this, we introduce MARTHE, a novel online algorithm guided by cheap approximations of the hypergradient that uses past information from the optimization trajectory to simulate future behaviour.
- 294, TITLE: Coloring Graph Neural Networks for Node Disambiguation
<https://www.ijcai.org/proceedings/2020/294>
AUTHORS: George Dasoulas, Ludovic Dos Santos, Kevin Scaman, Aladin Virmaux
HIGHLIGHT: In this paper, we show that a simple coloring scheme can improve, both theoretically and empirically, the expressive power of Message Passing Neural Networks (MPNNs).
- 295, TITLE: Self-paced Consensus Clustering with Bipartite Graph
<https://www.ijcai.org/proceedings/2020/295>
AUTHORS: Peng Zhou, Liang Du, Xuejun Li
HIGHLIGHT: To tackle this problem, we propose a novel self-paced consensus clustering method to gradually involve instances from more reliable to less reliable ones into the ensemble learning.
- 296, TITLE: Handling Black Swan Events in Deep Learning with Diversely Extrapolated Neural Networks
<https://www.ijcai.org/proceedings/2020/296>
AUTHORS: Maxime Wabartha, Audrey Durand, Vincent Franccedilois-Lavet, Joelle Pineau
HIGHLIGHT: To avoid this pitfall, we introduce DENN, an ensemble approach building a set of Diversely Extrapolated Neural Networks that fits the training data and is able to generalize more diversely when extrapolating to novel data points.
- 297, TITLE: Non-monotone DR-submodular Maximization over General Convex Sets
<https://www.ijcai.org/proceedings/2020/297>
AUTHORS: Christoph Durr, Nguyen Kim Thang, Abhinav Srivastav, Léo Tible

HIGHLIGHT: In this paper, we show that for maximizing non-monotone DR-submodular functions over a general convex set (such as up-closed convex sets, conic convex set, etc) the Frank-Wolfe algorithm achieves an approximation guarantee which depends on the convex set.

298, **TITLE:** Learning from Few Positives: a Provably Accurate Metric Learning Algorithm to Deal with Imbalanced Data
<https://www.ijcai.org/proceedings/2020/298>

AUTHORS: Rami Viola, Emonet, Amaury Habrard, Guillaume Metzler, Marc Sebban

HIGHLIGHT: Learning from imbalanced data, where the positive examples are very scarce, remains a challenging task from both a theoretical and algorithmic perspective. In this paper, we address this problem using a metric learning strategy.

299, **TITLE:** Metric Learning in Optimal Transport for Domain Adaptation

<https://www.ijcai.org/proceedings/2020/299>

AUTHORS: Tanguy Kerdoncuff, Emonet, Marc Sebban

HIGHLIGHT: In this paper, we propose to use Optimal Transport (OT) and its associated Wasserstein distance to perform this alignment.

300, **TITLE:** Memory Augmented Neural Model for Incremental Session-based Recommendation

<https://www.ijcai.org/proceedings/2020/300>

AUTHORS: Fei Mi, Boi Faltings

HIGHLIGHT: More importantly, we propose a general framework called Memory Augmented Neural model (MAN).

301, **TITLE:** Decorrelated Clustering with Data Selection Bias

<https://www.ijcai.org/proceedings/2020/301>

AUTHORS: Xiao Wang, Shaohua Fan, Kun Kuang, Chuan Shi, Jiawei Liu, Bai Wang

HIGHLIGHT: In this paper, we propose a novel Decorrelation regularized K-Means algorithm (DCKM) for clustering with data selection bias.

302, **TITLE:** Location Prediction over Sparse User Mobility Traces Using RNNs: Flashback in Hidden States!

<https://www.ijcai.org/proceedings/2020/302>

AUTHORS: Dingqi Yang, Benjamin Fankhauser, Paolo Rosso, Philippe Cudre-Mauroux

HIGHLIGHT: Against this background, we propose Flashback, a general RNN architecture designed for modeling sparse user mobility traces by doing flashbacks on hidden states in RNNs.

303, **TITLE:** Knowledge Hypergraphs: Prediction Beyond Binary Relations

<https://www.ijcai.org/proceedings/2020/303>

AUTHORS: Bahare Fatemi, Perouz Taslakian, David Vazquez, David Poole

HIGHLIGHT: In this work, we address the question of link prediction in knowledge hypergraphs where relations are defined on any number of entities.

304, **TITLE:** Solving Hard AI Planning Instances Using Curriculum-Driven Deep Reinforcement Learning

<https://www.ijcai.org/proceedings/2020/304>

AUTHORS: Dieqiao Feng, Carla Gomes, Bart Selman

HIGHLIGHT: Our approach based on deep reinforcement learning augmented with a curriculum-driven method is the first one to solve hard instances within one day of training while other modern solvers cannot solve these instances within any reasonable time limit.

305, **TITLE:** Can Cross Entropy Loss Be Robust to Label Noise?

<https://www.ijcai.org/proceedings/2020/305>

AUTHORS: Lei Feng, Senlin Shu, Zhuoyi Lin, Fengmao Lv, Li Li, Bo An

HIGHLIGHT: In this paper, we propose a general framework dubbed Taylor cross entropy loss to train deep models in the presence of label noise.

306, **TITLE:** Learning Interpretable Models in the Property Specification Language

<https://www.ijcai.org/proceedings/2020/306>

AUTHORS: Rajarshi Roy, Dana Fisman, Daniel Neider

HIGHLIGHT: We address the problem of learning human-interpretable descriptions of a complex system from a finite set of positive and negative examples of its behavior.

307, **TITLE:** Best Arm Identification in Spectral Bandits

<https://www.ijcai.org/proceedings/2020/307>

- AUTHORS: Tom Koc, Aurélien Garivier
HIGHLIGHT: Building on this algorithm, we propose an asymptotically optimal strategy.
- 308, TITLE: Effective Search of Logical Forms for Weakly Supervised Knowledge-Based Question Answering
<https://www.ijcai.org/proceedings/2020/308>
AUTHORS: Tao Shen, Xiubo Geng, Guodong Long, Jing Jiang, Chengqi Zhang, Daxin Jiang
HIGHLIGHT: In this work, we propose an effective search method for weakly supervised KBQA based on operator prediction for questions.
- 309, TITLE: Human-Driven FOL Explanations of Deep Learning
<https://www.ijcai.org/proceedings/2020/309>
AUTHORS: Gabriele Ciravegna, Francesco Giannini, Marco Gori, Marco Maggini, Stefano Melacci
HIGHLIGHT: In this paper, we focus on the case of multi-label classification, proposing a neural network that learns the relationships among the predictors associated to each class, yielding First-Order Logic (FOL)-based descriptions.
- 310, TITLE: Disentangling Direct and Indirect Interactions in Polytomous Item Response Theory Models
<https://www.ijcai.org/proceedings/2020/310>
AUTHORS: Frank Nussbaum, Joachim Giesen
HIGHLIGHT: Here, we investigate fused latent and graphical models that exhibit continuous latent variables and discrete observed variables.
- 311, TITLE: Online Positive and Unlabeled Learning
<https://www.ijcai.org/proceedings/2020/311>
AUTHORS: Chuang Zhang, Chen Gong, Tengfei Liu, Xun Lu, Weiqiang Wang, Jian Yang
HIGHLIGHT: Therefore, this paper proposes a novel positive and unlabeled learning algorithm in an online training mode, which trains a classifier solely on the positive and unlabeled data arriving in a sequential order.
- 312, TITLE: Batch Decorrelation for Active Metric Learning
<https://www.ijcai.org/proceedings/2020/312>
AUTHORS: Priyadarshini Kumari, Ritesh Goru, Siddhartha Chaudhuri, Subhasis Chaudhuri
HIGHLIGHT: In this work, we propose a novel method to decorrelate batches of triplets, that jointly balances informativeness and diversity while decoupling the choice of heuristic for each criterion.
- 313, TITLE: Fairness-Aware Neural Regression Minimization for Continuous Features
<https://www.ijcai.org/proceedings/2020/313>
AUTHORS: Vincent Grari, Sylvain Lamprier, Marcin Detyniecki
HIGHLIGHT: The objective in this paper is to ensure some independence level between the outputs of regression models and any given continuous sensitive variables.
- 314, TITLE: Towards Accurate and Robust Domain Adaptation under Noisy Environments
<https://www.ijcai.org/proceedings/2020/314>
AUTHORS: Zhongyi Han, Xian-Jin Gui, Chaoran Cui, Yilong Yin
HIGHLIGHT: In this paper, we report our attempt towards achieving accurate noise-robust domain adaptation.
- 315, TITLE: FNNC: Achieving Fairness through Neural Networks
<https://www.ijcai.org/proceedings/2020/315>
AUTHORS: Manisha Padala, Sujit Gujar
HIGHLIGHT: We propose a neural network-based framework, `\emph{FNNC}`, to achieve fairness while maintaining high accuracy in classification.
- 316, TITLE: Randomised Gaussian Process Upper Confidence Bound for Bayesian Optimisation
<https://www.ijcai.org/proceedings/2020/316>
AUTHORS: Julian Berk, Sunil Gupta, Santu Rana, Svetha Venkatesh
HIGHLIGHT: In order to improve the performance of Bayesian optimisation, we develop a modified Gaussian process upper confidence bound (GP-UCB) acquisition function.
- 317, TITLE: KoGuN: Accelerating Deep Reinforcement Learning via Integrating Human Suboptimal Knowledge
<https://www.ijcai.org/proceedings/2020/317>
AUTHORS: Peng Zhang, Jianye Hao, Weixun Wang, Hongyao Tang, Yi Ma, Yihai Duan, Yan Zheng

HIGHLIGHT: Taking this inspiration, we propose knowledge guided policy network (KoGuN), a novel framework that combines human prior suboptimal knowledge with reinforcement learning.

318, **TITLE:** Soft Threshold Ternary Networks

<https://www.ijcai.org/proceedings/2020/318>

AUTHORS: Weixiang Xu, Xiangyu He, Tianli Zhao, Qinghao Hu, Peisong Wang, Jian Cheng

HIGHLIGHT: In this paper, we present the Soft Threshold Ternary Networks (STTN), which enables the model to automatically determine quantization intervals instead of depending on a hard threshold.

319, **TITLE:** DeepView: Visualizing Classification Boundaries of Deep Neural Networks as Scatter Plots Using Discriminative Dimensionality Reduction

<https://www.ijcai.org/proceedings/2020/319>

AUTHORS: Alexander Schulz, Fabian Hinder, Barbara Hammer

HIGHLIGHT: In this paper, we propose to visualize a part of the decision function of a deep neural network together with a part of the data set in two dimensions with discriminative dimensionality reduction.

320, **TITLE:** Complete Bottom-Up Predicate Invention in Meta-Interpretive Learning

<https://www.ijcai.org/proceedings/2020/320>

AUTHORS: Céline Hocquette, Stephen H. Muggleton

HIGHLIGHT: We consider augmenting top-down MIL systems with a bottom-up step during which the background knowledge is generalised with an extension of the immediate consequence operator for second-order logic programs.

321, **TITLE:** Interpretable Models for Understanding Immersive Simulations

<https://www.ijcai.org/proceedings/2020/321>

AUTHORS: Nicholas Hoernle, Kobi Gal, Barbara Grosz, Leilah Lyons, Ada Ren, Andee Rubin

HIGHLIGHT: This paper describes methods for comparative evaluation of the interpretability of models of high dimensional time series data inferred by unsupervised machine learning algorithms.

322, **TITLE:** DropNAS: Grouped Operation Dropout for Differentiable Architecture Search

<https://www.ijcai.org/proceedings/2020/322>

AUTHORS: Weijun Hong, Guilin Li, Weinan Zhang, Ruiming Tang, Yunhe Wang, Zhenguo Li, Yong Yu

HIGHLIGHT: In this paper, we systematically study these problems and propose a novel grouped operation dropout algorithm named DropNAS to fix the problems with DARTS.

323, **TITLE:** Intention2Basket: A Neural Intention-driven Approach for Dynamic Next-basket Planning

<https://www.ijcai.org/proceedings/2020/323>

AUTHORS: Shoujin Wang, Liang Hu, Yan Wang, Quan Z. Sheng, Mehmet Orgun, Longbing Cao

HIGHLIGHT: Inspired by such psychological insights, we formalize the next-basket prediction as an Intention Recognition, Modelling and Accomplishing problem and further design the Intention2Basket (Int2Ba in short) model.

324, **TITLE:** Stochastic Batch Augmentation with An Effective Distilled Dynamic Soft Label Regularizer

<https://www.ijcai.org/proceedings/2020/324>

AUTHORS: Qian Li, Qingyuan Hu, Yong Qi, Saiyu Qi, Jie Ma, Jian Zhang

HIGHLIGHT: In this work, we propose a framework called Stochastic Batch Augmentation (SBA) to address these problems.

325, **TITLE:** Unsupervised Monocular Visual-inertial Odometry Network

<https://www.ijcai.org/proceedings/2020/325>

AUTHORS: Peng Wei, Guoliang Hua, Weibo Huang, Fanyang Meng, Hong Liu

HIGHLIGHT: By utilizing supplemental low-cost inertial measurements, and exploiting the multi-view geometric constraint and sequential constraint, an unsupervised visual-inertial odometry framework (UnVIO) is proposed in this paper.

326, **TITLE:** LSGCN: Long Short-Term Traffic Prediction with Graph Convolutional Networks

<https://www.ijcai.org/proceedings/2020/326>

AUTHORS: Rongzhou Huang, Chuyin Huang, Yubao Liu, Genan Dai, Weiyang Kong

HIGHLIGHT: In our framework, we propose a new graph attention network called cosAtt, and integrate both cosAtt and graph convolution networks (GCN) into a spatial gated block.

327, **TITLE:** Arbitrary Talking Face Generation via Attentional Audio-Visual Coherence Learning

<https://www.ijcai.org/proceedings/2020/327>

AUTHORS: Hao Zhu, Huaibo Huang, Yi Li, Aihua Zheng, Ran He

HIGHLIGHT: In this paper, we propose a novel arbitrary talking face generation framework by discovering the audio-visual coherence via the proposed Asymmetric Mutual Information Estimator (AMIE).

328, **TITLE:** Tensor-based multi-view label enhancement for multi-label learning

<https://www.ijcai.org/proceedings/2020/328>

AUTHORS: Fangwen Zhang, Xiuyi Jia, Weiwei Li

HIGHLIGHT: In view of the fact that there are many multi-view data in real-world applications, which can provide richer semantic information from different perspectives, this paper first presents a multi-view label enhancement problem and proposes a tensor-based multi-view label enhancement method, named TMV-LE.

329, **TITLE:** Privileged label enhancement with multi-label learning

<https://www.ijcai.org/proceedings/2020/329>

AUTHORS: Wenfang Zhu, Xiuyi Jia, Weiwei Li

HIGHLIGHT: In this paper, we propose a novel label enhancement method by using privileged information.

330, **TITLE:** Optimal Margin Distribution Machine for Multi-Instance Learning

<https://www.ijcai.org/proceedings/2020/330>

AUTHORS: Teng Zhang, Hai Jin

HIGHLIGHT: Inspired by this observation, we propose the multi-instance optimal margin distribution machine, which can identify the key instances via explicitly optimizing the margin distribution.

331, **TITLE:** Knowledge-Based Regularization in Generative Modeling

<https://www.ijcai.org/proceedings/2020/331>

AUTHORS: Naoya Takeishi, Yoshinobu Kawahara

HIGHLIGHT: In this paper, we propose a method to incorporate prior knowledge of feature relations into the learning of general-purpose generative models.

332, **TITLE:** Generalized Mean Estimation in Monte-Carlo Tree Search

<https://www.ijcai.org/proceedings/2020/332>

AUTHORS: Tuan Dam, Pascal Klink, Carlo D'Eramo, Jan Peters, Joni Pajarinen

HIGHLIGHT: Instead of settling for one of these value estimates, we go a step further proposing a novel backup strategy which uses the power mean operator, which computes a value between the average and maximum value.

333, **TITLE:** Logic Constrained Pointer Networks for Interpretable Textual Similarity

<https://www.ijcai.org/proceedings/2020/333>

AUTHORS: Subhadeep Maji, Rohan Kumar, Manish Bansal, Kalyani Roy, Pawan Goyal

HIGHLIGHT: In this paper, we introduce a novel pointer network based model with a sentinel gating function to align constituent chunks, which are represented using BERT.

334, **TITLE:** Learning with Labeled and Unlabeled Multi-Step Transition Data for Recovering Markov Chain from Incomplete Transition Data

<https://www.ijcai.org/proceedings/2020/334>

AUTHORS: Masahiro Kohjima, Takeshi Kurashima, Hiroyuki Toda

HIGHLIGHT: In this paper, we propose a new method that can estimate, in a unified manner, Markov chain parameters from incomplete transition data that consist of hidden transition data (data from which visited state information is partially hidden) and dropped transition data (data from which some state visits are dropped).

335, **TITLE:** Towards a Hierarchical Bayesian Model of Multi-View Anomaly Detection

<https://www.ijcai.org/proceedings/2020/335>

AUTHORS: Zhen Wang, Chao Lan

HIGHLIGHT: In this paper, we propose a novel inductive semi-supervised Bayesian multi-view anomaly detector.

336, **TITLE:** Synthesizing Aspect-Driven Recommendation Explanations from Reviews

<https://www.ijcai.org/proceedings/2020/336>

AUTHORS: Trung-Hoang Le, Hady W. Lauw

HIGHLIGHT: For more flexible, literate, and varied explanations that cover various aspects of interest, we propose to synthesize an explanation by selecting snippets from reviews to optimize representativeness and coherence.

337, **TITLE:** Convolutional Neural Networks with Compression Complexity Pooling for Out-of-Distribution Image Detection

<https://www.ijcai.org/proceedings/2020/337>

AUTHORS: Sehun Yu, Dongha Lee, Hwanjo Yu

HIGHLIGHT: In this work, we propose a novel out-of-distribution detection method termed as MALCOM, which neither uses any out-of-distribution sample nor retrains the model.

338, TITLE: Embodied Multimodal Multitask Learning

<https://www.ijcai.org/proceedings/2020/338>

AUTHORS: Devendra Singh Chaplot, Lisa Lee, Ruslan Salakhutdinov, Devi Parikh, Dhruv Batra

HIGHLIGHT: We propose a multitask model which facilitates knowledge transfer across tasks by disentangling the knowledge of words and visual attributes in the intermediate representations.

339, TITLE: Neural Tensor Model for Learning Multi-Aspect Factors in Recommender Systems

<https://www.ijcai.org/proceedings/2020/339>

AUTHORS: Huiyuan Chen, Jing Li

HIGHLIGHT: To fill this gap, we propose a novel nonlinear tensor machine, which combines deep neural networks and tensor algebra to capture nonlinear interactions among multi-aspect factors.

340, TITLE: Scalable Gaussian Process Regression Networks

<https://www.ijcai.org/proceedings/2020/340>

AUTHORS: Shibo Li, Wei Xing, Robert M. Kirby, Shandian Zhe

HIGHLIGHT: To overcome these limitations, we propose a scalable variational inference algorithm for GPRN, which not only captures the abundant posterior dependencies but also is much more efficient for massive outputs.

341, TITLE: AdaBERT: Task-Adaptive BERT Compression with Differentiable Neural Architecture Search

<https://www.ijcai.org/proceedings/2020/341>

AUTHORS: Daoyuan Chen, Yaliang Li, Minghui Qiu, Zhen Wang, Bofang Li, Bolin Ding, Hongbo Deng, Jun Huang, Wei Lin, Jingren Zhou

HIGHLIGHT: Motivated by the necessity and benefits of task-oriented BERT compression, we propose a novel compression method, AdaBERT, that leverages differentiable Neural Architecture Search to automatically compress BERT into task-adaptive small models for specific tasks.

342, TITLE: Recurrent Dirichlet Belief Networks for interpretable Dynamic Relational Data Modelling

<https://www.ijcai.org/proceedings/2020/342>

AUTHORS: Yaqiong Li, Xuhui Fan, Ling Chen, Bin Li, Zheng Yu, Scott A. Sisson

HIGHLIGHT: In this work, we leverage its interpretable modelling architecture and propose a deep dynamic probabilistic framework -- the Recurrent Dirichlet Belief Network~(Recurrent-DBN) -- to study interpretable hidden structures from dynamic relational data.

343, TITLE: Collaboration Based Multi-Label Propagation for Fraud Detection

<https://www.ijcai.org/proceedings/2020/343>

AUTHORS: Haobo Wang, Zhao Li, Jiaming Huang, Pengrui Hui, Weiwei Liu, Tianlei Hu, Gang Chen

HIGHLIGHT: To remedy these problems, this work proposes a collaboration based multi-label propagation (CMLP) algorithm.

344, TITLE: Contextualized Point-of-Interest Recommendation

<https://www.ijcai.org/proceedings/2020/344>

AUTHORS: Peng Han, Zhongxiao Li, Yong Liu, Peilin Zhao, Jing Li, Hao Wang, Shuo Shang

HIGHLIGHT: In this paper, we propose a new framework for POI recommendation, which explicitly utilizes similarity with contextual information.

345, TITLE: MaCAR: Urban Traffic Light Control via Active Multi-agent Communication and Action Rectification

<https://www.ijcai.org/proceedings/2020/345>

AUTHORS: Zhengxu Yu, Shuxian Liang, Long Wei, Zhongming Jin, Jianqiang Huang, Deng Cai, Xiaofei He, Xian-Sheng Hua

HIGHLIGHT: In this work, we propose a novel Multi-agent Communication and Action Rectification (MaCAR) framework.

346, TITLE: Hypothesis Sketching for Online Kernel Selection in Continuous Kernel Space

<https://www.ijcai.org/proceedings/2020/346>

AUTHORS: Xiao Zhang, Shizhong Liao

HIGHLIGHT: To address these issues, we propose a novel hypothesis sketching approach to online kernel selection in continuous kernel space, which has constant computational complexities at each round and enjoys a sublinear regret bound.

- 347, TITLE: Balancing Individual Preferences and Shared Objectives in Multiagent Reinforcement Learning
<https://www.ijcai.org/proceedings/2020/347>
AUTHORS: Ishan Durugkar, Elad Liebman, Peter Stone
HIGHLIGHT: We consider a framework for this setting which balances individual preferences against task rewards using a linear mixing scheme.
- 348, TITLE: Multi-label Feature Selection via Global Relevance and Redundancy Optimization
<https://www.ijcai.org/proceedings/2020/348>
AUTHORS: Jia Zhang, Yidong Lin, Min Jiang, Shaozi Li, Yong Tang, Kay Chen Tan
HIGHLIGHT: In this paper, we propose a general global optimization framework, in which feature relevance, label relevance (i.e., label correlation), and feature redundancy are taken into account, thus facilitating multi-label feature selection.
- 349, TITLE: Deep Feedback Network for Recommendation
<https://www.ijcai.org/proceedings/2020/349>
AUTHORS: Ruobing Xie, Cheng Ling, Yalong Wang, Rui Wang, Feng Xia, Leyu Lin
HIGHLIGHT: In this paper, we aim to jointly consider explicit/implicit and positive/negative feedbacks to learn user unbiased preferences for recommendation.
- 350, TITLE: Clarinet: A One-step Approach Towards Budget-friendly Unsupervised Domain Adaptation
<https://www.ijcai.org/proceedings/2020/350>
AUTHORS: Yiyang Zhang, Feng Liu, Zhen Fang, Bo Yuan, Guangquan Zhang, Jie Lu
HIGHLIGHT: To mitigate this problem, we consider a novel problem setting where the classifier for the target domain has to be trained with complementary-label data from the source domain and unlabeled data from the target domain named budget-friendly UDA (BFUDA).
- 351, TITLE: Argot: Generating Adversarial Readable Chinese Texts
<https://www.ijcai.org/proceedings/2020/351>
AUTHORS: Zihan Zhang, Mingxuan Liu, Chao Zhang, Yiming Zhang, Zhou Li, Qi Li, Haixin Duan, Donghong Sun
HIGHLIGHT: In this paper, we analyze the differences between Chinese and English, and explore the methodology to transform the existing English adversarial generation method to Chinese.
- 352, TITLE: Joint Partial Optimal Transport for Open Set Domain Adaptation
<https://www.ijcai.org/proceedings/2020/352>
AUTHORS: Renjun Xu, Pelen Liu, Yin Zhang, Fang Cai, Jindong Wang, Shuoying Liang, Heting Ying, Jianwei Yin
HIGHLIGHT: To overcome this, we propose Joint Partial Optimal Transport (JPOT), fully utilizing information of not only the labeled source domain but also the discriminative representation of unknown class in the target domain.
- 353, TITLE: Multivariate Probability Calibration with Isotonic Bernstein Polynomials
<https://www.ijcai.org/proceedings/2020/353>
AUTHORS: Yongqiao Wang, Xudong Liu
HIGHLIGHT: To this end, we propose a multivariate regression method based on shape-restricted Bernstein polynomials.
- 354, TITLE: Combinatorial Multi-Armed Bandits with Concave Rewards and Fairness Constraints
<https://www.ijcai.org/proceedings/2020/354>
AUTHORS: Huanle Xu, Yang Liu, Wing Cheong Lau, Rui Li
HIGHLIGHT: In this paper, we study a combinatorial MAB problem with concave objective and fairness constraints.
- 355, TITLE: Learning Personalized Itemset Mapping for Cross-Domain Recommendation
<https://www.ijcai.org/proceedings/2020/355>
AUTHORS: Yinan Zhang, Yong Liu, Peng Han, Chunyan Miao, Lizhen Cui, Baoli Li, Haihong Tang
HIGHLIGHT: In this paper, we propose a novel deep cross-domain recommendation model, called Cycle Generation Networks (CGN).
- 356, TITLE: Label Distribution for Learning with Noisy Labels
<https://www.ijcai.org/proceedings/2020/356>
AUTHORS: Yun-Peng Liu, Ning Xu, Yu Zhang, Xin Geng
HIGHLIGHT: To address the problem, this paper proposes a novel method named Label Distribution based Confidence Estimation (LDCE).

- 357, TITLE: Intent Preference Decoupling for User Representation on Online Recommender System
<https://www.ijcai.org/proceedings/2020/357>
AUTHORS: Zhaoyang Liu, Haokun Chen, Fei Sun, Xu Xie, Jinyang Gao, Bolin Ding, Yanyan Shen
HIGHLIGHT: In this paper, we propose a novel learning strategy named FLIP to decouple the learning of intent and preference under the online settings.
- 358, TITLE: Beyond Network Pruning: a Joint Search-and-Training Approach
<https://www.ijcai.org/proceedings/2020/358>
AUTHORS: Xiaotong Lu, Han Huang, Weisheng Dong, Xin Li, Guangming Shi
HIGHLIGHT: By treating pruning as a search strategy, we present two new insights in this paper: 1) it is possible to expand the search space of networking pruning by associating each filter with a learnable weight; 2) joint search-and-training can be conducted iteratively to maximize the learning efficiency.
- 359, TITLE: Collaborative Self-Attention Network for Session-based Recommendation
<https://www.ijcai.org/proceedings/2020/359>
AUTHORS: Anjing Luo, Pengpeng Zhao, Yanchi Liu, Fuzhen Zhuang, Deqing Wang, Jiajie Xu, Junhua Fang, Victor S. Sheng
HIGHLIGHT: To this end, we propose a novel solution, Collaborative Self-Attention Network (CoSAN) for session-based recommendation, to learn the session representation and predict the intent of the current session by investigating neighborhood sessions.
- 360, TITLE: Sinkhorn Regression
<https://www.ijcai.org/proceedings/2020/360>
AUTHORS: Lei Luo, Jian Pei, Heng Huang
HIGHLIGHT: This paper introduces a novel Robust Regression (RR) model, named Sinkhorn regression, which imposes Sinkhorn distances on both loss function and regularization.
- 361, TITLE: A Bi-level Formulation for Label Noise Learning with Spectral Cluster Discovery
<https://www.ijcai.org/proceedings/2020/361>
AUTHORS: Yijing Luo, Bo Han, Chen Gong
HIGHLIGHT: To address this issue, this paper introduces a bi-level learning paradigm termed "Spectral Cluster Discovery" (SCD) for combating with noisy labels.
- 362, TITLE: Partial Multi-Label Learning via Multi-Subspace Representation
<https://www.ijcai.org/proceedings/2020/362>
AUTHORS: Ziwei Li, Gengyu Lyu, Songhe Feng
HIGHLIGHT: To tackle the problem, we propose a novel framework named partial multi-label learning via Multi-Subspace Representation (MUSER), where the redundant labels together with noisy features are jointly taken into consideration during the training process.
- 363, TITLE: Feature Statistics Guided Efficient Filter Pruning
<https://www.ijcai.org/proceedings/2020/363>
AUTHORS: Hang Li, Chen Ma, Wei Xu, Xue Liu
HIGHLIGHT: In this paper, we propose a novel filter pruning method, which incorporates two kinds of feature map selections: diversity-aware selection (DFS) and similarity-aware selection (SFS).
- 364, TITLE: On Deep Unsupervised Active Learning
<https://www.ijcai.org/proceedings/2020/364>
AUTHORS: Changsheng Li, Handong Ma, Zhao Kang, Ye Yuan, Xiao-Yu Zhang, Guoren Wang
HIGHLIGHT: In this paper, we present a novel Deep neural network framework for Unsupervised Active Learning, called DUAL.
- 365, TITLE: Mixed-Variable Bayesian Optimization
<https://www.ijcai.org/proceedings/2020/365>
AUTHORS: Erik Daxberger, Anastasia Makarova, Matteo Turchetta, Andreas Krause
HIGHLIGHT: In this paper, we introduce MiVaBo, a novel BO algorithm for the efficient optimization of mixed-variable functions combining a linear surrogate model based on expressive feature representations with Thompson sampling.
- 366, TITLE: The Importance of the Test Set Size in Quantification Assessment
<https://www.ijcai.org/proceedings/2020/366>

AUTHORS: Andr e Maletzke, Waqar Hassan, Denis dos Reis, Gustavo Batista
HIGHLIGHT: (i) We empirically demonstrate the importance of the test set size to assess quantifiers. (ii) We show that current quantifiers generally have a mediocre performance on the smallest test sets. (iii) We propose a metalearning scheme to select the best quantifier based on the test size that can outperform the best single quantification method.

367, TITLE: Understanding the Power and Limitations of Teaching with Imperfect Knowledge
<https://www.ijcai.org/proceedings/2020/367>

AUTHORS: Rati Devidze, Farnam Mansouri, Luis Haug, Yuxin Chen, Adish Singla
HIGHLIGHT: Inspired by real-world applications of machine teaching in education, we consider the setting where teacher's knowledge is limited and noisy, and the key research question we study is the following: When does a teacher succeed or fail in effectively teaching a learner using its imperfect knowledge?

368, TITLE: Self-Attentional Credit Assignment for Transfer in Reinforcement Learning
<https://www.ijcai.org/proceedings/2020/368>

AUTHORS: Johan Ferret, Raphael Marinier, Matthieu Geist, Olivier Pietquin
HIGHLIGHT: In this paper, we take a brand-new perspective about transfer: we suggest that the ability to assign credit unveils structural invariants in the tasks that can be transferred to make RL more sample-efficient.

369, TITLE: Textual Membership Queries

<https://www.ijcai.org/proceedings/2020/369>

AUTHORS: Jonathan Zarecki, Shaul Markovitch
HIGHLIGHT: In order to minimize human labeling efforts, we propose a novel active learning solution that does not rely on existing sources of unlabeled data.

370, TITLE: I4R: Promoting Deep Reinforcement Learning by the Indicator for Expressive Representations

<https://www.ijcai.org/proceedings/2020/370>

AUTHORS: Xufang Luo, Qi Meng, Di He, Wei Chen, Yunhong Wang
HIGHLIGHT: Next, based on such observations, we define an indicator of the representations for DRL model, which is the Number of Significant Singular Values (NSSV) of a representation matrix. Then, we propose I4R algorithm, to improve DRL algorithms by adding the corresponding regularization term to enhance the NSSV.

371, TITLE: Learning Neural-Symbolic Descriptive Planning Models via Cube-Space Priors: The Voyage Home (to STRIPS)

<https://www.ijcai.org/proceedings/2020/371>

AUTHORS: Masataro Asai, Christian Muise
HIGHLIGHT: Our neuro-symbolic architecture is trained end-to-end to produce a succinct and effective discrete state transition model from images alone. Our target representation (the Planning Domain Definition Language) is already in a form that off-the-shelf solvers can consume, and opens the door to the rich array of modern heuristic search capabilities.

372, TITLE: Optimality, Accuracy, and Efficiency of an Exact Functional Test

<https://www.ijcai.org/proceedings/2020/372>

AUTHORS: Hien H. Nguyen, Hua Zhong, Mingzhou Song
HIGHLIGHT: Here, we prove the functional optimality of the EFT statistic, demonstrate its advantage in functional inference accuracy over five other methods, and develop a branch-and-bound algorithm with dynamic and quadratic programming to run at orders of magnitude faster than its previous implementation.

373, TITLE: Explainable Recommendation via Interpretable Feature Mapping and Evaluation of Explainability

<https://www.ijcai.org/proceedings/2020/373>

AUTHORS: Deng Pan, Xiangrui Li, Xin Li, Dongxiao Zhu
HIGHLIGHT: We present a novel feature mapping approach that maps the uninterpretable general features onto the interpretable aspect features, achieving both satisfactory accuracy and explainability in the recommendations by simultaneous minimization of rating prediction loss and interpretation loss.

374, TITLE: SVRG for Policy Evaluation with Fewer Gradient Evaluations

<https://www.ijcai.org/proceedings/2020/374>

AUTHORS: Zilun Peng, Ahmed Touati, Pascal Vincent, Doina Precup
HIGHLIGHT: In this work, we show that two variants of SVRG for policy evaluation could significantly diminish the number of gradient calculations while preserving a linear convergence speed.

375, TITLE: Diffusion Variational Autoencoders

<https://www.ijcai.org/proceedings/2020/375>

AUTHORS: Luis A. Perez Rey, Vlado Menkovski, Jim Portegies
HIGHLIGHT: To remove topological obstructions, we introduce Diffusion Variational Autoencoders (DeltaVAE) with arbitrary (closed) manifolds as a latent space.

376, TITLE: Only Relevant Information Matters: Filtering Out Noisy Samples To Boost RL
<https://www.ijcai.org/proceedings/2020/376>
AUTHORS: Yannis Flet-Berliac, Philippe Preux
HIGHLIGHT: Following this line of thought, we introduce SAUNA, a method where non-informative transitions are rejected from the gradient update.

377, TITLE: Consistent MetaReg: Alleviating Intra-task Discrepancy for Better Meta-knowledge
<https://www.ijcai.org/proceedings/2020/377>
AUTHORS: Pinzhuo Tian, Lei Qi, Shaokang Dong, Yinghuan Shi, Yang Gao
HIGHLIGHT: To overcome this limitation, we develop a new consistent meta-regularization method to reduce the intra-task data-distribution discrepancy.

378, TITLE: Accelerating Stratified Sampling SGD by Reconstructing Strata
<https://www.ijcai.org/proceedings/2020/378>
AUTHORS: Weijie Liu, Hui Qian, Chao Zhang, Zebang Shen, Jiahao Xie, Nenggan Zheng
HIGHLIGHT: In this paper, a novel stratified sampling strategy is designed to accelerate the mini-batch SGD.

379, TITLE: Internal and Contextual Attention Network for Cold-start Multi-channel Matching in Recommendation
<https://www.ijcai.org/proceedings/2020/379>
AUTHORS: Ruobing Xie, Zhijie Qiu, Jun Rao, Yi Liu, Bo Zhang, Leyu Lin
HIGHLIGHT: To solve this issue, we propose a novel Internal and contextual attention network (ICAN), which highlights channel-specific contextual information and feature field interactions between multiple channels.

380, TITLE: KGNN: Knowledge Graph Neural Network for Drug-Drug Interaction Prediction
<https://www.ijcai.org/proceedings/2020/380>
AUTHORS: Xuan Lin, Zhe Quan, Zhi-Jie Wang, Tengfei Ma, Xiangxiang Zeng
HIGHLIGHT: To address the above limitations, we propose an end-to-end framework, called Knowledge Graph Neural Network (KGNN), to resolve the DDI prediction.

381, TITLE: Toward a neuro-inspired creative decoder
<https://www.ijcai.org/proceedings/2020/381>
AUTHORS: Payel Das, Brian Quanz, Pin-Yu Chen, Jae-wook Ahn, Dhruv Shah
HIGHLIGHT: Inspired by this seminal finding, in this study we propose a creative decoder within a deep generative framework, which involves direct modulation of the neuronal activation pattern after sampling from the learned latent space.

382, TITLE: Inference-Masked Loss for Deep Structured Output Learning
<https://www.ijcai.org/proceedings/2020/382>
AUTHORS: Quan Guo, Hossein Rajaby Faghihi, Yue Zhang, Andrzej Uszok, Parisa Kordjamshidi
HIGHLIGHT: Compared to using conventional loss functions that penalize every local error independently, we propose an inference-masked loss that takes into account the effect of inference and does not penalize the local errors that can be corrected by the inference.

383, TITLE: Deep Latent Low-Rank Fusion Network for Progressive Subspace Discovery
<https://www.ijcai.org/proceedings/2020/383>
AUTHORS: Zhao Zhang, Jiahuan Ren, Zheng Zhang, Guangcan Liu
HIGHLIGHT: In this paper, we present a new and effective strategy to extend the single-layer latent low-rank models into multi-ple-layers, and propose a new and progressive Deep Latent Low-Rank Fusion Network (DLRF-Net) to uncover deep features and structures embedded in input data.

384, TITLE: General Purpose MRF Learning with Neural Network Potentials
<https://www.ijcai.org/proceedings/2020/384>
AUTHORS: Hao Xiong, Nicholas Ruozzi
HIGHLIGHT: In this work, we propose a generic MLE estimation procedure for MRFs whose potential functions are modeled by neural networks.

385, TITLE: Measuring the Discrepancy between Conditional Distributions: Methods, Properties and Applications

<https://www.ijcai.org/proceedings/2020/385>

AUTHORS: Shujian Yu, Ammar Shaker, Francesco Alesiani, Jose Principe
HIGHLIGHT: We propose a simple yet powerful test statistic to quantify the discrepancy between two conditional distributions.

386, TITLE: Temporal Attribute Prediction via Joint Modeling of Multi-Relational Structure Evolution

<https://www.ijcai.org/proceedings/2020/386>

AUTHORS: Sankalp Garg, Navodita Sharma, Woojeong Jin, Xiang Ren
HIGHLIGHT: In this paper, we propose a new framework to incorporate the information from dynamic knowledge graphs for time series prediction.

387, TITLE: Is the Skip Connection Provable to Reform the Neural Network Loss Landscape?

<https://www.ijcai.org/proceedings/2020/387>

AUTHORS: Lifu Wang, Bo Shen, Ning Zhao, Zhiyuan Zhang
HIGHLIGHT: In this paper, we follow this line to study the topology (sub-level sets) of the loss landscape of deep ReLU neural networks with a skip connection and theoretically prove that the skip connection network inherits the good properties of the two-layer network and skip connections can help to control the connectedness of the sub-level sets, such that any local minima worse than the global minima of some two-layer ReLU network will be very “shallow”.

388, TITLE: Exploiting Neuron and Synapse Filter Dynamics in Spatial Temporal Learning of Deep Spiking Neural Network

<https://www.ijcai.org/proceedings/2020/388>

AUTHORS: Haowen Fang, Amar Shrestha, Ziyi Zhao, Qinru Qiu
HIGHLIGHT: We proposed a training algorithm that is capable to learn spatial-temporal patterns by searching for the optimal synapse filter kernels and weights.

389, TITLE: Mutual Information Estimation using LSH Sampling

<https://www.ijcai.org/proceedings/2020/389>

AUTHORS: Ryan Spring, Anshumali Shrivastava
HIGHLIGHT: In this paper, we use locality-sensitive hashing (LSH) as an adaptive sampler and propose an unbiased estimator that accurately approximates the partition function in sub-linear (near-constant) time.

390, TITLE: Reward Prediction Error as an Exploration Objective in Deep RL

<https://www.ijcai.org/proceedings/2020/390>

AUTHORS: Riley Simmons-Eidler, Ben Eisner, Daniel Yang, Anthony Bisulco, Eric Mitchell, Sebastian Seung, Daniel Lee
HIGHLIGHT: We propose a new exploration objective, maximizing the reward prediction error (RPE) of a value function trained to predict extrinsic reward.

391, TITLE: BRPO: Batch Residual Policy Optimization

<https://www.ijcai.org/proceedings/2020/391>

AUTHORS: Sungryull Sohn, Yinlam Chow, Jayden Ooi, Ofir Nachum, Honglak Lee, Ed Chi, Craig Boutilier
HIGHLIGHT: To remedy this, we propose residual policies, where the allowable deviation of the learned policy is state-action-dependent.

392, TITLE: Communicative Representation Learning on Attributed Molecular Graphs

<https://www.ijcai.org/proceedings/2020/392>

AUTHORS: Ying Song, Shuangjia Zheng, Zhangming Niu, Zhang-hua Fu, Yutong Lu, Yuedong Yang
HIGHLIGHT: Herein, we propose a Communicative Message Passing Neural Network (CMPNN) to improve the molecular embedding by strengthening the message interactions between nodes and edges through a communicative kernel.

393, TITLE: Spectral Pruning: Compressing Deep Neural Networks via Spectral Analysis and its Generalization Error

<https://www.ijcai.org/proceedings/2020/393>

AUTHORS: Taiji Suzuki, Hiroshi Abe, Tomoya Murata, Shingo Horiuchi, Kotaro Ito, Tokuma Wachi, So Hirai, Masatoshi Yukishima, Tomoaki Nishimura
HIGHLIGHT: To resolve this issue, we develop a new theoretical framework for model compression and propose a new pruning method called “spectral pruning” based on this framework.

394, TITLE: Reinforcement Learning Framework for Deep Brain Stimulation Study

<https://www.ijcai.org/proceedings/2020/394>

AUTHORS: Dmitrii Krylov, Remi Tachet des Combes, Romain Laroche, Michael Rosenblum, Dmitry V. Dyllov

HIGHLIGHT: We present the first Reinforcement Learning (RL) gym framework that emulates this collective behavior of neurons and allows us to find suppression parameters for the environment of synthetic degenerate models of neurons.

395, **TITLE:** DACE: Distribution-Aware Counterfactual Explanation by Mixed-Integer Linear Optimization
<https://www.ijcai.org/proceedings/2020/395>

AUTHORS: Kentaro Kanamori, Takuya Takagi, Ken Kobayashi, Hiroki Arimura

HIGHLIGHT: To suggest an executable action for users, we propose a new framework of CE for extracting an action by evaluating its reality on the empirical data distribution.

396, **TITLE:** Constrained Policy Improvement for Efficient Reinforcement Learning

<https://www.ijcai.org/proceedings/2020/396>

AUTHORS: Elad Sarafian, Aviv Tamar, Sarit Kraus

HIGHLIGHT: We propose a policy improvement algorithm for Reinforcement Learning (RL) termed Rerouted Behavior Improvement (RBI).

397, **TITLE:** Adaptively Multi-Objective Adversarial Training for Dialogue Generation

<https://www.ijcai.org/proceedings/2020/397>

AUTHORS: Xuemiao Zhang, Zhouxing Tan, Xiaoning Zhang, Yang Cao, Rui Yan

HIGHLIGHT: To address it, we reframe the dialogue generation task as a multi-objective optimization problem and propose a novel adversarial dialogue generation framework with multiple discriminators that excel in different objectives for multiple linguistic aspects, called AMPGAN, whose feasibility is proved by theoretical derivations.

398, **TITLE:** Multi-Class Imbalanced Graph Convolutional Network Learning

<https://www.ijcai.org/proceedings/2020/398>

AUTHORS: Min Shi, Yufei Tang, Xingquan Zhu, David Wilson, Jianxun Liu

HIGHLIGHT: In this paper, we propose Dual-Regularized Graph Convolutional Networks (DR-GCN) to handle multi-class imbalanced graphs, where two types of regularization are imposed to tackle class imbalanced representation learning.

399, **TITLE:** Learning in the Wild with Incremental Skeptical Gaussian Processes

<https://www.ijcai.org/proceedings/2020/399>

AUTHORS: Andrea Bontempelli, Stefano Teso, Fausto Giunchiglia, Andrea Passerini

HIGHLIGHT: In order to tackle this task, we propose a redesign of skeptical learning centered around Gaussian Processes (GPs).

400, **TITLE:** Seq-U-Net: A One-Dimensional Causal U-Net for Efficient Sequence Modelling

<https://www.ijcai.org/proceedings/2020/400>

AUTHORS: Daniel Stoller, Mi Tian, Sebastian Ewert, Simon Dixon

HIGHLIGHT: For this, we use a U-Net architecture that computes features at multiple time-scales and adapt it to our auto-regressive scenario by making convolutions causal.

401, **TITLE:** Independent Skill Transfer for Deep Reinforcement Learning

<https://www.ijcai.org/proceedings/2020/401>

AUTHORS: Qiangxing Tian, Guanchu Wang, Jinxin Liu, Donglin Wang, Yachen Kang

HIGHLIGHT: In this paper, we propose a novel efficient skill transfer method, where we learn independent skills and only independent components of skills are transferred instead of the whole set of skills.

402, **TITLE:** Crowdsourcing with Multiple-Source Knowledge Transfer

<https://www.ijcai.org/proceedings/2020/402>

AUTHORS: Guangyang Han, Jinzheng Tu, Guoxian Yu, Jun Wang, Carlotta Domeniconi

HIGHLIGHT: To make this idea concrete, we introduce the Crowdsourcing with Multiple-source Knowledge Transfer (CrowdMKT) approach to transfer knowledge from multiple, similar, but different domains for a new task, and to reduce the negative impact of irrelevant sources.

403, **TITLE:** Class Prior Estimation in Active Positive and Unlabeled Learning

<https://www.ijcai.org/proceedings/2020/403>

AUTHORS: Lorenzo Perini, Vincent Vercauteren, Jesse Davis

HIGHLIGHT: In this paper, we explore how to tackle this problem when the observed labels were acquired via active learning.

404, **TITLE:** Reducing Underflow in Mixed Precision Training by Gradient Scaling

<https://www.ijcai.org/proceedings/2020/404>

AUTHORS: Ruizhe Zhao, Brian Vogel, Tanvir Ahmed, Wayne Luk
HIGHLIGHT: We propose gradient scaling, a novel method that analytically calculates the appropriate scale for each gradient on-the-fly.

405, TITLE: Triple-GAIL: A Multi-Modal Imitation Learning Framework with Generative Adversarial Nets
<https://www.ijcai.org/proceedings/2020/405>
AUTHORS: Cong Fei, Bin Wang, Yuzheng Zhuang, Zongzhang Zhang, Jianye Hao, Hongbo Zhang, Xuewu Ji, Wulong Liu
HIGHLIGHT: In this paper, we propose a novel multi-modal GAIL framework, named Triple-GAIL, that is able to learn skill selection and imitation jointly from both expert demonstrations and continuously generated experiences with data augmentation purpose by introducing an auxiliary selector.

406, TITLE: Nearly Optimal Regret for Stochastic Linear Bandits with Heavy-Tailed Payoffs
<https://www.ijcai.org/proceedings/2020/406>
AUTHORS: Bo Xue, Guanghui Wang, Yimu Wang, Lijun Zhang
HIGHLIGHT: In this paper, we study the problem of stochastic linear bandits with finite action sets.

407, TITLE: Learning From Multi-Dimensional Partial Labels
<https://www.ijcai.org/proceedings/2020/407>
AUTHORS: Haobo Wang, Weiwei Liu, Yang Zhao, Tianlei Hu, Ke Chen, Gang Chen
HIGHLIGHT: In this paper, we propose a novel learning paradigm: MultiDimensional Partial Label Learning (MDPL) where the ground-truth labels of each instance are concealed in multiple candidate label sets.

408, TITLE: Unsupervised Representation Learning by Predicting Random Distances
<https://www.ijcai.org/proceedings/2020/408>
AUTHORS: Hu Wang, Guansong Pang, Chunhua Shen, Congbo Ma
HIGHLIGHT: To enable unsupervised learning on those domains, in this work we propose to learn features without using any labelled data by training neural networks to predict data distances in a randomly projected space.

409, TITLE: Asymmetric Distribution Measure for Few-shot Learning
<https://www.ijcai.org/proceedings/2020/409>
AUTHORS: Wenbin Li, Lei Wang, Jing Huo, Yinghuan Shi, Yang Gao, Jiebo Luo
HIGHLIGHT: To that end, we propose a novel Asymmetric Distribution Measure (ADM) network for few-shot learning by calculating a joint local and global asymmetric measure between two multivariate local distributions of a query and a class.

410, TITLE: Quadratic Sparse Gaussian Graphical Model Estimation Method for Massive Variables
<https://www.ijcai.org/proceedings/2020/410>
AUTHORS: Jiaqi Zhang, Meng Wang, Qinchi Li, Sen Wang, Xiaojun Chang, Beilun Wang
HIGHLIGHT: To overcome this challenge, we propose a novel method, called Fast and Scalable Inverse Covariance Estimator by Thresholding (FST).

411, TITLE: Multi-View Attribute Graph Convolution Networks for Clustering
<https://www.ijcai.org/proceedings/2020/411>
AUTHORS: Jiafeng Cheng, Qianqian Wang, Zhiqiang Tao, Deyan Xie, Quanxue Gao
HIGHLIGHT: In this paper, we propose a novel Multi-View Attribute Graph Convolution Networks (MAGCN) model for the clustering task.

412, TITLE: Classification with Rejection: Scaling Generative Classifiers with Supervised Deep Infomax
<https://www.ijcai.org/proceedings/2020/412>
AUTHORS: Xin Wang, Siu Ming Yiu
HIGHLIGHT: In this paper, we propose Supervised Deep InfoMax (SDIM), which introduces supervised probabilistic constraints to the encoder outputs.

413, TITLE: TransRHS: A Representation Learning Method for Knowledge Graphs with Relation Hierarchical Structure
<https://www.ijcai.org/proceedings/2020/413>
AUTHORS: Fuxiang Zhang, Xin Wang, Zhao Li, Jianxin Li
HIGHLIGHT: In this paper, we propose a novel method named TransRHS, which is able to incorporate RHS seamlessly into the embeddings.

414, TITLE: Towards Explainable Conversational Recommendation
<https://www.ijcai.org/proceedings/2020/414>

AUTHORS: Zhongxia Chen, Xiting Wang, Xing Xie, Mehul Parsana, Akshay Soni, Xiang Ao, Enhong Chen
HIGHLIGHT: In this paper, we introduce explainable conversational recommendation, which enables incremental improvement of both recommendation accuracy and explanation quality through multi-turn user-model conversation.

415, TITLE: A Graphical and Attentional Framework for Dual-Target Cross-Domain Recommendation
<https://www.ijcai.org/proceedings/2020/415>
AUTHORS: Feng Zhu, Yan Wang, Chaochao Chen, Guanfeng Liu, Xiaolin Zheng
HIGHLIGHT: To address these challenges, in this paper, we propose a graphical and attentional framework, called GA-DTCDR.

416, TITLE: Discriminative Feature Selection via A Structured Sparse Subspace Learning Module
<https://www.ijcai.org/proceedings/2020/416>
AUTHORS: Zheng Wang, Feiping Nie, Lai Tian, Rong Wang, Xuelong Li
HIGHLIGHT: Elicited by proposed module, we design a new discriminative feature selection method, named Subspace Sparsity Discriminant Feature Selection S²DFS which enables the following new functionalities: 1) Proposed S²DFS method directly joints trace ratio objective and structured sparse subspace constraint via L_{2,0}-norm to learn a row-sparsity subspace, which improves the discriminability of model and overcomes the parameter-tuning trouble with comparison to the methods used L_{2,1}-norm regularization; 2) An alternative iterative optimization algorithm based on the proposed S³L module is presented to explicitly solve the proposed problem with a closed-form solution and strict convergence proof.

417, TITLE: Evaluating and Aggregating Feature-based Model Explanations
<https://www.ijcai.org/proceedings/2020/417>
AUTHORS: Umang Bhatt, Adrian Weller, José M. F. Moura
HIGHLIGHT: This paper proposes quantitative evaluation criteria for feature-based explanations: low sensitivity, high faithfulness, and low complexity.

418, TITLE: User Modeling with Click Preference and Reading Satisfaction for News Recommendation
<https://www.ijcai.org/proceedings/2020/418>
AUTHORS: Chuhan Wu, Fangzhao Wu, Tao Qi, Yongfeng Huang
HIGHLIGHT: In this paper we propose to model user interest from both click behaviors on news titles and reading behaviors on news content for news recommendation.

419, TITLE: RDF-to-Text Generation with Graph-augmented Structural Neural Encoders
<https://www.ijcai.org/proceedings/2020/419>
AUTHORS: Hanning Gao, Lingfei Wu, Po Hu, Fangli Xu
HIGHLIGHT: To address these issues, we propose to jointly learn local and global structure information via combining two new graph-augmented structural neural encoders (i.e., a bidirectional graph encoder and a bidirectional graph-based meta-paths encoder) for the input triples.

420, TITLE: Hybrid Learning for Multi-agent Cooperation with Sub-optimal Demonstrations
<https://www.ijcai.org/proceedings/2020/420>
AUTHORS: Peixi Peng, Junliang Xing, Lili Cao
HIGHLIGHT: To learn better policies from these sub-optimal demonstrations, this paper follows a centralized learning and decentralized execution framework and proposes a novel hybrid learning method based on multi-agent actor-critic.

421, TITLE: Bayesian Optimization using Pseudo-Points
<https://www.ijcai.org/proceedings/2020/421>
AUTHORS: Chao Qian, Hang Xiong, Ke Xue
HIGHLIGHT: In this paper, we propose a new general framework for BO by generating pseudo-points (i.e., data points whose objective values are not evaluated) to improve the GP model.

422, TITLE: Analysis of Q-learning with Adaptation and Momentum Restart for Gradient Descent
<https://www.ijcai.org/proceedings/2020/422>
AUTHORS: Bowen Weng, Huaqing Xiong, Yingbin Liang, Wei Zhang
HIGHLIGHT: To further improve the performance, we propose to incorporate the momentum restart scheme to Q-AMSGrad, resulting in the so-called Q-AMSGradR algorithm.

423, TITLE: Discovering Latent Class Labels for Multi-Label Learning
<https://www.ijcai.org/proceedings/2020/423>
AUTHORS: Jun Huang, Linchuan Xu, Jing Wang, Lei Feng, Kenji Yamanishi

HIGHLIGHT: In this paper, a novel approach named DLCL (i.e., Discovering Latent Class Labels for MLL) is proposed which can not only discover the latent labels in the training data but also predict new instances with the latent and known labels simultaneously.

424, **TITLE:** MergeNAS: Merge Operations into One for Differentiable Architecture Search

<https://www.ijcai.org/proceedings/2020/424>

AUTHORS: Xiaoxing Wang, Chao Xue, Junchi Yan, Xiaokang Yang, Yonggang Hu, Kewei Sun

HIGHLIGHT: In this paper, we propose a one-shot neural architecture search method referred to as MergeNAS by merging different types of operations e.g. convolutions into one operation.

425, **TITLE:** BaKer-Nets: Bayesian Random Kernel Mapping Networks

<https://www.ijcai.org/proceedings/2020/425>

AUTHORS: Hui Xue, Zheng-Fan Wu

HIGHLIGHT: Hence, in this paper, we propose the novel Bayesian random Kernel mapping Networks (BaKer-Nets) with preferable learning processes by escaping randomly from most local minima.

426, **TITLE:** On Metric DBSCAN with Low Doubling Dimension

<https://www.ijcai.org/proceedings/2020/426>

AUTHORS: Hu Ding, Fan Yang, Mingyue Wang

HIGHLIGHT: In this paper, we consider the metric DBSCAN problem under the assumption that the inliers (excluding the outliers) have a low doubling dimension.

427, **TITLE:** Multi-Feedback Bandit Learning with Probabilistic Contexts

<https://www.ijcai.org/proceedings/2020/427>

AUTHORS: Luting Yang, Jianyi Yang, Shaolei Ren

HIGHLIGHT: In this work, we focus on multi-feedback bandit learning with probabilistic contexts, where a bundle of contexts are revealed to the agent along with their corresponding probabilities at the beginning of each round.

428, **TITLE:** Efficient Deep Reinforcement Learning via Adaptive Policy Transfer

<https://www.ijcai.org/proceedings/2020/428>

AUTHORS: Tianpei Yang, Jianye Hao, Zhaopeng Meng, Zongzhang Zhang, Yujing Hu, Yingfeng Chen, Changjie Fan, Weixun Wang, Wulong Liu, Zhaodong Wang, Jiajie Peng

HIGHLIGHT: In this paper, we propose a novel Policy Transfer Framework (PTF) by taking advantage of this idea.

429, **TITLE:** Greedy Convex Ensemble

<https://www.ijcai.org/proceedings/2020/429>

AUTHORS: Thanh Tan Nguyen, Nan Ye, Peter Bartlett

HIGHLIGHT: We consider learning a convex combination of basis models, and present some new theoretical and empirical results that demonstrate the effectiveness of a greedy approach.

430, **TITLE:** MULTIPOLAR: Multi-Source Policy Aggregation for Transfer Reinforcement Learning between Diverse Environmental Dynamics

<https://www.ijcai.org/proceedings/2020/430>

AUTHORS: Mohammadamin Barekatain, Ryo Yonetani, Masashi Hamaya

HIGHLIGHT: We learn to aggregate the actions provided by the source policies adaptively to maximize the target task performance. Meanwhile, we learn an auxiliary network that predicts residuals around the aggregated actions, which ensures the target policy's expressiveness even when some of the source policies perform poorly.

431, **TITLE:** Gradient Perturbation is Underrated for Differentially Private Convex Optimization

<https://www.ijcai.org/proceedings/2020/431>

AUTHORS: Da Yu, Huishuai Zhang, Wei Chen, Jian Yin, Tie-Yan Liu

HIGHLIGHT: In contrast, we explore how the privacy noise affects the optimization property.

432, **TITLE:** Weakly-Supervised Multi-view Multi-instance Multi-label Learning

<https://www.ijcai.org/proceedings/2020/432>

AUTHORS: Yuying Xing, Guoxian Yu, Jun Wang, Carlotta Domeniconi, Xiangliang Zhang

HIGHLIGHT: To tackle such a weakly-supervised M3L task, a solution called WSM3L is introduced.

433, **TITLE:** I²HRL: Interactive Influence-based Hierarchical Reinforcement Learning

<https://www.ijcai.org/proceedings/2020/433>

AUTHORS: Rundong Wang, Runsheng Yu, Bo An, Zinovi Rabinovich
HIGHLIGHT: To address these issues, we propose a novel HRL method: Interactive Influence-based Hierarchical Reinforcement Learning (I²HRL).

434, TITLE: A Dual Input-aware Factorization Machine for CTR Prediction
<https://www.ijcai.org/proceedings/2020/434>
AUTHORS: Wantong Lu, Yantao Yu, Yongzhe Chang, Zhen Wang, Chenhui Li, Bo Yuan
HIGHLIGHT: Inspired by the success of Input-aware Factorization Machines (IFMs), which aim to learn more flexible and informative representations of a given feature according to different input instances, we propose a novel model named Dual Input-aware Factorization Machines (DIFMs) that can adaptively reweight the original feature representations at the bit-wise and vector-wise levels simultaneously.

435, TITLE: Dual Policy Distillation
<https://www.ijcai.org/proceedings/2020/435>
AUTHORS: Kwei-Herng Lai, Daochen Zha, Yuening Li, Xia Hu
HIGHLIGHT: In this work, we introduce dual policy distillation (DPD), a student-student framework in which two learners operate on the same environment to explore different perspectives of the environment and extract knowledge from each other to enhance their learning.

436, TITLE: Exploring Parameter Space with Structured Noise for Meta-Reinforcement Learning
<https://www.ijcai.org/proceedings/2020/436>
AUTHORS: Hui Xu, Chong Zhang, Jiaying Wang, Deqiang Ouyang, Yu Zheng, Jie Shao
HIGHLIGHT: In this paper, we investigate whether previous learning experiences can be leveraged to guide exploration of current new task.

437, TITLE: Semi-supervised Clustering via Pairwise Constrained Optimal Graph
<https://www.ijcai.org/proceedings/2020/437>
AUTHORS: Feiping Nie, Han Zhang, Rong Wang, Xuelong Li
HIGHLIGHT: In this paper, we present a technique of definitely addressing the pairwise constraints in the semi-supervised clustering.

438, TITLE: Generating Robust Audio Adversarial Examples with Temporal Dependency
<https://www.ijcai.org/proceedings/2020/438>
AUTHORS: Hongting Zhang, Pan Zhou, Qiben Yan, Xiao-Yang Liu
HIGHLIGHT: In this paper, we propose a new Iterative Proportional Clipping (IPC) algorithm that preserves temporal dependency in audios for generating more robust adversarial examples.

439, TITLE: BERT-INT: A BERT-based Interaction Model For Knowledge Graph Alignment
<https://www.ijcai.org/proceedings/2020/439>
AUTHORS: Xiaobin Tang, Jing Zhang, Bo Chen, Yang Yang, Hong Chen, Cuiping Li
HIGHLIGHT: This work presents an interaction model to only leverage the side information.

440, TITLE: Self-adaptive Re-weighted Adversarial Domain Adaptation
<https://www.ijcai.org/proceedings/2020/440>
AUTHORS: Shanshan Wang, Lei Zhang
HIGHLIGHT: To address this problem, we present a self-adaptive re-weighted adversarial domain adaptation approach, which tries to enhance domain alignment from the perspective of conditional distribution.

441, TITLE: One-Shot Neural Architecture Search via Novelty Driven Sampling
<https://www.ijcai.org/proceedings/2020/441>
AUTHORS: Miao Zhang, Huiqi Li, Shirui Pan, Taoping Liu, Steven Su
HIGHLIGHT: To handle this deceptive problem, this paper presents a new approach, Efficient Novelty-driven Neural Architecture Search, to sample the most abnormal architecture to train the supernet.

442, TITLE: Split to Be Slim: An Overlooked Redundancy in Vanilla Convolution
<https://www.ijcai.org/proceedings/2020/442>
AUTHORS: Qiulin Zhang, Zhuqing Jiang, Qishuo Lu, Jia'nan Han, Zhengxin Zeng, Shanghua Gao, Aidong Men
HIGHLIGHT: Specifically, we split input feature maps into the representative part and the uncertain redundant part, where intrinsic information is extracted from the representative part through relatively heavy computation while tiny hidden details in the uncertain redundant part are processed with some light-weight operation. To recalibrate and fuse these two groups of processed features, we propose a parameters-free feature fusion module.

- 443, TITLE: Joint Multi-view 2D Convolutional Neural Networks for 3D Object Classification
<https://www.ijcai.org/proceedings/2020/443>
AUTHORS: Jinglin Xu, Xiangsen Zhang, Wenbin Li, Xinwang Liu, Junwei Han
HIGHLIGHT: To this end, this work proposes a novel multi-view framework by jointly using multiple 2D-CNNs to capture discriminative information with relationships as well as a new multi-view loss fusion strategy, in an end-to-end manner.
- 444, TITLE: Trajectory Similarity Learning with Auxiliary Supervision and Optimal Matching
<https://www.ijcai.org/proceedings/2020/444>
AUTHORS: Hanyuan Zhang, Xinyu Zhang, Qize Jiang, Baihua Zheng, Zhenbang Sun, Weiwei Sun, Changhu Wang
HIGHLIGHT: In this paper, we propose a novel trajectory representation learning framework Traj2SimVec that performs scalable and robust trajectory similarity computation.
- 445, TITLE: Discovering Subsequence Patterns for Next POI Recommendation
<https://www.ijcai.org/proceedings/2020/445>
AUTHORS: Kangzhi Zhao, Yong Zhang, Hongzhi Yin, Jin Wang, Kai Zheng, Xiaofang Zhou, Chunxiao Xing
HIGHLIGHT: In this paper, we propose Adaptive Sequence Partitioner with Power-law Attention (ASPPA) to automatically identify each semantic subsequence of POIs and discover their sequential patterns.
- 446, TITLE: Label Enhancement for Label Distribution Learning via Prior Knowledge
<https://www.ijcai.org/proceedings/2020/446>
AUTHORS: Yongbiao Gao, Yu Zhang, Xin Geng
HIGHLIGHT: In this paper, we formulate the label enhancement as a dynamic decision process.
- 447, TITLE: CDIMC-net: Cognitive Deep Incomplete Multi-view Clustering Network
<https://www.ijcai.org/proceedings/2020/447>
AUTHORS: Jie Wen, Zheng Zhang, Yong Xu, Bob Zhang, Lunke Fei, Guo-Sen Xie
HIGHLIGHT: In this paper, we propose a novel incomplete multi-view clustering network, called Cognitive Deep Incomplete Multi-view Clustering Network (CDIMC-net), to address these issues.
- 448, TITLE: P-KDGAN: Progressive Knowledge Distillation with GANs for One-class Novelty Detection
<https://www.ijcai.org/proceedings/2020/448>
AUTHORS: Zhiwei Zhang, Shifeng Chen, Lei Sun
HIGHLIGHT: In this paper, the Generative Adversarial Networks (GANs) based on encoder-decoder-encoder pipeline are used for detection and achieve state-of-the-art performance.
- 449, TITLE: EndCold: An End-to-End Framework for Cold Question Routing in Community Question Answering Services
<https://www.ijcai.org/proceedings/2020/449>
AUTHORS: Jiankai Sun, Jie Zhao, Huan Sun, Srinivasan Parthasarathy
HIGHLIGHT: Therefore, we propose to address the challenge of leveraging heterogeneous graph and textual information for cold question routing by designing an end-to-end framework that jointly learns CQA node embeddings and finds best answerers for cold questions.
- 450, TITLE: Multi-Scale Group Transformer for Long Sequence Modeling in Speech Separation
<https://www.ijcai.org/proceedings/2020/450>
AUTHORS: Yucheng Zhao, Chong Luo, Zheng-Jun Zha, Wenjun Zeng
HIGHLIGHT: In this paper, we introduce Transformer to the time-domain methods for single-channel speech separation.
- 451, TITLE: pbSGD: Powered Stochastic Gradient Descent Methods for Accelerated Non-Convex Optimization
<https://www.ijcai.org/proceedings/2020/451>
AUTHORS: Beitong Zhou, Jun Liu, Weigao Sun, Ruijuan Chen, Claire Tomlin, Ye Yuan
HIGHLIGHT: We propose a novel technique for improving the stochastic gradient descent (SGD) method to train deep networks, which we term pbSGD.
- 452, TITLE: Closing the Generalization Gap of Adaptive Gradient Methods in Training Deep Neural Networks
<https://www.ijcai.org/proceedings/2020/452>
AUTHORS: Jinghui Chen, Dongruo Zhou, Yiqi Tang, Ziyang Yang, Yuan Cao, Quanquan Gu
HIGHLIGHT: In this work, we show that adaptive gradient methods such as Adam, Amsgrad, are sometimes "over adapted".

- 453, TITLE: Tight Convergence Rate of Gradient Descent for Eigenvalue Computation
<https://www.ijcai.org/proceedings/2020/453>
AUTHORS: Qinghua Ding, Kaiwen Zhou, James Cheng
HIGHLIGHT: In this paper, we show that RGD in fact converges at rate $O(\log(n/\epsilon)/\Delta)$, and give instances to show the tightness of our result.
- 454, TITLE: Smart Contract Vulnerability Detection using Graph Neural Network
<https://www.ijcai.org/proceedings/2020/454>
AUTHORS: Yuan Zhuang, Zhenguang Liu, Peng Qian, Qi Liu, Xiang Wang, Qinming He
HIGHLIGHT: In this paper, we explore using graph neural networks (GNNs) for smart contract vulnerability detection.
- 455, TITLE: Unsupervised Domain Adaptation with Dual-Scheme Fusion Network for Medical Image Segmentation
<https://www.ijcai.org/proceedings/2020/455>
AUTHORS: Danbing Zou, Qikui Zhu, Pingkun Yan
HIGHLIGHT: In this paper, we propose an innovative Dual-Scheme Fusion Network (DSFN) for unsupervised domain adaptation.
- 456, TITLE: Neighbor Combinatorial Attention for Critical Structure Mining
<https://www.ijcai.org/proceedings/2020/456>
AUTHORS: Tanli Zuo, Yukun Qiu, Wei-Shi Zheng
HIGHLIGHT: In this work, we propose a novel GCN module named Neighbor Combinatorial Attention (NCAT) to find critical structure in graph-structured data.
- 457, TITLE: Inferring Degrees from Incomplete Networks and Nonlinear Dynamics
<https://www.ijcai.org/proceedings/2020/457>
AUTHORS: Chunheng Jiang, Jianxi Gao, Malik Magdon-Ismael
HIGHLIGHT: We combine the mean-field theory with combinatorial optimization to learn vertex degrees.
- 458, TITLE: DeepWeave: Accelerating Job Completion Time with Deep Reinforcement Learning-based Coflow Scheduling
<https://www.ijcai.org/proceedings/2020/458>
AUTHORS: Penghao Sun, Zehua Guo, Junchao Wang, Junfei Li, Julong Lan, Yuxiang Hu
HIGHLIGHT: Different from existing schemes that use hand-crafted heuristic algorithms to solve this problem, in this paper, we propose a Deep Reinforcement Learning (DRL) framework named DeepWeave to generate coflow scheduling policies.
- 459, TITLE: Adversarial Mutual Information Learning for Network Embedding
<https://www.ijcai.org/proceedings/2020/459>
AUTHORS: Dongxiao He, Lu Zhai, Zhigang Li, Di Jin, Liang Yang, Yuxiao Huang, Philip S. Yu
HIGHLIGHT: To address this problem, we propose to use the adversarial idea on the representation mechanism, i.e. on the encoding mechanism under the framework of autoencoder.
- 460, TITLE: Binary Classification from Positive Data with Skewed Confidence
<https://www.ijcai.org/proceedings/2020/460>
AUTHORS: Kazuhiko Shinoda, Hirotaka Kaji, Masashi Sugiyama
HIGHLIGHT: In this paper, we introduce the parameterized model of the skewed confidence, and propose the method for selecting the hyperparameter which cancels out the negative impact of the skewed confidence under the assumption that we have the misclassification rate of positive samples as a prior knowledge.
- 461, TITLE: A Label Attention Model for ICD Coding from Clinical Text
<https://www.ijcai.org/proceedings/2020/461>
AUTHORS: Thanh Vu, Dat Quoc Nguyen, Anthony Nguyen
HIGHLIGHT: In this paper, we propose a new label attention model for automatic ICD coding, which can handle both the various lengths and the interdependence of the ICD code related text fragments.
- 462, TITLE: Predicting Landslides Using Locally Aligned Convolutional Neural Networks
<https://www.ijcai.org/proceedings/2020/462>
AUTHORS: Ainaz Hajimoradlou, Gioachino Roberti, David Poole
HIGHLIGHT: We propose a model called Locally Aligned Convolutional Neural Network, LACNN, that follows the ground surface at multiple scales to predict possible landslide occurrence for a single point.

- 463, TITLE: Semi-Markov Reinforcement Learning for Stochastic Resource Collection
<https://www.ijcai.org/proceedings/2020/463>
AUTHORS: Sebastian Schmolli, Matthias Schubert
HIGHLIGHT: We show that the task of collecting stochastic, spatially distributed resources (Stochastic Resource Collection, SRC) may be considered as a Semi-Markov-Decision-Process.
- 464, TITLE: Inverse Reinforcement Learning for Team Sports: Valuing Actions and Players
<https://www.ijcai.org/proceedings/2020/464>
AUTHORS: Yudong Luo, Oliver Schulte, Pascal Poupart
HIGHLIGHT: This paper combines Q-function learning with inverse reinforcement learning (IRL) to provide a novel player ranking method.
- 465, TITLE: C3MM: Clique-Closure based Hyperlink Prediction
<https://www.ijcai.org/proceedings/2020/465>
AUTHORS: Govind Sharma, Prasanna Patil, M. Narasimha Murty
HIGHLIGHT: Akin to the link prediction problem in graphs, we deal with hyperlink (higher-order link) prediction in hypergraphs.
- 466, TITLE: Generating Behavior-Diverse Game AIs with Evolutionary Multi-Objective Deep Reinforcement Learning
<https://www.ijcai.org/proceedings/2020/466>
AUTHORS: Ruimin Shen, Yan Zheng, Jianye Hao, Zhaopeng Meng, Yingfeng Chen, Changjie Fan, Yang Liu
HIGHLIGHT: To bridge the gap, we introduce a new framework, named EMOGI, which can automatically generate desirable styles with almost no domain knowledge.
- 467, TITLE: CDC: Classification Driven Compression for Bandwidth Efficient Edge-Cloud Collaborative Deep Learning
<https://www.ijcai.org/proceedings/2020/467>
AUTHORS: Yuanrui Dong, Peng Zhao, Hanqiao Yu, Cong Zhao, Shusen Yang
HIGHLIGHT: Focusing on bandwidth efficient edge-cloud collaborative training of DNN-based classifiers, we present CDC, a Classification Driven Compression framework that reduces bandwidth consumption while preserving classification accuracy of edge-cloud collaborative DL.
- 468, TITLE: HID: Hierarchical Multiscale Representation Learning for Information Diffusion
<https://www.ijcai.org/proceedings/2020/468>
AUTHORS: Honglu Zhou, Shuyuan Xu, Zuohui Fu, Gerard de Melo, Yongfeng Zhang, Mubbasir Kapadia
HIGHLIGHT: In this paper, we present a Hierarchical Information Diffusion (HID) framework by integrating user representation learning and multiscale modeling.
- 469, TITLE: The Graph-based Mutual Attentive Network for Automatic Diagnosis
<https://www.ijcai.org/proceedings/2020/469>
AUTHORS: Quan Yuan, Jun Chen, Chao Lu, Haifeng Huang
HIGHLIGHT: In this paper, we propose to build the diagnosis model based on the high-standard EMR documents from real hospitals to improve the accuracy and the credibility of the resulting model.
- 470, TITLE: Towards Alleviating Traffic Congestion: Optimal Route Planning for Massive-Scale Trips
<https://www.ijcai.org/proceedings/2020/470>
AUTHORS: Ke Li, Lisi Chen, Shuo Shang
HIGHLIGHT: We investigate the problem of optimal route planning for massive-scale trips: Given a traffic-aware road network and a set of trip queries Q , we aim to find a route for each trip such that the global travel time cost for all queries in Q is minimized.
- 471, TITLE: Automatic Emergency Diagnosis with Knowledge-Based Tree Decoding
<https://www.ijcai.org/proceedings/2020/471>
AUTHORS: Ke Wang, Xuyan Chen, Ning Chen, Ting Chen
HIGHLIGHT: In this paper, we propose a knowledge-based tree decoding model (K-BTD), and the inference procedure is a top-down decoding process from the root node to leaf nodes.
- 472, TITLE: Exploiting Mutual Information for Substructure-aware Graph Representation Learning
<https://www.ijcai.org/proceedings/2020/472>
AUTHORS: Pengyang Wang, Yanjie Fu, Yuanchun Zhou, Kunpeng Liu, Xiaolin Li, Kien Hua
HIGHLIGHT: In this paper, we design and evaluate a new substructure-aware Graph Representation Learning (GRL) approach.

- 473, TITLE: Optimal Policy for Deployment of Machine Learning Models on Energy-Bounded Systems
<https://www.ijcai.org/proceedings/2020/473>
AUTHORS: Seyed Iman Mirzadeh, Hassan Ghasemzadeh
HIGHLIGHT: In an entirely new direction, we introduce an effective method to find a combination of "multiple" models that are optimal in terms of power-efficiency and performance by solving an optimization problem in which both performance and power consumption are taken into account.
- 474, TITLE: A Two-Stage Matheuristic Algorithm for Classical Inventory Routing Problem
<https://www.ijcai.org/proceedings/2020/474>
AUTHORS: Zhouxing Su, Shihao Huang, Chungun Li, Zhipeng Lül
HIGHLIGHT: We propose a two-stage matheuristic (TSMH) algorithm to solve the IRP.
- 475, TITLE: Learning to Accelerate Heuristic Searching for Large-Scale Maximum Weighted b-Matching Problems in Online Advertising
<https://www.ijcai.org/proceedings/2020/475>
AUTHORS: Xiaotian Hao, Junqi Jin, Jianye Hao, Jin Li, Weixun Wang, Yi Ma, Zhenzhe Zheng, Han Li, Jian Xu, Kun Gai
HIGHLIGHT: To address this issue, based on a key observation that the matching instances vary not too much, we propose NeuSearcher which leverage the knowledge learned from previously instances to solve new problem instances.
- 476, TITLE: FakeSpotter: A Simple yet Robust Baseline for Spotting AI-Synthesized Fake Faces
<https://www.ijcai.org/proceedings/2020/476>
AUTHORS: Run Wang, Felix Juefei-Xu, Lei Ma, Xiaofei Xie, Yihao Huang, Jian Wang, Yang Liu
HIGHLIGHT: In this work, we propose a novel approach, named FakeSpotter, based on monitoring neuron behaviors to spot AI-synthesized fake faces.
- 477, TITLE: Learning Data-Driven Drug-Target-Disease Interaction via Neural Tensor Network
<https://www.ijcai.org/proceedings/2020/477>
AUTHORS: Huiyuan Chen, Jing Li
HIGHLIGHT: Here we propose a Neural Tensor Network (NeurTN) to assist personalized medicine treatments.
- 478, TITLE: Why We Go Where We Go: Profiling User Decisions on Choosing POIs
<https://www.ijcai.org/proceedings/2020/478>
AUTHORS: Renjun Hu, Xinjiang Lu, Chuanren Liu, Yanyan Li, Hao Liu, Jingjing Gu, Shuai Ma, Hui Xiong
HIGHLIGHT: To this end, in this paper, we propose a user decision profiling framework, named PROUD, which can identify the key factors in people's decisions on choosing POIs.
- 479, TITLE: MLS3RDUH: Deep Unsupervised Hashing via Manifold based Local Semantic Similarity Structure Reconstructing
<https://www.ijcai.org/proceedings/2020/479>
AUTHORS: Rong-Cheng Tu, Xian-Ling Mao, Wei Wei
HIGHLIGHT: Thus, to tackle this problem, in this paper, we propose a novel deep unsupervised hashing method, called MLS3RDUH, which can reduce the noisy datapoints to further enhance retrieval performance.
- 480, TITLE: A Game Theoretic Approach For Core Resilience
<https://www.ijcai.org/proceedings/2020/480>
AUTHORS: Sourav Medya, Tiyani Ma, Arlei Silva, Ambuj Singh
HIGHLIGHT: Motivated by these challenges, we propose a novel algorithm inspired by Shapley value---a cooperative game-theoretic concept--- that is able to leverage the strong interdependencies in the effects of edge removals in the search space.
- 481, TITLE: Differential Privacy for Stackelberg Games
<https://www.ijcai.org/proceedings/2020/481>
AUTHORS: Ferdinando Fioretto, Lesia Mitridati, Pascal Van Hentenryck
HIGHLIGHT: This paper introduces a differentially private (DP) mechanism to protect the information exchanged during the coordination of sequential and interdependent markets.
- 482, TITLE: HyperNews: Simultaneous News Recommendation and Active-Time Prediction via a Double-Task Deep Neural Network
<https://www.ijcai.org/proceedings/2020/482>
AUTHORS: Rui Liu, Huilin Peng, Yong Chen, Dell Zhang

HIGHLIGHT: In this paper, we propose a novel approach dubbed HyperNews which explicitly models the effect of timeliness on news recommendation.

483, **TITLE:** Modeling Perception Errors towards Robust Decision Making in Autonomous Vehicles
<https://www.ijcai.org/proceedings/2020/483>
AUTHORS: Andrea Piazzoni, Jim Cherian, Martin Slavik, Justin Dauwels
HIGHLIGHT: In this paper, we propose a simulation-based methodology towards answering this question.

484, **TITLE:** BERT-PLI: Modeling Paragraph-Level Interactions for Legal Case Retrieval
<https://www.ijcai.org/proceedings/2020/484>
AUTHORS: Yunqiu Shao, Jiixin Mao, Yiqun Liu, Weizhi Ma, Ken Satoh, Min Zhang, Shaoping Ma
HIGHLIGHT: To address these challenges, we propose BERT-PLI, a novel model that utilizes BERT to capture the semantic relationships at the paragraph-level and then infers the relevance between two cases by aggregating paragraph-level interactions.

485, **TITLE:** Auxiliary Template-Enhanced Generative Compatibility Modeling
<https://www.ijcai.org/proceedings/2020/485>
AUTHORS: Jinhuan Liu, Xuemeng Song, Zhaochun Ren, Liqiang Nie, Zhaopeng Tu, Jun Ma
HIGHLIGHT: In this work, we aim to improve the compatibility modeling by sketching a compatible template for a given item as an auxiliary link between fashion items.

486, **TITLE:** Community-Centric Graph Convolutional Network for Unsupervised Community Detection
<https://www.ijcai.org/proceedings/2020/486>
AUTHORS: Dongxiao He, Yue Song, Di Jin, Zhiyong Feng, Binbin Zhang, Zhizhi Yu, Weixiong Zhang
HIGHLIGHT: We introduced a community-centric dual decoder to reconstruct network structures and node attributes separately in an unsupervised fashion, for faithful community detection in the input space.

487, **TITLE:** An Attention-based Model for Conversion Rate Prediction with Delayed Feedback via Post-click Calibration
<https://www.ijcai.org/proceedings/2020/487>
AUTHORS: Yumin Su, Liang Zhang, Quanyu Dai, Bo Zhang, Jinyao Yan, Dan Wang, Yongjun Bao, Sulong Xu, Yang He, Weipeng Yan
HIGHLIGHT: In this paper, we propose a novel deep learning framework to tackle the two challenges.

488, **TITLE:** Learning Model with Error -- Exposing the Hidden Model of BAYHENN
<https://www.ijcai.org/proceedings/2020/488>
AUTHORS: Harry W. H. Wong, Jack P. K. Ma, Donald P. H. Wong, Lucien K. L. Ng, Sherman S. M. Chow
HIGHLIGHT: This paper refutes the security claim of BAYHENN via both theoretical and empirical analyses.

489, **TITLE:** Learning the Compositional Visual Coherence for Complementary Recommendations
<https://www.ijcai.org/proceedings/2020/489>
AUTHORS: Zhi Li, Bo Wu, Qi Liu, Likang Wu, Hongke Zhao, Tao Mei
HIGHLIGHT: Towards this end, in this paper, we propose a novel Content Attentive Neural Network (CANN) to model the comprehensive compositional coherence on both global contents and semantic contents.

490, **TITLE:** Efficient Community Search over Large Directed Graph: An Augmented Index-based Approach
<https://www.ijcai.org/proceedings/2020/490>
AUTHORS: Yankai Chen, Jie Zhang, Yixiang Fang, Xin Cao, Irwin King
HIGHLIGHT: To tackle this issue, in this paper we propose a novel index called D-Forest, which allows a CSD query to be completed within the optimal time cost.

491, **TITLE:** An Interactive Multi-Task Learning Framework for Next POI Recommendation with Uncertain Check-ins
<https://www.ijcai.org/proceedings/2020/491>
AUTHORS: Lu Zhang, Zhu Sun, Jie Zhang, Yu Lei, Chen Li, Ziqing Wu, Horst Kloeden, Felix Klanner
HIGHLIGHT: To ease this issue, we propose a novel interactive multi-task learning (iMTL) framework to better exploit the interplay between activity and location preference.

492, **TITLE:** Pivot-based Maximal Biclique Enumeration
<https://www.ijcai.org/proceedings/2020/492>
AUTHORS: Aman Abidi, Rui Zhou, Lu Chen, Chengfei Liu
HIGHLIGHT: Therefore, in this paper, we explore the pivot-based pruning for biclique enumeration.

- 493, TITLE: CooBa: Cross-project Bug Localization via Adversarial Transfer Learning
<https://www.ijcai.org/proceedings/2020/493>
AUTHORS: Ziyue Zhu, Yun Li, Hanghang Tong, Yu Wang
HIGHLIGHT: To address this issue, we propose an adversarial transfer learning bug localization approach, focusing on only transferring the common characteristics (i.e., public information) across projects.
- 494, TITLE: Hierarchical Linear Disentanglement of Data-Driven Conceptual Spaces
<https://www.ijcai.org/proceedings/2020/494>
AUTHORS: Rana Alshaiikh, Zied Bouraoui, Steven Schockaert
HIGHLIGHT: Our hypothesis in this paper is that such single-space representations are sub-optimal for learning quality dimensions, due to the fact that semantic features are often only relevant to a subset of the entities.
- 495, TITLE: How Far are We from Effective Context Modeling? An Exploratory Study on Semantic Parsing in Context
<https://www.ijcai.org/proceedings/2020/495>
AUTHORS: Qian Liu, Bei Chen, Jiaqi Guo, Jian-Guang Lou, Bin Zhou, Dongmei Zhang
HIGHLIGHT: We present a grammar-based decoding semantic parser and adapt typical context modeling methods on top of it.
- 496, TITLE: Lexical-Constraint-Aware Neural Machine Translation via Data Augmentation
<https://www.ijcai.org/proceedings/2020/496>
AUTHORS: Guanhua Chen, Yun Chen, Yong Wang, Victor O.K. Li
HIGHLIGHT: In response to these problems, we present a conceptually simple and empirically effective data augmentation approach in lexical constrained neural machine translation.
- 497, TITLE: Attention-based Multi-level Feature Fusion for Named Entity Recognition
<https://www.ijcai.org/proceedings/2020/497>
AUTHORS: Zhiwei Yang, Hechang Chen, Jiawei Zhang, Jing Ma, Yi Chang
HIGHLIGHT: In this study, we propose a novel framework called attention-based multi-level feature fusion (AMFF), which is used to capture the multi-level features from different perspectives to improve NER.
- 498, TITLE: Exemplar Guided Neural Dialogue Generation
<https://www.ijcai.org/proceedings/2020/498>
AUTHORS: Hengyi Cai, Hongshen Chen, Yonghao Song, Xiaofang Zhao, Dawei Yin
HIGHLIGHT: To address the issues, we propose an exemplar guided neural dialogue generation model where exemplar responses are retrieved in terms of both the text similarity and the topic proximity through a two-stage exemplar retrieval model.
- 499, TITLE: Knowledge Enhanced Event Causality Identification with Mention Masking Generalizations
<https://www.ijcai.org/proceedings/2020/499>
AUTHORS: Jian Liu, Yubo Chen, Jun Zhao
HIGHLIGHT: In this paper, we present a new method for event causality identification, aiming to address limitations of previous methods.
- 500, TITLE: Two-Phase Hypergraph Based Reasoning with Dynamic Relations for Multi-Hop KBQA
<https://www.ijcai.org/proceedings/2020/500>
AUTHORS: Jiale Han, Bo Cheng, Xu Wang
HIGHLIGHT: Inspired by human's hop-by-hop reasoning, we propose an interpretable KBQA model based on DHGCN, namely two-phase hypergraph based reasoning with dynamic relations, which explicitly updates relation information and dynamically pays attention to different relations at different hops.
- 501, TITLE: LogiQA: A Challenge Dataset for Machine Reading Comprehension with Logical Reasoning
<https://www.ijcai.org/proceedings/2020/501>
AUTHORS: Jian Liu, Leyang Cui, Hanmeng Liu, Dandan Huang, Yile Wang, Yue Zhang
HIGHLIGHT: We build a comprehensive dataset, named LogiQA, which is sourced from expert-written questions for testing human Logical reasoning.
- 502, TITLE: Guided Generation of Cause and Effect
<https://www.ijcai.org/proceedings/2020/502>
AUTHORS: Zhongyang Li, Xiao Ding, Ting Liu, J. Edward Hu, Benjamin Van Durme
HIGHLIGHT: We present a conditional text generation framework that posits sentential expressions of possible causes and effects.

- 503, TITLE: EmoElicitor: An Open Domain Response Generation Model with User Emotional Reaction Awareness
<https://www.ijcai.org/proceedings/2020/503>
AUTHORS: Shifeng Li, Shi Feng, Daling Wang, Kaisong Song, Yifei Zhang, Weichao Wang
HIGHLIGHT: In this paper, we propose a novel variational model named EmoElicitor to generate appropriate responses that can elicit user's specific emotion.
- 504, TITLE: RECPARSER: A Recursive Semantic Parsing Framework for Text-to-SQL Task
<https://www.ijcai.org/proceedings/2020/504>
AUTHORS: Yu Zeng, Yan Gao, Jiaqi Guo, Bei Chen, Qian Liu, Jian-Guang Lou, Fei Teng, Dongmei Zhang
HIGHLIGHT: In this paper, we propose a novel recursive semantic parsing framework called RECPARSER to generate the nested SQL query layer-by-layer.
- 505, TITLE: Learning Latent Forests for Medical Relation Extraction
<https://www.ijcai.org/proceedings/2020/505>
AUTHORS: Zhijiang Guo, Guoshun Nan, Wei LU, Shay B. Cohen
HIGHLIGHT: In this work, we propose a novel model which treats the dependency structure as a latent variable and induces it from the unstructured text in an end-to-end fashion.
- 506, TITLE: Global Structure and Local Semantics-Preserved Embeddings for Entity Alignment
<https://www.ijcai.org/proceedings/2020/506>
AUTHORS: Hao Nie, Xianpei Han, Le Sun, Chi Man Wong, Qiang Chen, Suhui Wu, Wei Zhang
HIGHLIGHT: In this paper, we propose to jointly leverage the global KG structure and entity-specific relational triples for better entity alignment.
- 507, TITLE: Hierarchical Matching Network for Heterogeneous Entity Resolution
<https://www.ijcai.org/proceedings/2020/507>
AUTHORS: Cheng Fu, Xianpei Han, Jiaming He, Le Sun
HIGHLIGHT: To resolve the above problems, this paper proposes an end-to-end hierarchical matching network (HierMatcher) for entity resolution, which can jointly match entities in three levels—token, attribute, and entity.
- 508, TITLE: Unsupervised Domain Adaptation of a Pretrained Cross-Lingual Language Model
<https://www.ijcai.org/proceedings/2020/508>
AUTHORS: Juntao Li, Ruidan He, Hai Ye, Hwee Tou Ng, Lidong Bing, Rui Yan
HIGHLIGHT: Specifically, we propose a novel unsupervised feature decomposition method that can automatically extract domain-specific features and domain-invariant features from the entangled pretrained cross-lingual representations, given unlabeled raw texts in the source language.
- 509, TITLE: Retrieve, Program, Repeat: Complex Knowledge Base Question Answering via Alternate Meta-learning
<https://www.ijcai.org/proceedings/2020/509>
AUTHORS: Yuncheng Hua, Yuan-Fang Li, Gholamreza Haffari, Guilin Qi, Wei Wu
HIGHLIGHT: In this paper, we present a novel method that automatically learns a retrieval model alternately with the programmer from weak supervision, i.e., the system's performance with respect to the produced answers.
- 510, TITLE: Generating Reasonable Legal Text through the Combination of Language Modeling and Question Answering
<https://www.ijcai.org/proceedings/2020/510>
AUTHORS: Weijing Huang, Xianfeng Liao, Zhiqiang Xie, Jiang Qian, Bojin Zhuang, Shaojun Wang, Jing Xiao
HIGHLIGHT: To generate reasonable legal documents, we propose a novel method CoLMQA, which (1) combines Language Modeling and Question Answering, (2) generates text with slots by Language Modeling, and (3) fills the slots by our proposed Question Answering method named Transformer-based Key-Value Memory Networks.
- 511, TITLE: Modeling Voting for System Combination in Machine Translation
<https://www.ijcai.org/proceedings/2020/511>
AUTHORS: Xuancheng Huang, Jiacheng Zhang, Zhixing Tan, Derek F. Wong, Huanbo Luan, Jingfang Xu, Maosong Sun, Yang Liu
HIGHLIGHT: In this work, we propose an approach to modeling voting for system combination in machine translation.
- 512, TITLE: Unsupervised Multilingual Alignment using Wasserstein Barycenter
<https://www.ijcai.org/proceedings/2020/512>
AUTHORS: Xin Lian, Kshitij Jain, Jakub Truszkowski, Pascal Poupart, Yaoliang Yu

HIGHLIGHT: Instead of going through a rather arbitrarily chosen pivot language, we propose to use the Wasserstein barycenter as a more informative "mean" language: it encapsulates information from all languages and minimizes all pairwise transportation costs.

513, **TITLE:** A De Novo Divide-and-Merge Paradigm for Acoustic Model Optimization in Automatic Speech Recognition
<https://www.ijcai.org/proceedings/2020/513>
AUTHORS: Conghui Tan, Di Jiang, Jinhua Peng, Xueyang Wu, Qian Xu, Qiang Yang
HIGHLIGHT: In this paper, we propose a novel Divide-and-Merge paradigm to solve salient problems plaguing the ASR field.

514, **TITLE:** Neural Abstractive Summarization with Structural Attention
<https://www.ijcai.org/proceedings/2020/514>
AUTHORS: Tanya Chowdhury, Sachin Kumar, Tanmoy Chakraborty
HIGHLIGHT: In this work, we present a hierarchical encoder based on structural attention to model such inter-sentence and inter-document dependencies.

515, **TITLE:** Domain Adaptation for Semantic Parsing
<https://www.ijcai.org/proceedings/2020/515>
AUTHORS: Zechang Li, Yuxuan Lai, Yansong Feng, Dongyan Zhao
HIGHLIGHT: In this paper, we propose a novel semantic parser for domain adaptation, where we have much fewer annotated data in the target domain compared to the source domain.

516, **TITLE:** Evaluating Natural Language Generation via Unbalanced Optimal Transport
<https://www.ijcai.org/proceedings/2020/516>
AUTHORS: Yimeng Chen, Yanyan Lan, Ruibin Xiong, Liang Pang, Zhiming Ma, Xueqi Cheng
HIGHLIGHT: In this paper, we provide an in-depth study on the relations between these metrics.

517, **TITLE:** Modeling Topical Relevance for Multi-Turn Dialogue Generation
<https://www.ijcai.org/proceedings/2020/517>
AUTHORS: Hainan Zhang, Yanyan Lan, Liang Pang, Hongshen Chen, Zhuoye Ding, Dawei Yin
HIGHLIGHT: In this paper, we propose a new model, named STAR-BTM, to tackle this problem.

518, **TITLE:** Robust Front-End for Multi-Channel ASR using Flow-Based Density Estimation
<https://www.ijcai.org/proceedings/2020/518>
AUTHORS: Hyeonju Kim, Hyeonseung Lee, Woo Hyun Kang, Hyung Yong Kim, Nam Soo Kim
HIGHLIGHT: In this paper, we propose a novel approach which incorporates flow-based density estimation for the robust front-end using non-parallel clean and noisy speech.

519, **TITLE:** Formal Query Building with Query Structure Prediction for Complex Question Answering over Knowledge Base
<https://www.ijcai.org/proceedings/2020/519>
AUTHORS: Yongrui Chen, Huiying Li, Yuncheng Hua, Guilin Qi
HIGHLIGHT: In this paper, we propose a new formal query building approach that consists of two stages.

520, **TITLE:** Towards Fully 8-bit Integer Inference for the Transformer Model
<https://www.ijcai.org/proceedings/2020/520>
AUTHORS: Ye Lin, Yanyang Li, Tengbo Liu, Tong Xiao, Tongran Liu, Jingbo Zhu
HIGHLIGHT: In this work, we show that after a principled modification on the Transformer architecture, dubbed Integer Transformer, an (almost) fully 8-bit integer inference algorithm Scale Propagation could be derived.

521, **TITLE:** TopicKA: Generating Commonsense Knowledge-Aware Dialogue Responses Towards the Recommended Topic Fact
<https://www.ijcai.org/proceedings/2020/521>
AUTHORS: Sixing Wu, Ying Li, Dawei Zhang, Yang Zhou, Zhonghai Wu
HIGHLIGHT: In this paper, we introduce a topic fact-based commonsense knowledge-aware approach, TopicKA.

522, **TITLE:** Infobox-to-text Generation with Tree-like Planning based Attention Network
<https://www.ijcai.org/proceedings/2020/522>
AUTHORS: Yang Bai, Ziran Li, Ning Ding, Ying Shen, Hai-Tao Zheng
HIGHLIGHT: To address these issues, we propose a Tree-like PLanning based Attention Network (Tree-PLAN) which leverages both static order-planning and dynamic tuning to guide the generation.

- 523, TITLE: Triple-to-Text Generation with an Anchor-to-Prototype Framework
<https://www.ijcai.org/proceedings/2020/523>
AUTHORS: Ziran Li, Zibo Lin, Ning Ding, Hai-Tao Zheng, Ying Shen
HIGHLIGHT: In this paper, we propose a novel anchor-to-prototype framework to bridge the gap between structured RDF triples and natural text.
- 524, TITLE: Attention as Relation: Learning Supervised Multi-head Self-Attention for Relation Extraction
<https://www.ijcai.org/proceedings/2020/524>
AUTHORS: Jie Liu, Shaowei Chen, Bingquan Wang, Jiaxin Zhang, Na Li, Tong Xu
HIGHLIGHT: In this paper, we propose an attention-based joint model, which mainly contains an entity extraction module and a relation detection module, to address the challenges.
- 525, TITLE: An Iterative Multi-Source Mutual Knowledge Transfer Framework for Machine Reading Comprehension
<https://www.ijcai.org/proceedings/2020/525>
AUTHORS: Xin Liu, Kai Liu, Xiang Li, Jinsong Su, Yubin Ge, Bin Wang, Jiebo Luo
HIGHLIGHT: In this paper, we propose a novel iterative multi-source mutual knowledge transfer framework for MRC.
- 526, TITLE: Text Style Transfer via Learning Style Instance Supported Latent Space
<https://www.ijcai.org/proceedings/2020/526>
AUTHORS: Xiaoyuan Yi, Zhenghao Liu, Wenhao Li, Maosong Sun
HIGHLIGHT: To address this problem, we propose a style instance supported method, StyIns.
- 527, TITLE: Learning with Noise: Improving Distantly-Supervised Fine-grained Entity Typing via Automatic Relabeling
<https://www.ijcai.org/proceedings/2020/527>
AUTHORS: Haoyu Zhang, Dingkun Long, Guangwei Xu, Muhua Zhu, Pengjun Xie, Fei Huang, Ji Wang
HIGHLIGHT: In this paper, we propose a probabilistic automatic relabeling method which treats all training samples uniformly.
- 528, TITLE: Joint Time-Frequency and Time Domain Learning for Speech Enhancement
<https://www.ijcai.org/proceedings/2020/528>
AUTHORS: Chuanxin Tang, Chong Luo, Zhiyuan Zhao, Wenxuan Xie, Wenjun Zeng
HIGHLIGHT: In this paper, we present a cross-domain framework named TFT-Net, which takes time-frequency spectrogram as input and produces time-domain waveform as output.
- 529, TITLE: Answer Generation through Unified Memories over Multiple Passages
<https://www.ijcai.org/proceedings/2020/529>
AUTHORS: Makoto Nakatsuji, Sohei Okui
HIGHLIGHT: First, it determines which tokens in the passages are matched to the question. In particular, it investigates matches between tokens in positive passages, which are assigned to the question, and those in negative passages, which are not related to the question. Next, it determines which tokens in the passage are matched to other passages assigned to the same question and at the same time it investigates the topics in which they are matched. Finally, it encodes the token sequences with the above two matching results into unified memories in the passage encoders and learns the answer sequence by using an encoder-decoder with a multiple-pointer-generator mechanism.
- 530, TITLE: On the Importance of Word and Sentence Representation Learning in Implicit Discourse Relation Classification
<https://www.ijcai.org/proceedings/2020/530>
AUTHORS: Xin Liu, Jiefu Ou, Yangqiu Song, Xin Jiang
HIGHLIGHT: We argue that a powerful contextualized representation module, a bilateral multi-perspective matching module, and a global information fusion module are all important to implicit discourse analysis. We propose a novel model to combine these modules together.
- 531, TITLE: MuLaN: Multilingual Label propagation for Word Sense Disambiguation
<https://www.ijcai.org/proceedings/2020/531>
AUTHORS: Edoardo Barba, Luigi Procopio, Niccolò Campolungo, Tommaso Pasini, Roberto Navigli
HIGHLIGHT: In this paper, we propose a semi-supervised approach based upon a novel label propagation scheme, which, by jointly leveraging contextualized word embeddings and the multilingual information enclosed in a knowledge base, projects sense labels from a high-resource language, i.e., English, to lower-resourced ones.
- 532, TITLE: Dialogue State Induction Using Neural Latent Variable Models

<https://www.ijcai.org/proceedings/2020/532>

AUTHORS: Qingkai Min, Libo Qin, Zhiyang Teng, Xiao Liu, Yue Zhang

HIGHLIGHT: We propose the task of dialogue state induction, building two neural latent variable models that mine dialogue states automatically from unlabeled customer service dialogue records.

533, TITLE: CoSDA-ML: Multi-Lingual Code-Switching Data Augmentation for Zero-Shot Cross-Lingual NLP

<https://www.ijcai.org/proceedings/2020/533>

AUTHORS: Libo Qin, Minheng Ni, Yue Zhang, Wanxiang Che

HIGHLIGHT: We propose a data augmentation framework to generate multi-lingual code-switching data to fine-tune mBERT, which encourages model to align representations from source and multiple target languages once by mixing their context information.

534, TITLE: Task-Level Curriculum Learning for Non-Autoregressive Neural Machine Translation

<https://www.ijcai.org/proceedings/2020/534>

AUTHORS: Jinglin Liu, Yi Ren, Xu Tan, Chen Zhang, Tao Qin, Zhou Zhao, Tie-Yan Liu

HIGHLIGHT: To smooth the shift from AT training to NAT training, in this paper, we introduce semi-autoregressive translation (SAT) as intermediate tasks.

535, TITLE: End-to-End Transition-Based Online Dialogue Disentanglement

<https://www.ijcai.org/proceedings/2020/535>

AUTHORS: Hui Liu, Zhan Shi, Jia-Chen Gu, Quan Liu, Si Wei, Xiaodan Zhu

HIGHLIGHT: In this paper, we introduce the first end-to-end transition-based model for online dialogue disentanglement.

536, TITLE: Hierarchical Multi-task Learning for Organization Evaluation of Argumentative Student Essays

<https://www.ijcai.org/proceedings/2020/536>

AUTHORS: Wei Song, Ziyao Song, Lizhen Liu, Ruiji Fu

HIGHLIGHT: In contrast, we propose a neural hierarchical multi-task learning approach for jointly optimizing sentence and paragraph level discourse element identification and organization evaluation.

537, TITLE: Transformers as Soft Reasoners over Language

<https://www.ijcai.org/proceedings/2020/537>

AUTHORS: Peter Clark, Oyvind Tafford, Kyle Richardson

HIGHLIGHT: This paper investigates a modern approach to this problem where the facts and rules are provided as natural language sentences, thus bypassing a formal representation.

538, TITLE: Neural Machine Translation with Error Correction

<https://www.ijcai.org/proceedings/2020/538>

AUTHORS: Kaitao Song, Xu Tan, Jianfeng Lu

HIGHLIGHT: In this paper, we introduce an error correction mechanism into NMT, which corrects the error information in the previous generated tokens to better predict the next token.

539, TITLE: Alleviate Dataset Shift Problem in Fine-grained Entity Typing with Virtual Adversarial Training

<https://www.ijcai.org/proceedings/2020/539>

AUTHORS: Haochen Shi, Siliang Tang, Xiaotao Gu, Bo Chen, Zhigang Chen, Jian Shao, Xiang Ren

HIGHLIGHT: In this work, complementary to the label perspective, we reconsider this problem from the model perspective: Can we learn a more robust typing model with the existence of dataset shift?

540, TITLE: Multi-hop Reading Comprehension across Documents with Path-based Graph Convolutional Network

<https://www.ijcai.org/proceedings/2020/540>

AUTHORS: Zeyun Tang, Yongliang Shen, Xinyin Ma, Wei Xu, Jiale Yu, Weiming Lu

HIGHLIGHT: In this paper, we propose a novel approach to tackle this multi-hop reading comprehension problem.

541, TITLE: Gaussian Embedding of Linked Documents from a Pretrained Semantic Space

<https://www.ijcai.org/proceedings/2020/541>

AUTHORS: Antoine Gourru, Julien Velcin, Julien Jacques

HIGHLIGHT: We formulate the problem in such a way that we model each document as a Gaussian distribution in the word vector space.

542, TITLE: Better AMR-To-Text Generation with Graph Structure Reconstruction

<https://www.ijcai.org/proceedings/2020/542>

AUTHORS: Tianming Wang, Xiaojun Wan, Shaowei Yao

HIGHLIGHT: In this paper, we propose a novel approach that generates texts from AMR graphs while reconstructing the input graph structures.

543, **TITLE:** UniTrans : Unifying Model Transfer and Data Transfer for Cross-Lingual Named Entity Recognition with Unlabeled Data

<https://www.ijcai.org/proceedings/2020/543>

AUTHORS: Qianhui Wu, Zijia Lin, Björn F. Karlsson, Biqing Huang, Jian-Guang Lou

HIGHLIGHT: In this paper, we find that both method types can complement each other, in the sense that, the former can exploit context information via language-independent features but sees no task-specific information in the target language; while the latter generally generates pseudo target-language training data via translation but its exploitation of context information is weakened by inaccurate translations.

544, **TITLE:** Efficient Context-Aware Neural Machine Translation with Layer-Wise Weighting and Input-Aware Gating

<https://www.ijcai.org/proceedings/2020/544>

AUTHORS: Hongfei Xu, Deyi Xiong, Josef van Genabith, Qihui Liu

HIGHLIGHT: In this paper, we propose to make the most of layers pre-trained on sentence-level data in contextual representation learning, reusing representations from the sentence-level Transformer and significantly reducing the cost of incorporating contexts in translation.

545, **TITLE:** Enhancing Dialog Coherence with Event Graph Grounded Content Planning

<https://www.ijcai.org/proceedings/2020/545>

AUTHORS: Jun Xu, Zeyang Lei, Haifeng Wang, Zheng-Yu Niu, Hua Wu, Wanxiang Che

HIGHLIGHT: In this paper, to enhance multi-turn dialog coherence, we propose to leverage event chains to help determine a sketch of a multi-turn dialog.

546, **TITLE:** Asking Effective and Diverse Questions: A Machine Reading Comprehension based Framework for Joint Entity-Relation Extraction

<https://www.ijcai.org/proceedings/2020/546>

AUTHORS: Tianyang Zhao, Zhao Yan, Yunbo Cao, Zhoujun Li

HIGHLIGHT: In this paper, we improve the existing MRC-based entity-relation extraction model through diverse question answering.

547, **TITLE:** Exploring Bilingual Parallel Corpora for Syntactically Controllable Paraphrase Generation

<https://www.ijcai.org/proceedings/2020/547>

AUTHORS: Mingtong Liu, Erguang Yang, Deyi Xiong, Yujie Zhang, Chen Sheng, Changjian Hu, Jinan Xu, Yufeng Chen

HIGHLIGHT: In this paper, we propose a novel end-to-end framework to leverage existing large-scale bilingual parallel corpora to generate paraphrases under the control of syntactic exemplars.

548, **TITLE:** A Structured Latent Variable Recurrent Network With Stochastic Attention For Generating Weibo Comments

<https://www.ijcai.org/proceedings/2020/548>

AUTHORS: Shijie Yang, Liang Li, Shuhui Wang, Weigang Zhang, Qingming Huang, Qi Tian

HIGHLIGHT: In this paper, we propose a structured latent variable recurrent network, which exploits the hierarchical-structured latent variables with stochastic attention to model the variations of comments.

549, **TITLE:** Dataless Short Text Classification Based on Biterm Topic Model and Word Embeddings

<https://www.ijcai.org/proceedings/2020/549>

AUTHORS: Yi Yang, Hongan Wang, Jiaqi Zhu, Yunkun Wu, Kailong Jiang, Wenli Guo, Wandong Shi

HIGHLIGHT: In this paper, we at first propose a novel model named Seeded Biterm Topic Model (SeedBTM) extending BTM to solve the problem of dataless short text classification with seed words.

550, **TITLE:** Leveraging Document-Level Label Consistency for Named Entity Recognition

<https://www.ijcai.org/proceedings/2020/550>

AUTHORS: Tao Gui, Jiacheng Ye, Qi Zhang, Yaqian Zhou, Yeyun Gong, Xuanjing Huang

HIGHLIGHT: This work introduces a novel two-stage label refinement approach to handle document-level label consistency, where a key-value memory network is first used to record draft labels predicted by the base model, and then a multi-channel Transformer makes refinements on these draft predictions based on the explicit co-occurrence relationship derived from the memory network.

551, **TITLE:** Towards Making the Most of Context in Neural Machine Translation

<https://www.ijcai.org/proceedings/2020/551>

AUTHORS: Zaixiang Zheng, Xiang Yue, Shujian Huang, Jiajun Chen, Alexandra Birch

HIGHLIGHT: We argue that previous research did not make a clear use of the global context, and propose a new document-level NMT framework that deliberately models the local context of each sentence with the awareness of the global context of the document in both source and target languages.

552, **TITLE:** Hype-HAN: Hyperbolic Hierarchical Attention Network for Semantic Embedding

<https://www.ijcai.org/proceedings/2020/552>

AUTHORS: Chengkun Zhang, Junbin Gao

HIGHLIGHT: This paper bridges hyperbolic space's superiority to the power-law structure of documents by introducing a hyperbolic neural network architecture named Hyperbolic Hierarchical Attention Network (Hype-HAN).

553, **TITLE:** ERNIE-GEN: An Enhanced Multi-Flow Pre-training and Fine-tuning Framework for Natural Language Generation

<https://www.ijcai.org/proceedings/2020/553>

AUTHORS: Dongling Xiao, Han Zhang, Yukun Li, Yu Sun, Hao Tian, Hua Wu, Haifeng Wang

HIGHLIGHT: To address this issue, we propose an enhanced multi-flow sequence to sequence pre-training and fine-tuning framework named ERNIE-GEN, which bridges the discrepancy between training and inference with an infilling generation mechanism and a noise-aware generation method.

554, **TITLE:** TransOMCS: From Linguistic Graphs to Commonsense Knowledge

<https://www.ijcai.org/proceedings/2020/554>

AUTHORS: Hongming Zhang, Daniel Khashabi, Yangqiu Song, Dan Roth

HIGHLIGHT: In this paper, we explore a practical way of mining commonsense knowledge from linguistic graphs, with the goal of transferring cheap knowledge obtained with linguistic patterns into expensive commonsense knowledge.

555, **TITLE:** Teacher-Student Networks with Multiple Decoders for Solving Math Word Problem

<https://www.ijcai.org/proceedings/2020/555>

AUTHORS: Jipeng Zhang, Roy Ka-Wei Lee, Ee-Peng Lim, Wei Qin, Lei Wang, Jie Shao, Qianru Sun

HIGHLIGHT: To address this problem, this paper proposes a novel approach, TSN-MD, by leveraging the teacher network to integrate the knowledge of equivalent solution expressions and then to regularize the learning behavior of the student network.

556, **TITLE:** Generalized Zero-Shot Text Classification for ICD Coding

<https://www.ijcai.org/proceedings/2020/556>

AUTHORS: Congzheng Song, Shanghang Zhang, Najmeh Sadoughi, Pengtao Xie, Eric Xing

HIGHLIGHT: In this paper, we propose a latent feature generation framework to improve the prediction on unseen codes without compromising the performance on seen codes.

557, **TITLE:** Gated POS-Level Language Model for Authorship Verification

<https://www.ijcai.org/proceedings/2020/557>

AUTHORS: Linshu Ouyang, Yongzheng Zhang, Hui Liu, Yige Chen, Yipeng Wang

HIGHLIGHT: This paper introduces a novel POS-level (Part of Speech) gated RNN based language model to effectively learn the author-specific syntactic styles.

558, **TITLE:** Modeling Dense Cross-Modal Interactions for Joint Entity-Relation Extraction

<https://www.ijcai.org/proceedings/2020/558>

AUTHORS: Shan Zhao, Minghao Hu, Zhiping Cai, Fang Liu

HIGHLIGHT: In this paper, we propose a deep Cross-Modal Attention Network (CMAN) for joint entity and relation extraction.

559, **TITLE:** Knowledge Graphs Enhanced Neural Machine Translation

<https://www.ijcai.org/proceedings/2020/559>

AUTHORS: Yang Zhao, Jiajun Zhang, Yu Zhou, Chengqing Zong

HIGHLIGHT: To improve the translation quality of these entities, in this paper we propose a novel KGs enhanced NMT method.

560, **TITLE:** Fast and Accurate Neural CRF Constituency Parsing

<https://www.ijcai.org/proceedings/2020/560>

AUTHORS: Yu Zhang, Houquan Zhou, Zhenghua Li

HIGHLIGHT: This work presents a fast and accurate neural CRF constituency parser.

561, **TITLE:** A Relation-Specific Attention Network for Joint Entity and Relation Extraction

<https://www.ijcai.org/proceedings/2020/561>

AUTHORS: Yue Yuan, Xiaofei Zhou, Shirui Pan, Qiannan Zhu, Zeliang Song, Li Guo
HIGHLIGHT: In this paper, we propose a relation-specific attention network (RSAN) to handle the issue.

562, TITLE: Multi-Directional Heuristic Search

<https://www.ijcai.org/proceedings/2020/562>

AUTHORS: Dor Atzmon, Jiaoyang Li, Ariel Felner, Eliran Nachmani, Shahaf Shperberg, Nathan Sturtevant, Sven Koenig
HIGHLIGHT: In this paper, we introduce MM*, a Multi-Directional Heuristic Search algorithm that finds the optimal meeting location under different cost functions.

563, TITLE: Steady-State Policy Synthesis in Multichain Markov Decision Processes

<https://www.ijcai.org/proceedings/2020/563>

AUTHORS: George Atia, Andre Beckus, Ismail Alkhouri, Alvaro Velasquez
HIGHLIGHT: In this paper, we provide a solution to the latter within the context of multichain MDPs over a class of policies that account for all possible transitions in the given MDP.

564, TITLE: Delete- and Ordering-Relaxation Heuristics for HTN Planning

<https://www.ijcai.org/proceedings/2020/564>

AUTHORS: Daniel Helm, Pascal Bercher, Gregor Behnke
HIGHLIGHT: We introduce the problem class of delete- and ordering-free HTN planning as basis for novel HTN heuristics and show that its plan existence problem is still NP-complete.

565, TITLE: Iterative-Deepening Conflict-Based Search

<https://www.ijcai.org/proceedings/2020/565>

AUTHORS: Eli Boyarski, Ariel Felner, Daniel Harabor, Peter J. Stuckey, Liron Cohen, Jiaoyang Li, Sven Koenig
HIGHLIGHT: In this paper, we present IDCBS, an iterative-deepening variant of CBS which can be executed without exhausting the memory and without strict time limits.

566, TITLE: Plan-Space Explanation via Plan-Property Dependencies: Faster Algorithms & More Powerful Properties

<https://www.ijcai.org/proceedings/2020/566>

AUTHORS: Rebecca Eifler, Marcel Steinmetz, Alvaro Torralba, Jörg Hoffmann
HIGHLIGHT: First, we introduce new algorithms for computing plan-property dependencies, leveraging symbolic search and devising pruning methods for this purpose. Second, while the properties p were previously limited to goal facts and so-called action-set (AS) properties, here we extend them to LTL.

567, TITLE: Front-to-Front Heuristic Search for Satisficing Classical Planning

<https://www.ijcai.org/proceedings/2020/567>

AUTHORS: Ryo Kuroiwa, Alex Fukunaga
HIGHLIGHT: In this paper, we propose Top-to-Top Bidirectional Search (TTBS), a new bidirectional search strategy with front-to-front heuristic evaluation.

568, TITLE: Online Revenue Maximization for Server Pricing

<https://www.ijcai.org/proceedings/2020/568>

AUTHORS: Shant Boodaghians, Federico Fusco, Stefano Leonardi, Yishay Mansour, Ruta Mehta
HIGHLIGHT: This paper considers online revenue maximization for a unit capacity server, when jobs are non preemptive, in the Bayesian setting: at each time step, one job arrives, with parameters drawn from an underlying distribution.

569, TITLE: Robust Policy Synthesis for Uncertain POMDPs via Convex Optimization

<https://www.ijcai.org/proceedings/2020/569>

AUTHORS: Marnix Suilen, Nils Jansen, Murat Cubuktepe, Ufuk Topcu
HIGHLIGHT: We study the problem of policy synthesis for uncertain partially observable Markov decision processes (uPOMDPs).

570, TITLE: Verifiable RNN-Based Policies for POMDPs Under Temporal Logic Constraints

<https://www.ijcai.org/proceedings/2020/570>

AUTHORS: Steven Carr, Nils Jansen, Ufuk Topcu
HIGHLIGHT: By integrating techniques from formal methods and machine learning, we propose an approach to automatically extract a finite-state controller (FSC) from an RNN, which, when composed with a finite-state system model, is amenable to existing formal verification tools.

- 571, TITLE: Optimal Planning Modulo Theories
<https://www.ijcai.org/proceedings/2020/571>
AUTHORS: Francesco Leofante, Enrico Giunchiglia, Erika &ham, Armando Tacchella
HIGHLIGHT: We propose a novel approach that leverages Optimization Modulo Theories (OMT) solvers to implement a domain-independent optimal theory-planner.
- 572, TITLE: Sparse Tree Search Optimality Guarantees in POMDPs with Continuous Observation Spaces
<https://www.ijcai.org/proceedings/2020/572>
AUTHORS: Michael H. Lim, Claire Tomlin, Zachary N. Sunberg
HIGHLIGHT: This work offers such a justification, proving that a simplified algorithm, partially observable weighted sparse sampling (POWSS), will estimate Q-values accurately with high probability and can be made to perform arbitrarily near the optimal solution by increasing computational power.
- 573, TITLE: Optimising Partial-Order Plans Via Action Reinstantiation
<https://www.ijcai.org/proceedings/2020/573>
AUTHORS: Max Waters, Lin Padgham, Sebastian Sardina
HIGHLIGHT: This work investigates the problem of optimising a partial-order plan's (POP) flexibility through the simultaneous transformation of its action ordering and variable binding constraints.
- 574, TITLE: Cost-Partitioned Merge-and-Shrink Heuristics for Optimal Classical Planning
<https://www.ijcai.org/proceedings/2020/574>
AUTHORS: Silvan Sievers, Florian Pommerening, Thomas Keller, Malte Helmert
HIGHLIGHT: In this work, we extend this concept to merge-and-shrink (M&S) abstractions that may use labels that do not directly correspond to operators.
- 575, TITLE: Decidability Results in First-Order Epistemic Planning
<https://www.ijcai.org/proceedings/2020/575>
AUTHORS: Andrôs Occhipinti Liberman, Rasmus Kræmmer Rendsvig
HIGHLIGHT: This paper studies the plan existence problem for FODEL planning, showing that while the problem is generally undecidable, the cases of single-agent planning and multi-agent planning with non-modal preconditions are decidable.
- 576, TITLE: Robustness Computation of Dynamic Controllability in Probabilistic Temporal Networks with Ordinary Distributions
<https://www.ijcai.org/proceedings/2020/576>
AUTHORS: Michael Saint-Guillain, Tiago Stegun Vaquero, Jagriti Agrawal, Steve Chien
HIGHLIGHT: We propose a fixed-parameter pseudo-polynomial time algorithm to compute the exact DP-robustness of any PSTN under NextFirst protocol, and apply to various PSTN datasets, including the real case of planetary exploration in the context of the Mars 2020 rover, and propose an original structural analysis.
- 577, TITLE: Trading Plan Cost for Timeliness in Situated Temporal Planning
<https://www.ijcai.org/proceedings/2020/577>
AUTHORS: Shahaf Shperberg, Andrew Coles, Erez Karpas, Eyal Shimony, Wheeler Ruml
HIGHLIGHT: In this paper, we extend the deliberation scheduling approach to address problems in which plans can differ in their cost.
- 578, TITLE: Boundary Extension Features for Width-Based Planning with Simulators on Continuous-State Domains
<https://www.ijcai.org/proceedings/2020/578>
AUTHORS: Florent Teichteil-Königsbuch, Miquel Ramirez, Nir Lipovetzky
HIGHLIGHT: This paper proposes agnostic feature mapping mechanisms that define the features online, as exploration progresses and the domain of continuous state variables is revealed.
- 579, TITLE: DualSMC: Tunneling Differentiable Filtering and Planning under Continuous POMDPs
<https://www.ijcai.org/proceedings/2020/579>
AUTHORS: Yunbo Wang, Bo Liu, Jiajun Wu, Yuke Zhu, Simon S. Du, Li Fei-Fei, Joshua B. Tenenbaum
HIGHLIGHT: We cast POMDP filtering and planning problems as two closely related Sequential Monte Carlo (SMC) processes, one over the real states and the other over the future optimal trajectories, and combine the merits of these two parts in a new model named the DualSMC network.
- 580, TITLE: Trade the System Efficiency for the Income Equality of Drivers in Rideshare
<https://www.ijcai.org/proceedings/2020/580>

AUTHORS: Yifan Xu, Pan Xu
HIGHLIGHT: In this paper, we study the income inequality among rideshare drivers due to discriminative cancellations from riders, and the tradeoff between the income inequality (called fairness objective) with the system efficiency (called profit objective).

581, TITLE: A Unified Model for the Two-stage Offline-then-Online Resource Allocation
<https://www.ijcai.org/proceedings/2020/581>
AUTHORS: Yifan Xu, Pan Xu, Jianping Pan, Jun Tao
HIGHLIGHT: In this paper, we propose a unified model which incorporates both offline and online resource allocation into a single framework.

582, TITLE: Multi-Robot Adversarial Patrolling Strategies via Lattice Paths
<https://www.ijcai.org/proceedings/2020/582>
AUTHORS: Jan Buermann, Jie Zhang
HIGHLIGHT: While the Markov decision process has been the dominant methodology in computing the penetration detection probabilities, we apply enumerative combinatorics to characterise the penetration detection probabilities.

583, TITLE: Crowd-Steer: Realtime Smooth and Collision-Free Robot Navigation in Densely Crowded Scenarios Trained using High-Fidelity Simulation
<https://www.ijcai.org/proceedings/2020/583>
AUTHORS: Jing Liang, Utsav Patel, Adarsh Jagan Sathyamoorthy, Dinesh Manocha
HIGHLIGHT: We present a novel high fidelity 3-D simulator that significantly reduces the sim-to-real gap for collision avoidance in dense crowds using Deep Reinforcement Learning (DRL).

584, TITLE: Euclidean Pathfinding with Compressed Path Databases
<https://www.ijcai.org/proceedings/2020/584>
AUTHORS: Bojie Shen, Muhammad Aamir Cheema, Daniel Harabor, Peter J. Stuckey
HIGHLIGHT: We consider optimal and anytime algorithms for the Euclidean Shortest Path Problem (ESPP) in two dimensions.

585, TITLE: Lifted Hybrid Variational Inference
<https://www.ijcai.org/proceedings/2020/585>
AUTHORS: Yuqiao Chen, Yibo Yang, Sriraam Natarajan, Nicholas Ruoizzi
HIGHLIGHT: We investigate two approximate lifted variational approaches that apply to domains with general hybrid potentials, and are expressive enough to capture multi-modality.

586, TITLE: Learning Bayesian Networks Under Sparsity Constraints: A Parameterized Complexity Analysis
<https://www.ijcai.org/proceedings/2020/586>
AUTHORS: Niels Grütemeier, Christian Komusiewicz
HIGHLIGHT: We study the problem of learning the structure of an optimal Bayesian network when additional structural constraints are posed on the network or on its moralized graph.

587, TITLE: Approximate Weighted First-Order Model Counting: Exploiting Fast Approximate Model Counters and Symmetry
<https://www.ijcai.org/proceedings/2020/587>
AUTHORS: Timothy van Bremen, Ondrej Kuzelka
HIGHLIGHT: We study the symmetric weighted first-order model counting task and present ApproxWFOMC, a novel anytime method for efficiently bounding the weighted first-order model count of a sentence given an unweighted first-order model counting oracle.

588, TITLE: Efficient and Robust High-Dimensional Linear Contextual Bandits
<https://www.ijcai.org/proceedings/2020/588>
AUTHORS: Cheng Chen, Luo Luo, Weinan Zhang, Yong Yu, Yijiang Lian
HIGHLIGHT: Since large-scale data sets become more and more common, we study the linear contextual bandits in high-dimensional situations.

589, TITLE: Scaling Up AND/OR Abstraction Sampling
<https://www.ijcai.org/proceedings/2020/589>
AUTHORS: Kalev Kask, Bobak Pezeshki, Filjor Broka, Alexander Ihler, Rina Dechter
HIGHLIGHT: In this paper, we introduce AOAS, a new Abstraction Sampling scheme on AND/OR search spaces that allow more flexible use of abstractions by circumventing the properness requirement.

- 590, TITLE: Neural Belief Reasoner
<https://www.ijcai.org/proceedings/2020/590>
AUTHORS: Haifeng Qian
HIGHLIGHT: This paper proposes a new generative model called neural belief reasoner (NBR).
- 591, TITLE: A Complete Characterization of Projectivity for Statistical Relational Models
<https://www.ijcai.org/proceedings/2020/591>
AUTHORS: Manfred Jaeger, Oliver Schulte
HIGHLIGHT: In this paper we fill this gap: exploiting representation theorems for infinite exchangeable arrays we introduce a class of directed graphical latent variable models that precisely correspond to the class of projective relational models.
- 592, TITLE: State Variable Effects in Graphical Event Models
<https://www.ijcai.org/proceedings/2020/592>
AUTHORS: Debarun Bhattacharjya, Dharmashankar Subramanian, Tian Gao
HIGHLIGHT: In this paper, we propose a general framework for modeling joint temporal dynamics involving continuous time transitions of discrete state variables and irregular arrivals of events over the timeline.
- 593, TITLE: A Novel Spatio-Temporal Multi-Task Approach for the Prediction of Diabetes-Related Complication: a Cardiopathy Case of Study
<https://www.ijcai.org/proceedings/2020/593>
AUTHORS: Luca Romeo, Giuseppe Armentano, Antonio Nicolucci, Marco Vespasiani, Giacomo Vespasiani, Emanuele Frontoni
HIGHLIGHT: The aim of this study is the proposal of two different MTL procedures, called spatio-temporal lasso (STL-MTL) and spatio-temporal group lasso (STGL-MTL), which encode the spatio-temporal relatedness using a regularization term and a graph-based approach (i.e., encoding the task relatedness using the structure matrix).
- 594, TITLE: Adversarial Graph Embeddings for Fair Influence Maximization over Social Networks
<https://www.ijcai.org/proceedings/2020/594>
AUTHORS: Moein Khajehnejad, Ahmad Asgharian Rezaei, Mahmoudreza Babaei, Jessica Hoffmann, Mahdi Jalili, Adrian Weller
HIGHLIGHT: We introduce Adversarial Graph Embeddings: we co-train an auto-encoder for graph embedding and a discriminator to discern sensitive attributes.
- 595, TITLE: Disentangled Variational Autoencoder based Multi-Label Classification with Covariance-Aware Multivariate Probit Model
<https://www.ijcai.org/proceedings/2020/595>
AUTHORS: Junwen Bai, Shufeng Kong, Carla Gomes
HIGHLIGHT: We propose a novel framework for multi-label classification, Multivariate Probit Variational AutoEncoder (MPVAE), that effectively learns latent embedding spaces as well as label correlations.
- 596, TITLE: Fighting Wildfires under Uncertainty - A Sequential Resource Allocation Approach
<https://www.ijcai.org/proceedings/2020/596>
AUTHORS: Hau Chan, Long Tran-Thanh, Vignesh Viswanathan
HIGHLIGHT: In this paper, we look at the problem of wildfires and propose an efficient resource allocation strategy to cope with both dynamically changing environment and uncertainty.
- 597, TITLE: Bridging Cross-Tasks Gap for Cognitive Assessment via Fine-Grained Domain Adaptation
<https://www.ijcai.org/proceedings/2020/597>
AUTHORS: Yingwei Zhang, Yiqiang Chen, Hanchao Yu, Zeping Lv, Qing Li, Xiaodong Yang
HIGHLIGHT: In this paper, we propose a novel domain adaptation method, namely the Fine-Grained Adaptation Random Forest (FAT), to bridge the cognitive assessment gap when the data distribution is changed.
- 598, TITLE: Embedding Conjugate Gradient in Learning Random Walks for Landscape Connectivity Modeling in Conservation
<https://www.ijcai.org/proceedings/2020/598>
AUTHORS: Pramith Devulapalli, Bistra Dilkina, Yexiang Xue
HIGHLIGHT: We propose a moment matching strategy that correlates the model's hitting and commuting times with those observed empirically.
- 599, TITLE: Improving Tandem Mass Spectra Analysis with Hierarchical Learning

<https://www.ijcai.org/proceedings/2020/599>

AUTHORS: Zhengcong Fei

HIGHLIGHT: In this paper, we propose a hierarchical multi-stage framework, referred as DeepTag, to identify the peptide sequence for each given spectrum.

600, TITLE: An Exact Single-Agent Task Selection Algorithm for the Crowdsourced Logistics

<https://www.ijcai.org/proceedings/2020/600>

AUTHORS: Chung-Kyun Han, Shih-Fen Cheng

HIGHLIGHT: In this paper, we propose a decision-support algorithm to select delivery tasks for a single crowdsourced worker that best fit his/her upcoming route both in terms of additional travel time and the time window requirements at all stops along his/her route, while at the same time satisfies tasks' delivery time windows.

601, TITLE: Cross-Interaction Hierarchical Attention Networks for Urban Anomaly Prediction

<https://www.ijcai.org/proceedings/2020/601>

AUTHORS: Chao Huang, Chuxu Zhang, Peng Dai, Liefeng Bo

HIGHLIGHT: To address these two challenges, we propose a Cross-Interaction Hierarchical Attention network model (CHAT) which uncovers the dynamic occurrence patterns of time-stamped urban anomaly data.

602, TITLE: Harnessing Code Switching to Transcend the Linguistic Barrier

<https://www.ijcai.org/proceedings/2020/602>

AUTHORS: Ashiqur R. KhudaBukhsh, Shriphani Palakodety, Jaime G. Carbonell

HIGHLIGHT: In this paper, we provide a systematic approach to sample code mixed documents leveraging a polyglot embedding based method that requires minimal supervision.

603, TITLE: Deep Hurdle Networks for Zero-Inflated Multi-Target Regression: Application to Multiple Species Abundance Estimation

<https://www.ijcai.org/proceedings/2020/603>

AUTHORS: Shufeng Kong, Junwen Bai, Jae Hee Lee, Di Chen, Andrew Allyn, Michelle Stuart, Malin Pinsky, Katherine Mills, Carla Gomes

HIGHLIGHT: In this paper, we propose a novel deep model for the zero-inflated multi-target regression problem.

604, TITLE: Forecasting Avian Migration Patterns using a Deep Bidirectional RNN Augmented with an Auxiliary Task

<https://www.ijcai.org/proceedings/2020/604>

AUTHORS: Kehinde Owuoye

HIGHLIGHT: In this work, we consider the task of forecasting migration patterns of the popular Turkey Vulture (*Cathartes aura*) collected with the aid of satellite telemetry for multiple years at a resolution of one hour.

605, TITLE: Optimal and Non-Discriminative Rehabilitation Program Design for Opioid Addiction Among Homeless Youth

<https://www.ijcai.org/proceedings/2020/605>

AUTHORS: Amulya Yadav, Roopali Singh, Nikolas Siapoutis, Anamika Barman-Adhikari, Yu Liang

HIGHLIGHT: This paper presents CORTA, a software agent that designs personalized rehabilitation programs for homeless youth suffering from opioid addiction.

606, TITLE: Who Am I?: Towards Social Self-Awareness for Intelligent Agents

<https://www.ijcai.org/proceedings/2020/606>

AUTHORS: Budhitama Subagdja, Han Yi Tay, Ah-Hwee Tan

HIGHLIGHT: In this paper, a new model of agent is presented with the capacity to represent itself as a distinct individual with identity, a mind of its own, unique experiences, and social lives.

607, TITLE: Discrete Biorthogonal Wavelet Transform Based Convolutional Neural Network for Atrial Fibrillation Diagnosis from Electrocardiogram

<https://www.ijcai.org/proceedings/2020/607>

AUTHORS: Qingsong Xie, Shikui Tu, Guoxing Wang, Yong Lian, Lei Xu

HIGHLIGHT: In this paper, we propose an Discrete Biorthogonal Wavelet Transform (DBWT) Based Convolutional Neural Network (CNN) for AF detection, shortly called DBWT-AFNet.

608, TITLE: Generating Interpretable Poverty Maps using Object Detection in Satellite Images

<https://www.ijcai.org/proceedings/2020/608>

AUTHORS: Kumar Ayush, Burak Uz Kent, Marshall Burke, David Lobell, Stefano Ermon

HIGHLIGHT: Here we demonstrate an interpretable computational framework to accurately predict poverty at a local level by applying object detectors to high resolution (30cm) satellite images.

609, TITLE: Real-Time Dispatching of Large-Scale Ride-Sharing Systems: Integrating Optimization, Machine Learning, and Model Predictive Control

<https://www.ijcai.org/proceedings/2020/609>

AUTHORS: Connor Riley, Pascal van Hentenryck, Enpeng Yuan

HIGHLIGHT: This paper proposes an end-to-end approach that tightly integrates a state-of-the-art dispatching algorithm, a machine-learning model to predict zone-to-zone demand over time, and a model predictive control optimization to relocate idle vehicles.

610, TITLE: PewLSTM: Periodic LSTM with Weather-Aware Gating Mechanism for Parking Behavior Prediction

<https://www.ijcai.org/proceedings/2020/610>

AUTHORS: Feng Zhang, Ningxuan Feng, Yani Liu, Cheng Yang, Jidong Zhai, Shuhao Zhang, Bingsheng He, Jiazao Lin, Xiaoyong Du

HIGHLIGHT: To solve this problem, we propose PewLSTM, a novel periodic weather-aware LSTM model that successfully predicts the parking behavior based on historical records, weather, environments, and weekdays.

611, TITLE: Multi-View Joint Graph Representation Learning for Urban Region Embedding

<https://www.ijcai.org/proceedings/2020/611>

AUTHORS: Mingyang Zhang, Tong Li, Yong Li, Pan Hui

HIGHLIGHT: In this paper, we focus on learning an embedding space from urban data for urban regions.

612, TITLE: BitcoinHeist: Topological Data Analysis for Ransomware Prediction on the Bitcoin Blockchain

<https://www.ijcai.org/proceedings/2020/612>

AUTHORS: Cuneyt G. Akcora, Yitao Li, Yulia R. Gel, Murat Kantarcioglu

HIGHLIGHT: By capitalizing on the recent advances in Topological Data Analysis, we propose a novel efficient and tractable framework to automatically predict new ransomware transactions in a ransomware family, given only limited records of past transactions.

613, TITLE: Deep Semantic Compliance Advisor for Unstructured Document Compliance Checking

<https://www.ijcai.org/proceedings/2020/613>

AUTHORS: Honglei Guo, Bang An, Zhili Guo, Zhong Su

HIGHLIGHT: In the clause-level semantic comparison, an attention-based semantic relatedness detection model is applied to find the most relevant legal clauses.

614, TITLE: A Quantum-inspired Entropic Kernel for Multiple Financial Time Series Analysis

<https://www.ijcai.org/proceedings/2020/614>

AUTHORS: Lu Bai, Lixin Cui, Yue Wang, Yuhang Jiao, Edwin R. Hancock

HIGHLIGHT: In this work, we develop a new kernel-based similarity measure between dynamic time-varying financial networks.

615, TITLE: Data-Driven Market-Making via Model-Free Learning

<https://www.ijcai.org/proceedings/2020/615>

AUTHORS: Yueyang Zhong, YeeMan Bergstrom, Amy Ward

HIGHLIGHT: To do this, we use a model-free and off-policy method, Q-learning, coupled with state aggregation, to develop a proposed trading strategy that can be implemented using a simple lookup table.

616, TITLE: Vector Autoregressive Weighting Reversion Strategy for Online Portfolio Selection

<https://www.ijcai.org/proceedings/2020/616>

AUTHORS: Xia Cai

HIGHLIGHT: Aiming to improve the performance of existing reversion based online portfolio selection strategies, we propose a novel multi-period strategy named "Vector Autoregressive Weighting Reversion" (VAWR).

617, TITLE: Task-Based Learning via Task-Oriented Prediction Network with Applications in Finance

<https://www.ijcai.org/proceedings/2020/617>

AUTHORS: Di Chen, Yada Zhu, Xiaodong Cui, Carla Gomes

HIGHLIGHT: We propose the Task-Oriented Prediction Network (TOPNet), an end-to-end learning scheme that automatically integrates task-based evaluation criteria into the learning process via a learnable surrogate loss function, which directly guides the model towards the task-based goal.

618, TITLE: Risk Guarantee Prediction in Networked-Loans

<https://www.ijcai.org/proceedings/2020/618>

AUTHORS: Dawei Cheng, Xiaoyang Wang, Ying Zhang, Liqing Zhang
HIGHLIGHT: Therefore, in this paper, we propose a dynamic graph-based attention neural network for risk guarantee relationship prediction (DGANN).

619, TITLE: F-HMTC: Detecting Financial Events for Investment Decisions Based on Neural Hierarchical Multi-Label Text Classification

<https://www.ijcai.org/proceedings/2020/619>

AUTHORS: Xin Liang, Dawei Cheng, Fangzhou Yang, Yifeng Luo, Weining Qian, Aoying Zhou
HIGHLIGHT: In this paper, we propose a neural hierarchical multi-label text classification method, namely F-HMTC, for a financial application scenario with massive event category labels.

620, TITLE: SEBF: A Single-Chain based Extension Model of Blockchain for Fintech

<https://www.ijcai.org/proceedings/2020/620>

AUTHORS: Yimu Ji, Weiheng Gu, Fei Chen, Xiaoying Xiao, Jing Sun, Shangdong Liu, Jing He, Yunyao Li, Kaixiang Zhang, Fen Mei, Fei Wu
HIGHLIGHT: In this paper, we propose a single-chain based extension model of blockchain for fintech (SEBF).

621, TITLE: Phishing Scam Detection on Ethereum: Towards Financial Security for Blockchain Ecosystem

<https://www.ijcai.org/proceedings/2020/621>

AUTHORS: Weili Chen, Xiongfang Guo, Zhiguang Chen, Zibin Zheng, Yutong Lu
HIGHLIGHT: To help deal with this issue, this paper proposes a systematic approach to detect phishing accounts based on blockchain transactions and take Ethereum as an example to verify its effectiveness.

622, TITLE: FinBERT: A Pre-trained Financial Language Representation Model for Financial Text Mining

<https://www.ijcai.org/proceedings/2020/622>

AUTHORS: Zhuang Liu, Degen Huang, Kaiyu Huang, Zhuang Li, Jun Zhao
HIGHLIGHT: To address this issue, we present FinBERT (BERT for Financial Text Mining) that is a domain specific language model pre-trained on large-scale financial corpora.

623, TITLE: MAPS: Multi-Agent reinforcement learning-based Portfolio management System.

<https://www.ijcai.org/proceedings/2020/623>

AUTHORS: Jinho Lee, Raehyun Kim, Seok-Won Yi, Jaewoo Kang
HIGHLIGHT: In this paper, we propose the Multi-Agent reinforcement learning-based Portfolio management System (MAPS).

624, TITLE: A Two-level Reinforcement Learning Algorithm for Ambiguous Mean-variance Portfolio Selection Problem

<https://www.ijcai.org/proceedings/2020/624>

AUTHORS: Xin Huang, Duan Li
HIGHLIGHT: This paper deals with an ambiguous mean-variance portfolio selection problem with a mixture model on the returns of risky assets, where the proportions of different component distributions are assumed to be unknown to the investor, but being constants (in any time instant).

625, TITLE: IGNITE: A Minimax Game Toward Learning Individual Treatment Effects from Networked Observational Data

<https://www.ijcai.org/proceedings/2020/625>

AUTHORS: Ruocheng Guo, Jundong Li, Yichuan Li, K. Selcuk Candan, Adrienne Raglin, Huan Liu
HIGHLIGHT: In this work, we formulate the two desiderata as a minimax game.

626, TITLE: Modeling the Stock Relation with Graph Network for Overnight Stock Movement Prediction

<https://www.ijcai.org/proceedings/2020/626>

AUTHORS: Wei Li, Ruihan Bao, Keiko Harimoto, Deli Chen, Jingjing Xu, Qi Su
HIGHLIGHT: To make use of the connection among stocks, we propose a LSTM Relational Graph Convolutional Network (LSTM-RGCN) model, which models the connection among stocks with their correlation matrix.

627, TITLE: An End-to-End Optimal Trade Execution Framework based on Proximal Policy Optimization

<https://www.ijcai.org/proceedings/2020/627>

AUTHORS: Siyu Lin, Peter A. Beling
HIGHLIGHT: In this article, we propose an end-to-end adaptive framework for optimal trade execution based on Proximal Policy Optimization (PPO).

628, TITLE: Multi-scale Two-way Deep Neural Network for Stock Trend Prediction
<https://www.ijcai.org/proceedings/2020/628>
AUTHORS: Guang Liu, Yuzhao Mao, Qi Sun, Hailong Huang, Weiguo Gao, Xuan Li, Jianping Shen, Ruifan Li, Xiaojie Wang
HIGHLIGHT: To automatically learn the multi-scale information in stock data, we propose a Multi-scale Two-way Deep Neural Network.

629, TITLE: RM-CVaR: Regularized Multiple α -CVaR Portfolio
<https://www.ijcai.org/proceedings/2020/629>
AUTHORS: Kei Nakagawa, Shuhei Noma, Masaya Abe
HIGHLIGHT: In order to improve this problem, we propose RM-CVaR: Regularized Multiple α -CVaR Portfolio.

630, TITLE: WATTNet: Learning to Trade FX via Hierarchical Spatio-Temporal Representation of Highly Multivariate Time Series
<https://www.ijcai.org/proceedings/2020/630>
AUTHORS: Michael Poli, Jinkyoo Park, Ilija Ilievski
HIGHLIGHT: In this work, we focus on tackling the problem of NDF position length selection by leveraging high-dimensional sequential data consisting of spot rates, technical indicators and expert tenor patterns.

631, TITLE: Financial Risk Prediction with Multi-Round Q&A Attention Network
<https://www.ijcai.org/proceedings/2020/631>
AUTHORS: Zhen Ye, Yu Qin, Wei Xu
HIGHLIGHT: In this paper, we introduced our Multi-Round Q&A Attention Network, which brings into account the dialogue form in the first place.

632, TITLE: Risk-Averse Trust Region Optimization for Reward-Volatility Reduction
<https://www.ijcai.org/proceedings/2020/632>
AUTHORS: Lorenzo Bisi, Luca Sabbioni, Edoardo Vittori, Matteo Papini, Marcello Restelli
HIGHLIGHT: In this paper, we define a novel measure of risk, which we call reward volatility, consisting of the variance of the rewards under the state-occupancy measure.

633, TITLE: Robust Market Making via Adversarial Reinforcement Learning
<https://www.ijcai.org/proceedings/2020/633>
AUTHORS: Thomas Spooner, Rahul Savani
HIGHLIGHT: We show that adversarial reinforcement learning (ARL) can be used to produce market marking agents that are robust to adversarial and adaptively-chosen market conditions.

634, TITLE: "The Squawk Bot": Joint Learning of Time Series and Text Data Modalities for Automated Financial Information Filtering
<https://www.ijcai.org/proceedings/2020/634>
AUTHORS: Xuan-Hong Dang, Syed Yousaf Shah, Petros Zerfos
HIGHLIGHT: In this work, we address the important problem of automatically discovering a small set of top news articles associated with a given time series.

635, TITLE: Infochain: A Decentralized, Trustless and Transparent Oracle on Blockchain
<https://www.ijcai.org/proceedings/2020/635>
AUTHORS: Naman Goel, Cyril van Schreven, Aris Filos-Ratsikas, Boi Faltings
HIGHLIGHT: In this paper, we identify two biggest challenges in building decentralized, trustless and transparent oracles.

636, TITLE: The Behavioral Sign of Account Theft: Realizing Online Payment Fraud Alert
<https://www.ijcai.org/proceedings/2020/636>
AUTHORS: Cheng WANG
HIGHLIGHT: Accordingly, we propose an account risk prediction scheme to realize the ex-ante fraud detection.

637, TITLE: Financial Thought Experiment: A GAN-based Approach to Vast Robust Portfolio Selection
<https://www.ijcai.org/proceedings/2020/637>
AUTHORS: Chi Seng Pun, Lei Wang, Hoi Ying Wong
HIGHLIGHT: In this paper, we present a new architecture of GAN and adapt it to portfolio risk minimization problem by adding a regression network to GAN (implementing the second half of the experiment).

- 638, TITLE: Market Manipulation: An Adversarial Learning Framework for Detection and Evasion
<https://www.ijcai.org/proceedings/2020/638>
AUTHORS: Xintong Wang, Michael P. Wellman
HIGHLIGHT: We propose an adversarial learning framework to capture the evolving game between a regulator who develops tools to detect market manipulation and a manipulator who obfuscates actions to evade detection.
- 639, TITLE: Two-stage Behavior Cloning for Spoken Dialogue System in Debt Collection
<https://www.ijcai.org/proceedings/2020/639>
AUTHORS: Zihao Wang, Jia Liu, Hengbin Cui, Chunxiang Jin, Minghui Yang, Yafang Wang, Xiaolong Li, Renxin Mao
HIGHLIGHT: To solve this problem, we propose the behavior-cloning-based collection robot framework without any dialogue flow configuration, called two-stage behavior cloning (TSBC).
- 640, TITLE: Hierarchical Multi-Scale Gaussian Transformer for Stock Movement Prediction
<https://www.ijcai.org/proceedings/2020/640>
AUTHORS: Qianggang Ding, Sifan Wu, Hao Sun, Jiadong Guo, Jian Guo
HIGHLIGHT: In this paper, we propose a novel approach based on the Transformer to tackle the stock movement prediction task.
- 641, TITLE: Relation-Aware Transformer for Portfolio Policy Learning
<https://www.ijcai.org/proceedings/2020/641>
AUTHORS: Ke Xu, Yifan Zhang, Deheng Ye, Peilin Zhao, Mingkui Tan
HIGHLIGHT: In this paper, under a deep reinforcement learning paradigm for portfolio selection, we propose a novel Relation-aware Transformer (RAT) to handle these aspects.
- 642, TITLE: Federated Meta-Learning for Fraudulent Credit Card Detection
<https://www.ijcai.org/proceedings/2020/642>
AUTHORS: Wenbo Zheng, Lan Yan, Chao Gou, Fei-Yue Wang
HIGHLIGHT: In this paper, we introduce a novel framework termed as federated meta-learning for fraud detection.
- 643, TITLE: Financial Risk Analysis for SMEs with Graph-based Supply Chain Mining
<https://www.ijcai.org/proceedings/2020/643>
AUTHORS: Shuo Yang, Zhiqiang Zhang, Jun Zhou, Yang Wang, Wang Sun, Xingyu Zhong, Yanming Fang, Quan Yu, Yuan Qi
HIGHLIGHT: In this paper, tackling the data deficiency problem of financial risk analysis for SMEs, we propose an innovative financial risk analysis framework with graph-based supply chain mining.
- 644, TITLE: A Unified Model for Financial Event Classification, Detection and Summarization
<https://www.ijcai.org/proceedings/2020/644>
AUTHORS: Quanzhi Li, Qiong Zhang
HIGHLIGHT: In this paper, we present a unified model for detecting, classifying and summarizing financial events.
- 645, TITLE: Interpretable Multimodal Learning for Intelligent Regulation in Online Payment Systems
<https://www.ijcai.org/proceedings/2020/645>
AUTHORS: Shuoyao Wang, Diwei Zhu
HIGHLIGHT: Inspired by the attention mechanism in nature language processing, we propose a novel cross-modal and intra-modal attention network (CIAN) to investigate the relation between the text and transaction.
- 646, TITLE: Online Portfolio Selection with Cardinality Constraint and Transaction Costs based on Contextual Bandit
<https://www.ijcai.org/proceedings/2020/646>
AUTHORS: Mengying Zhu, Xiaolin Zheng, Yan Wang, Qianqiao Liang, Wenfang Zhang
HIGHLIGHT: In order to achieve greater feasibility in financial markets, in this paper, we propose a novel online portfolio selection method named LExp4.TCGP with theoretical guarantee of sublinear regret to address the OLPS problem with the two constraints.
- 647, TITLE: Hierarchical Reinforcement Learning for Pedagogical Policy Induction (Extended Abstract)
<https://www.ijcai.org/proceedings/2020/647>
AUTHORS: Guojing Zhou, Hamoon Azisoltani, Markel Sanz Ausin, Tiffany Barnes, Min Chi
HIGHLIGHT: In this paper, we propose and apply an offline Gaussian Processes based Hierarchical Reinforcement Learning (HRL) framework to induce a hierarchical pedagogical policy that makes decisions at both problem and step levels.

- 648, TITLE: VAEP: An Objective Approach to Valuing On-the-Ball Actions in Soccer (Extended Abstract)
<https://www.ijcai.org/proceedings/2020/648>
AUTHORS: Tom Decroos, Lotte Bransen, Jan Van Haaren, Jesse Davis
HIGHLIGHT: First, we describe a language for representing individual player actions on the pitch. This language unifies several existing formats which greatly simplifies automated analysis and this language is becoming widely used in the soccer analytics community. Second, we describe our framework for valuing any type of player action based on its impact on the game outcome while accounting for the context in which the action happened.
- 649, TITLE: Emoji-Powered Representation Learning for Cross-Lingual Sentiment Classification (Extended Abstract)
<https://www.ijcai.org/proceedings/2020/649>
AUTHORS: Zhenpeng Chen, Sheng Shen, Ziniu Hu, Xuan Lu, Qiaozhu Mei, Xuanzhe Liu
HIGHLIGHT: In this paper, we employ emojis, which are widely available in many languages, as a new channel to learn both the cross-language and the language-specific sentiment patterns.
- 650, TITLE: Methodological Issues in Recommender Systems Research (Extended Abstract)
<https://www.ijcai.org/proceedings/2020/650>
AUTHORS: Maurizio Ferrari Dacrema, Paolo Cremonesi, Dietmar Jannach
HIGHLIGHT: In this paper, we discuss these observations in detail, and reflect on the related fundamental problem of over-reliance on offline experiments in recommender systems research.
- 651, TITLE: Playing Atari with Six Neurons (Extended Abstract)
<https://www.ijcai.org/proceedings/2020/651>
AUTHORS: Giuseppe Cuccu, Julian Togelius, Philippe Cudre-Mauroux
HIGHLIGHT: To this end, we propose a new method for learning policies and compact state representations separately but simultaneously for policy approximation in reinforcement learning.
- 652, TITLE: A Formal Approach for Cautious Reasoning in Answer Set Programming (Extended Abstract)
<https://www.ijcai.org/proceedings/2020/652>
AUTHORS: Giovanni Amendola, Carmine Dodaro, Marco Maratea
HIGHLIGHT: In this paper we deal with cautious reasoning tasks in ASP, and design, implement and test novel abstract solutions, borrowed from backbone computation in SAT.
- 653, TITLE: On the Splitting Property for Epistemic Logic Programs (Extended Abstract)
<https://www.ijcai.org/proceedings/2020/653>
AUTHORS: Pedro Cabalar, Jorge Fandinno, Luis Fariñas del Cerro
HIGHLIGHT: In this paper, we review an extension of the well-known splitting property for logic programs to the epistemic case.
- 654, TITLE: Statistical Learning with a Nuisance Component (Extended Abstract)
<https://www.ijcai.org/proceedings/2020/654>
AUTHORS: Dylan J. Foster, Vasilis Syrgkanis
HIGHLIGHT: We provide excess risk guarantees for statistical learning in a setting where the population risk with respect to which we evaluate a target parameter depends on an unknown parameter that must be estimated from data (a “nuisance parameter”).
- 655, TITLE: Learning URI Selection Criteria to Improve the Crawling of Linked Open Data (Extended Abstract)
<https://www.ijcai.org/proceedings/2020/655>
AUTHORS: Hai Huang, Fabien Gandon
HIGHLIGHT: In this paper, we propose and compare approaches to learn strategies for crawling Linked Data on the Web by predicting whether a newly discovered URI will lead to an RDF data source or not.
- 656, TITLE: Human Values and Digital Patterns in Physical Exercise (Extended Abstract)
<https://www.ijcai.org/proceedings/2020/656>
AUTHORS: Yelena Mejova, Kyriaki Kalimeri
HIGHLIGHT: In this study, we present a unique demographically representative dataset of 15k US residents that combines technology use logs with surveys on moral views, human values, and emotional contagion.
- 657, TITLE: Bayesian Case-Exclusion and Personalized Explanations for Sustainable Dairy Farming (Extended Abstract)
<https://www.ijcai.org/proceedings/2020/657>

AUTHORS: Eoin M. Kenny, Elodie Ruelle, Anne Geoghegan, Laurence Shalloo, Micheal O'Leary, Michael O'Donovan, Mohammed Temraz, Mark T. Keane

HIGHLIGHT: This paper reports a case-based reasoning (CBR) system, PBI-CBR, that predicts grass growth for dairy farmers, that combines predictive accuracy and explanations to improve user adoption.

658, **TITLE:** Specializing Word Embeddings (for Parsing) by Information Bottleneck (Extended Abstract)

<https://www.ijcai.org/proceedings/2020/658>

AUTHORS: Xiang Lisa Li, Jason Eisner

HIGHLIGHT: We propose a very fast variational information bottleneck (VIB) method to nonlinearly compress these embeddings, keeping only the information that helps a discriminative parser.

659, **TITLE:** NSGA-Net: Neural Architecture Search using Multi-Objective Genetic Algorithm (Extended Abstract)

<https://www.ijcai.org/proceedings/2020/659>

AUTHORS: Zhichao Lu, Ian Whalen, Yashesh Dhebar, Kalyanmoy Deb, Erik Goodman, Wolfgang Banzhaf, Vishnu Naresh Boddeti

HIGHLIGHT: This paper introduces NSGA-Net -- an evolutionary search algorithm that explores a space of potential neural network architectures in three steps, namely, a population initialization step that is based on prior-knowledge from hand-crafted architectures, an exploration step comprising crossover and mutation of architectures, and finally an exploitation step that utilizes the hidden useful knowledge stored in the entire history of evaluated neural architectures in the form of a Bayesian Network.

660, **TITLE:** Supporting Historical Photo Identification with Face Recognition and Crowdsourced Human Expertise (Extended Abstract)

<https://www.ijcai.org/proceedings/2020/660>

AUTHORS: Vikram Mohanty, David Thames, Sneha Mehta, Kurt Luther

HIGHLIGHT: In this paper, we focus on identifying portraits of soldiers who participated in the American Civil War (1861-65).

661, **TITLE:** Commonsense Reasoning to Guide Deep Learning for Scene Understanding (Extended Abstract)

<https://www.ijcai.org/proceedings/2020/661>

AUTHORS: Mohan Sridharan, Tiago Mota

HIGHLIGHT: Our architecture uses non-monotonic logical reasoning with incomplete commonsense domain knowledge, and incremental inductive learning, to guide the construction of deep network models from a small number of training examples.

662, **TITLE:** Learning Optimal Decision Trees using Constraint Programming (Extended Abstract)

<https://www.ijcai.org/proceedings/2020/662>

AUTHORS: Hène Verhaeghe, Siegfried Nijssen, Gilles Pesant, Claude-Guy Quimper, Pierre Schaus

HIGHLIGHT: In this paper, we introduce a new approach to learn decision trees using constraint programming.

663, **TITLE:** Lagrangian Decomposition for Classical Planning (Extended Abstract)

<https://www.ijcai.org/proceedings/2020/663>

AUTHORS: Florian Pommerening, Gabriele Römger, Malte Helmert, Hadrien Cambazad, Louis-Martin Rousseau, Domenico Salvagnin

HIGHLIGHT: We analyze the application of Lagrangian decomposition, a classical tool in mathematical programming, to cost partitioning of operator-counting heuristics.

664, **TITLE:** Bidirectional Heuristic Search: Expanding Nodes by a Lower Bound

<https://www.ijcai.org/proceedings/2020/664>

AUTHORS: Shahaf Shperberg, Ariel Felner, Nathan Sturtevant, Eyal Shimony, Avi Hayoun

HIGHLIGHT: Building on these results, we introduce DVCBS, a new algorithm that aims to further reduce the number of expansions.

665, **TITLE:** Deep Visuo-Tactile Learning: Estimation of Tactile Properties from Images (Extended Abstract)

<https://www.ijcai.org/proceedings/2020/665>

AUTHORS: Kuniyuki Takahashi, Jethro Tan

HIGHLIGHT: We, therefore, propose a model to estimate the degree of tactile properties from visual perception alone (e.g., the level of slipperiness or roughness).

666, **TITLE:** A User Interface for Exploring and Querying Knowledge Graphs (Extended Abstract)

<https://www.ijcai.org/proceedings/2020/666>

AUTHORS: Hernàn Vargas, Carlos Buil-Aranda, Aidan Hogan, Claudia Löpez

HIGHLIGHT: In this extended abstract, we provide a summary of our work on a language and visual interface -- called RDF Explorer -- that help non-expert users to navigate and query knowledge graphs.

667, **TITLE:** Bridging the Gap between Training and Inference for Neural Machine Translation (Extended Abstract)

<https://www.ijcai.org/proceedings/2020/667>

AUTHORS: Wen Zhang, Yang Feng, Qun Liu

HIGHLIGHT: In this paper, we address these issues by sampling context words not only from the ground truth sequence but also from the predicted sequence during training.

668, **TITLE:** Survey on Feature Transformation Techniques for Data Streams

<https://www.ijcai.org/proceedings/2020/668>

AUTHORS: Maroua Bahri, Albert Bifet, Silviu Maniu, Heitor Murilo Gomes

HIGHLIGHT: In this paper, we provide a survey on reduction approaches designed to handle data streams and highlight the key benefits of using these approaches for stream mining algorithms.

669, **TITLE:** The Emerging Landscape of Explainable Automated Planning & Decision Making

<https://www.ijcai.org/proceedings/2020/669>

AUTHORS: Tathagata Chakraborti, Sarath Sreedharan, Subbarao Kambhampati

HIGHLIGHT: In this paper, we provide a comprehensive outline of the different threads of work in Explainable AI Planning (XAIP) that has emerged as a focus area in the last couple of years and contrast that with earlier efforts in the field in terms of techniques, target users, and delivery mechanisms.

670, **TITLE:** Explanation Perspectives from the Cognitive Sciences---A Survey

<https://www.ijcai.org/proceedings/2020/670>

AUTHORS: Ramya Srinivasan, Ajay Chander

HIGHLIGHT: Towards this end, we survey papers from the cognitive science literature that address the following broad questions: (1) what is an explanation, (2) what are explanations for, and 3) what are the characteristics of good and bad explanations.

671, **TITLE:** Automatic Curriculum Learning For Deep RL: A Short Survey

<https://www.ijcai.org/proceedings/2020/671>

AUTHORS: Remy Portelas, Cedric Colas, Lilian Weng, Katja Hofmann, Pierre-Yves Oudeyer

HIGHLIGHT: The ambition of this work is dual: 1) to present a compact and accessible introduction to the Automatic Curriculum Learning literature and 2) to draw a bigger picture of the current state of the art in ACL to encourage the cross-breeding of existing concepts and the emergence of new ideas.

672, **TITLE:** A Survey on Computational Propaganda Detection

<https://www.ijcai.org/proceedings/2020/672>

AUTHORS: Giovanni Da San Martino, Stefano Cresci, Alberto Barracorde, Seunghak Yu, Roberto Di Pietro, Preslav Nakov

HIGHLIGHT: In this survey, we review the state of the art on computational propaganda detection from the perspective of Natural Language Processing and Network Analysis, arguing about the need for combined efforts between these communities.

673, **TITLE:** Turning 30: New Ideas in Inductive Logic Programming

<https://www.ijcai.org/proceedings/2020/673>

AUTHORS: Andrew Cropper, Sebastijan Duman, Stephen H. Muggleton

HIGHLIGHT: We focus on new methods for learning recursive programs that generalise from few examples, a shift from using hand-crafted background knowledge to learning background knowledge, and the use of different technologies, notably answer set programming and neural networks.

674, **TITLE:** The Blind Men and the Elephant: Integrated Offline/Online Optimization Under Uncertainty

<https://www.ijcai.org/proceedings/2020/674>

AUTHORS: Allegra De Filippo, Michele Lombardi, Michela Milano

HIGHLIGHT: In this survey we highlight the potential shortcomings of pure methods when applied to mixed offline/online problems, we review the strategies that have been designed to take advantage of this integration, and we suggest directions for future research.

675, **TITLE:** Goal Recognition Design - Survey

<https://www.ijcai.org/proceedings/2020/675>

AUTHORS: Sarah Keren, Avigdor Gal, Erez Karpas

HIGHLIGHT: This survey presents the solutions developed for evaluation and optimization in the GRD context, a discussion on the use of GRD in a variety of real-world applications, and suggestions of possible future avenues of GRD research.

- 676, TITLE: From Standard Summarization to New Tasks and Beyond: Summarization with Manifold Information
<https://www.ijcai.org/proceedings/2020/676>
AUTHORS: Shen Gao, Xiuying Chen, Zhaochun Ren, Dongyan Zhao, Rui Yan
HIGHLIGHT: In this paper, we focus on the survey of these new summarization tasks and approaches in the real-world application.
- 677, TITLE: Heterogeneous Network Representation Learning
<https://www.ijcai.org/proceedings/2020/677>
AUTHORS: Yuxiao Dong, Ziniu Hu, Kuansan Wang, Yizhou Sun, Jie Tang
HIGHLIGHT: In this survey, we examine and review the problem of representation learning with the focus on heterogeneous networks, which consists of different types of vertices and relations.
- 678, TITLE: A Brief History of Learning Symbolic Higher-Level Representations from Data (And a Curious Look Forward)
<https://www.ijcai.org/proceedings/2020/678>
AUTHORS: Stefan Kramer
HIGHLIGHT: In the paper, I will give a survey of various approaches to learning symbolic higher-level representations: feature construction and constructive induction, predicate invention, propositionalization, pattern mining, and mining time series patterns.
- 679, TITLE: Graph Neural Networks Meet Neural-Symbolic Computing: A Survey and Perspective
<https://www.ijcai.org/proceedings/2020/679>
AUTHORS: Luís C. Lamb, Artur d'Avila Garcez, Marco Gori, Marcelo O.R. Prates, Pedro H.C. Avelar, Moshe Y. Vardi
HIGHLIGHT: In this paper, we review the state-of-the-art on the use of GNNs as a model of neural-symbolic computing.
- 680, TITLE: Collective Decision Making under Incomplete Knowledge: Possible and Necessary Solutions
<https://www.ijcai.org/proceedings/2020/680>
AUTHORS: Jérôme Lang
HIGHLIGHT: I give here a survey of works along this line.
- 681, TITLE: Planning Algorithms for Zero-Sum Games with Exponential Action Spaces: A Unifying Perspective
<https://www.ijcai.org/proceedings/2020/681>
AUTHORS: Levi H. S. Lelis
HIGHLIGHT: In this paper we review several planning algorithms developed for zero-sum games with exponential action spaces, i.e., spaces that grow exponentially with the number of game components that can act simultaneously at a given game state.
- 682, TITLE: Reasoning About Inconsistent Formulas
<https://www.ijcai.org/proceedings/2020/682>
AUTHORS: Joao Marques-Silva, Carlos Mencía
HIGHLIGHT: This paper overviews approaches for analyzing inconsistent formulas, focusing on finding and enumerating explanations of and corrections for inconsistency, but also on solving optimization problems modeled as inconsistent formulas.
- 683, TITLE: A Survey on Using Gaze Behaviour for Natural Language Processing
<https://www.ijcai.org/proceedings/2020/683>
AUTHORS: Sandeep Mathias, Diptesh Kanojia, Abhijit Mishra, Pushpak Bhattacharya
HIGHLIGHT: In this paper, we discuss the use of gaze behaviour in solving different tasks in natural language processing (NLP) without having to record it at test time.
- 684, TITLE: BDI Agent Architectures: A Survey
<https://www.ijcai.org/proceedings/2020/684>
AUTHORS: Lavindra de Silva, Felipe Meneguzzi, Brian Logan
HIGHLIGHT: In this paper, we survey the main approaches to each component of the BDI architecture, how these have been realised in agent programming languages, and discuss the trade-offs inherent in each approach.
- 685, TITLE: Recent Developments in Boolean Matrix Factorization
<https://www.ijcai.org/proceedings/2020/685>
AUTHORS: Pauli Miettinen, Stefan Neumann
HIGHLIGHT: In this survey, we give a concise summary of the efforts of all of these communities and raise some open questions which in our opinion require further investigation.

- 686, TITLE: Incorporating Extra Knowledge to Enhance Word Embedding
<https://www.ijcai.org/proceedings/2020/686>
AUTHORS: Arpita Roy, Shimei Pan
HIGHLIGHT: In this survey, we summarize the recent advances in incorporating extra knowledge to enhance word embedding.
- 687, TITLE: The Knowledge Acquisition Bottleneck Problem in Multilingual Word Sense Disambiguation
<https://www.ijcai.org/proceedings/2020/687>
AUTHORS: Tommaso Pasini
HIGHLIGHT: In this work, we first introduce the reader to the task of WSD through a short historical digression and then take the stock of the advancements to alleviate the knowledge acquisition bottleneck problem.
- 688, TITLE: From Statistical Relational to Neuro-Symbolic Artificial Intelligence
<https://www.ijcai.org/proceedings/2020/688>
AUTHORS: Luc de Raedt, Sebastijan Dumanjic, Robin Manhaeve, Giuseppe Marra
HIGHLIGHT: This survey identifies several parallels across seven different dimensions between these two fields.
- 689, TITLE: Human Gaze Assisted Artificial Intelligence: A Review
<https://www.ijcai.org/proceedings/2020/689>
AUTHORS: Ruohan Zhang, Akanksha Saran, Bo Liu, Yifeng Zhu, Sihang Guo, Scott Niekum, Dana Ballard, Mary Hayhoe
HIGHLIGHT: We provide a high-level overview of the research efforts in these fields, including collecting human gaze data sets, modeling gaze behaviors, and utilizing gaze information in various applications, with the goal of enhancing communication between these research areas.
- 690, TITLE: Pure-Past Linear Temporal and Dynamic Logic on Finite Traces
<https://www.ijcai.org/proceedings/2020/690>
AUTHORS: Giuseppe De Giacomo, Antonio Di Stasio, Francesco Fuggitti, Sasha Rubin
HIGHLIGHT: We review PLTLf and PLDLf, the pure-past versions of the well-known logics on finite traces LTLf and LDLf, respectively.
- 691, TITLE: Fair Division: The Computer Scientist's Perspective
<https://www.ijcai.org/proceedings/2020/691>
AUTHORS: Toby Walsh
HIGHLIGHT: I survey recent progress on a classic and challenging problem in social choice: the fair division of indivisible items.
- 692, TITLE: Beyond Intra-modality: A Survey of Heterogeneous Person Re-identification
<https://www.ijcai.org/proceedings/2020/692>
AUTHORS: Zheng Wang, Zhixiang Wang, Yinqiang Zheng, Yang Wu, Wenjun Zeng, Shin'ichi Satoh
HIGHLIGHT: In this paper, we provide a comprehensive review of state-of-the-art Hetero-ReID methods that address the challenge of inter-modality discrepancies.
- 693, TITLE: Deep Learning for Community Detection: Progress, Challenges and Opportunities
<https://www.ijcai.org/proceedings/2020/693>
AUTHORS: Fanzhen Liu, Shan Xue, Jia Wu, Chuan Zhou, Wenbin Hu, Cecile Paris, Surya Nepal, Jian Yang, Philip S Yu
HIGHLIGHT: Structured into three broad research streams in this domain – deep neural networks, deep graph embedding, and graph neural networks, this article summarizes the contributions of the various frameworks, models, and algorithms in each stream along with the current challenges that remain unsolved and the future research opportunities yet to be explored.
- 694, TITLE: Learning for Graph Matching and Related Combinatorial Optimization Problems
<https://www.ijcai.org/proceedings/2020/694>
AUTHORS: Junchi Yan, Shuang Yang, Edwin Hancock
HIGHLIGHT: This survey gives a selective review of recent development of machine learning (ML) for combinatorial optimization (CO), especially for graph matching.
- 695, TITLE: A Survey on Representation Learning for User Modeling
<https://www.ijcai.org/proceedings/2020/695>
AUTHORS: Sheng Li, Handong Zhao

HIGHLIGHT: This paper presents a comprehensive survey of recent advances in user modeling from the perspective of representation learning.

696, **TITLE:** Forgetting Auxiliary Atoms in Forks (Extended Abstract)

<https://www.ijcai.org/proceedings/2020/696>

AUTHORS: Felicidad Aguado, Pedro Cabalar, Jorge Fandinno, David Pearce, Gilberto Pérez, Concepción Vidal

HIGHLIGHT: In this paper, we introduce a conservative extension of Equilibrium Logic and its monotonic basis, the logic of Here-and-There, in which we deal with a new connective we call fork.

697, **TITLE:** Xeggora: Exploiting Immune-to-Evidence Symmetries with Full Aggregation in Statistical Relational Models (Extended Abstract)

<https://www.ijcai.org/proceedings/2020/697>

AUTHORS: Mohammad Mahdi Amirian, Saeed Shiry Ghidary

HIGHLIGHT: We propose Full-Constraint-Aggregation, a superior algorithm to CPA which exploits the ignored symmetries via a lifted translation method and some constraint relaxations.

698, **TITLE:** Analogy Between Concepts (Extended Abstract)

<https://www.ijcai.org/proceedings/2020/698>

AUTHORS: Nelly Barbot, Laurent Miclet, Henri Prade

HIGHLIGHT: In this paper, we more particularly consider “relational proportions” of the form “object A has the same relationship with attribute a as object B with attribute b”.

699, **TITLE:** Predicting Strategic Behavior from Free Text (Extended Abstract)

<https://www.ijcai.org/proceedings/2020/699>

AUTHORS: Omer Ben-Porat, Lital Kuchy, Sharon Hirsch, Guy Elad, Roi Reichart, Moshe Tennenholtz

HIGHLIGHT: This paper aims to connect these two strands of research, which we consider highly timely and important due to the vast online textual communication on the web.

700, **TITLE:** Rational Closure For All Description Logics (Extended Abstract)

<https://www.ijcai.org/proceedings/2020/700>

AUTHORS: Piero A. Bonatti

HIGHLIGHT: In this paper we prove that RC cannot be extended to logics that do not satisfy the disjoint model union property, including SROIQ(D).

701, **TITLE:** Automated Construction of Bounded-Loss Imperfect-Recall Abstractions in Extensive-Form Games (Extended Abstract)

<https://www.ijcai.org/proceedings/2020/701>

AUTHORS: Ji´, ?ermák, Viliam Lisý, Branislav Bošký

HIGHLIGHT: We present novel domain-independent abstraction methods for creating very coarse abstractions of EFGs that still compute strategies that are (near) optimal in the original game.

702, **TITLE:** Variable Elimination in Binary CSPs (Extended Abstract)

<https://www.ijcai.org/proceedings/2020/702>

AUTHORS: Martin C. Cooper, Achref El Mouelhi, Cyril Terrioux

HIGHLIGHT: We investigate rules which allow variable elimination in binary CSP (constraint satisfaction problem) instances while conserving satisfiability.

703, **TITLE:** Determining Inference Semantics for Disjunctive Logic Programs (Extended Abstract)

<https://www.ijcai.org/proceedings/2020/703>

AUTHORS: Yi-Dong Shen, Thomas Eiter

HIGHLIGHT: To address this, we present a novel and more permissive semantics, called determining inference semantics.

704, **TITLE:** Algorithms for Estimating the Partition Function of Restricted Boltzmann Machines (Extended Abstract)

<https://www.ijcai.org/proceedings/2020/704>

AUTHORS: Oswin Krause, Asja Fischer, Christian Igel

HIGHLIGHT: We devised a unifying theoretical framework for algorithms for estimating the partition function, including Annealed Importance Sampling (AIS) and Bennett's Acceptance Ratio method (BAR).

705, **TITLE:** Variational Bayes in Private Settings (VIPS) (Extended Abstract)

<https://www.ijcai.org/proceedings/2020/705>

AUTHORS: James R. Foulds, Mijung Park, Kamalika Chaudhuri, Max Welling
HIGHLIGHT: We introduce a general privacy-preserving framework for Variational Bayes (VB), a widely used optimization-based Bayesian inference method.

706, TITLE: On Overfitting and Asymptotic Bias in Batch Reinforcement Learning with Partial Observability (Extended Abstract)

<https://www.ijcai.org/proceedings/2020/706>

AUTHORS: Vincent Francois-Lavet, Guillaume Rabusseau, Joelle Pineau, Damien Ernst, Raphael Fonteneau
HIGHLIGHT: In the context of reinforcement learning with partial observability, this paper provides an analysis of the tradeoff between these two error sources.

707, TITLE: Ontology Reasoning with Deep Neural Networks (Extended Abstract)

<https://www.ijcai.org/proceedings/2020/707>

AUTHORS: Patrick Hohenecker, Thomas Lukasiewicz
HIGHLIGHT: In this paper, we employ state-of-the-art methods for training deep neural networks to devise a novel model that is able to learn how to effectively perform logical reasoning in the form of basic ontology reasoning.

708, TITLE: Compositionality Decomposed: How do Neural Networks Generalise? (Extended Abstract)

<https://www.ijcai.org/proceedings/2020/708>

AUTHORS: Dieuwke Hupkes, Verna Dankers, Mathijs Mul, Elia Bruni
HIGHLIGHT: As a response to this controversy, we present a set of tests that provide a bridge between, on the one hand, the vast amount of linguistic and philosophical theory about compositionality of language and, on the other, the successful neural models of language.

709, TITLE: Story Embedding: Learning Distributed Representations of Stories based on Character Networks (Extended Abstract)

<https://www.ijcai.org/proceedings/2020/709>

AUTHORS: O-Joun Lee, Jason J. Jung
HIGHLIGHT: This study aims to represent stories in narrative works (i.e., creative works that contain stories) with a fixed-length vector.

710, TITLE: Proving Semantic Properties as First-Order Satisfiability (Extended Abstract)

<https://www.ijcai.org/proceedings/2020/710>

AUTHORS: Salvador Lucas
HIGHLIGHT: In this paper we show how to prove such semantic properties φ of \mathcal{Th} by just finding a model \mathcal{A} of $\mathcal{Th} \cup \{\varphi\} \cup Z$, where Z is an appropriate (possibly empty) theory depending on φ only.

711, TITLE: Point at the Triple: Generation of Text Summaries from Knowledge Base Triples (Extended Abstract)

<https://www.ijcai.org/proceedings/2020/711>

AUTHORS: Pavlos Vougiouklis, Eddy Maddalena, Jonathon Hare, Elena Simperl
HIGHLIGHT: We investigate the problem of generating natural language summaries from knowledge base triples.

712, TITLE: A Survey on Temporal Reasoning for Temporal Information Extraction from Text (Extended Abstract)

<https://www.ijcai.org/proceedings/2020/712>

AUTHORS: Artuur Leeuwenberg, Marie-Francine Moens
HIGHLIGHT: This article presents a comprehensive survey of the research from the past decades on temporal reasoning for automatic temporal information extraction from text, providing a case study on the integration of symbolic reasoning with machine learning-based information extraction systems.

713, TITLE: Formulas Free From Inconsistency: An Atom-Centric Characterization in Priest's Minimally Inconsistent LP (Extended Abstract)

<https://www.ijcai.org/proceedings/2020/713>

AUTHORS: Kedian Mu
HIGHLIGHT: In this paper, we propose a notion of Bi-free formula to describe formulas that are free from inconsistency in both syntactic characterization and paraconsistent models in the framework of Priest's minimally inconsistent LP.

714, TITLE: Catching Cheats: Detecting Strategic Manipulation in Distributed Optimisation of Electric Vehicle Aggregators (Extended Abstract)

<https://www.ijcai.org/proceedings/2020/714>

AUTHORS: Alvaro Perez Diaz, Enrico H. Gerding, Frank McGroarty

HIGHLIGHT: We propose a novel decentralised bidding coordination algorithm based on the Alternating Direction Method of Multipliers (ADMM).

715, **TITLE:** From Support Propagation to Belief Propagation in Constraint Programming (Extended Abstract)

<https://www.ijcai.org/proceedings/2020/715>

AUTHORS: Gilles Pesant

HIGHLIGHT: We investigate a richer propagation medium for CP made possible by recent work on counting solutions inside constraints.

716, **TITLE:** The Computational Complexity of Angry Birds (Extended Abstract)

<https://www.ijcai.org/proceedings/2020/716>

AUTHORS: Matthew Stephenson, Jochen Renz, Xiaoyu Ge

HIGHLIGHT: In this paper we present several proofs for the computational complexity of the physics-based video game Angry Birds.

717, **TITLE:** Language Independent Sequence Labelling for Opinion Target Extraction (Extended Abstract)

<https://www.ijcai.org/proceedings/2020/717>

AUTHORS: Rodrigo Agerri, German Rigau

HIGHLIGHT: In this paper we present a language independent system to model Opinion Target Extraction (OTE) as a sequence labelling task.

718, **TITLE:** Context Vectors Are Reflections of Word Vectors in Half the Dimensions (Extended Abstract)

<https://www.ijcai.org/proceedings/2020/718>

AUTHORS: Zhenisbek Assylbekov, Rustem Takhanov

HIGHLIGHT: This paper takes a step towards the theoretical analysis of the relationship between word embeddings and context embeddings in models such as word2vec.

719, **TITLE:** Knowing-How under Uncertainty (Extended Abstract)

<https://www.ijcai.org/proceedings/2020/719>

AUTHORS: Pavel Naumov, Jia Tao

HIGHLIGHT: This article combines these two research lines by introducing a bimodal logic containing knowledge and know-how modalities, both labeled with a degree of uncertainty.

720, **TITLE:** Swarm Intelligence for Self-Organized Clustering (Extended Abstract)

<https://www.ijcai.org/proceedings/2020/720>

AUTHORS: Michael C. Thrun, Alfred Ultsch

HIGHLIGHT: Swarm Intelligence for Self-Organized Clustering (Extended Abstract)

721, **TITLE:** Best-first Enumeration Based on Bounding Conflicts, and its Application to Large-scale Hybrid Estimation (Extended Abstract)

<https://www.ijcai.org/proceedings/2020/721>

AUTHORS: Eric Timmons, Brian C. Williams

HIGHLIGHT: In this paper we present an approach (A*BC) that unifies best-first enumeration and conflict-directed search in relatively unconstrained problems through the concept of "bounding" conflicts, an extension of conflicts that represent tighter bounds on the cost of regions of the search space.

722, **TITLE:** OptStream: Releasing Time Series Privately (Extended Abstract)

<https://www.ijcai.org/proceedings/2020/722>

AUTHORS: Ferdinando Fioretto, Pascal Van Hentenryck

HIGHLIGHT: Motivated by an application in energy systems, this paper presents OptStream, a novel algorithm for releasing differentially private data streams under the w-event model of privacy.

723, **TITLE:** Incentivizing Evaluation with Peer Prediction and Limited Access to Ground Truth (Extended Abstract)

<https://www.ijcai.org/proceedings/2020/723>

AUTHORS: Alice Gao, James Wright, Kevin Leyton-Brown

HIGHLIGHT: We show that this problem is unavoidable whenever agents are able to coordinate using low-cost signals about the items being evaluated (e.g., text labels or pictures). We then consider ways of circumventing this problem by comparing agents' reports to ground truth, which is available in practice when there exist trusted evaluators---such as teaching assistants in the peer grading scenario---who can perform a limited number of unbiased (but noisy) evaluations.

724, TITLE: IGBT: Solving Symbolic Inverse Kinematics with Behavior Tree (Extended Abstract)
<https://www.ijcai.org/proceedings/2020/724>
AUTHORS: Dianmu Zhang, Blake Hannaford
HIGHLIGHT: We developed IGBT, a knowledge-based intelligent system that can mimic human experts' behaviors in solving closed-form inverse kinematics using Behavior Tree.

725, TITLE: Bridging Causality and Learning: How Do They Benefit from Each Other?
<https://www.ijcai.org/proceedings/2020/725>
AUTHORS: Mingming Gong
HIGHLIGHT: In this paper, I will be focusing on two essential problems that bridge causality and learning and investigate how they can benefit from each other.

726, TITLE: Towards Trustable Explainable AI
<https://www.ijcai.org/proceedings/2020/726>
AUTHORS: Alexey Ignatiev
HIGHLIGHT: This paper overviews the advances of the rigorous logic-based approach to XAI and argues that it is indispensable if trustable XAI is of concern.

727, TITLE: Developing an Integrated Model of Speech Entrainment
<https://www.ijcai.org/proceedings/2020/727>
AUTHORS: Rivka Levitan
HIGHLIGHT: A more integrated model of entrainment is proposed, which looks for consistent explanations of entrainment behavior on specific features and how they interact with speaker, session, and utterance characteristics.

728, TITLE: Optimization Learning: Perspective, Method, and Applications
<https://www.ijcai.org/proceedings/2020/728>
AUTHORS: Risheng Liu
HIGHLIGHT: We move beyond these limits and propose a theoretically guaranteed optimization learning paradigm, a generic and provable paradigm for nonconvex inverse problems, and develop a series of convergent deep models.

729, TITLE: Closing the Loop: Bringing Humans into Empirical Computational Social Choice and Preference Reasoning
<https://www.ijcai.org/proceedings/2020/729>
AUTHORS: Nicholas Mattei
HIGHLIGHT: I argue that of equal importance to the theoretical results are impacts in research and development from the empirical part of the computer scientists toolkit: data, system building, and human interaction.

730, TITLE: Mechanism Design with Uncertainty
<https://www.ijcai.org/proceedings/2020/730>
AUTHORS: Taiki Todo
HIGHLIGHT: My research is summarized as mechanism design with uncertainty.

731, TITLE: Online Learning in Changing Environments
<https://www.ijcai.org/proceedings/2020/731>
AUTHORS: Lijun Zhang
HIGHLIGHT: Specifically, we have proposed novel algorithms to minimize the dynamic regret and adaptive regret, and investigated the relationship between them.

732, TITLE: Transparent Intent for Explainable Shared Control in Assistive Robotics
<https://www.ijcai.org/proceedings/2020/732>
AUTHORS: Mark Zolotas, Yiannis Demiris
HIGHLIGHT: We situate this problem in our Explainable Shared Control paradigm and present ongoing efforts to achieve transparency in human-robot collaboration.

733, TITLE: Towards High-Level Intrinsic Exploration in Reinforcement Learning
<https://www.ijcai.org/proceedings/2020/733>
AUTHORS: Nicolas Bougie, Ryutaro Ichise
HIGHLIGHT: We propose a novel end-to-end intrinsic reward formulation that introduces high-level exploration in reinforcement learning.

734, TITLE: An Improved Latent Low Rank Representation for Automatic Subspace Clustering

<https://www.ijcai.org/proceedings/2020/734>

AUTHORS: Ya-nan Han, Jian-wei Liu, Xiong-lin Luo

HIGHLIGHT: In this paper, we proposed an improved latent LRR model with a distance regularization and a non-negative regularization jointly, which can effectively discover the global and local structure of data for graph learning and improve the expression of the model.

735, TITLE: Learning Sparse Neural Networks for Better Generalization

<https://www.ijcai.org/proceedings/2020/735>

AUTHORS: Shiwei Liu

HIGHLIGHT: To tackle these problems, this Ph.D. research aims to study the generalization of sparse neural networks, and to propose more efficient approaches that can yield sparse neural networks with generalization bounds.

736, TITLE: Population Location and Movement Estimation through Cross-domain Data Analysis

<https://www.ijcai.org/proceedings/2020/736>

AUTHORS: Xinghao Yang, Wei Liu

HIGHLIGHT: In this paper, we propose to utilize multi-domain statistical data to estimate people movements under the assumption that most population tend to move to areas with similar or better living conditions.

737, TITLE: Design Adaptive AI for RTS Game by Learning Player's Build Order

<https://www.ijcai.org/proceedings/2020/737>

AUTHORS: Guillaume Lorthioir, Katsumi Inoue

HIGHLIGHT: In this paper, a method using simulation and bayesian programming to infer the player's strategy in a Real-Time-Strategy game (RTS) is described, as well as how we could use it to make more adaptive AI for this kind of game and thus make more challenging and entertaining games for the players.

738, TITLE: Strategies for Cooperative UAVs Using Model Predictive Control

<https://www.ijcai.org/proceedings/2020/738>

AUTHORS: Amith Manoharan

HIGHLIGHT: In this work, we present the use of nonlinear model predictive control (NMPC) for two different applications involving cooperative UAVs.

739, TITLE: Social Network Analysis using RLVECN: Representation Learning via Knowledge-Graph Embeddings and Convolutional Neural-Network

<https://www.ijcai.org/proceedings/2020/739>

AUTHORS: Bonaventure C. Molokwu, Ziad Kobi

HIGHLIGHT: Thus, our research work proposes a unique hybrid model: Representation Learning via Knowledge-Graph Embeddings and ConvNet (RLVECN).

740, TITLE: On Building an Interpretable Topic Modeling Approach for the Urdu Language

<https://www.ijcai.org/proceedings/2020/740>

AUTHORS: Zarmeen Nasim

HIGHLIGHT: Using semanti-cally rich feature extraction approaches including Word2Vec and BERT, the proposed approach, in the next step, would experiment with different clus-tering and topic modeling techniques to produce a list of potential topics for a given set of documents.

741, TITLE: Spatio-Temporal Change Detection Using Granger Sequence Pattern

<https://www.ijcai.org/proceedings/2020/741>

AUTHORS: Nat Pavasant, Masayuki Numao, Ken-ichi Fukui

HIGHLIGHT: This paper proposed a method to detect changes in causal relations over a multi-dimensional sequence of events.

742, TITLE: Generating Natural Counterfactual Visual Explanations

<https://www.ijcai.org/proceedings/2020/742>

AUTHORS: Wenqi Zhao, Satoshi Oyama, Masahito Kurihara

HIGHLIGHT: Our research considers changing the attribute description text of class A on the basis of the attributes of class B and generating counterfactual images on the basis of the modified text.

743, TITLE: Towards an Artificial Argumentation System

<https://www.ijcai.org/proceedings/2020/743>

AUTHORS: Ramon Ruiz-Dolz

HIGHLIGHT: In this work, some of our initial contributions and the foundations of this research field are presented.

- 744, TITLE: Context Aware Sequence Modeling
<https://www.ijcai.org/proceedings/2020/744>
AUTHORS: Kyungwoo Song
HIGHLIGHT: In this paper, we present our research works on context modeling and its dynamics modeling over time.
- 745, TITLE: Predictive Uncertainty Estimation for Tractable Deep Probabilistic Models
<https://www.ijcai.org/proceedings/2020/745>
AUTHORS: Julissa Villanueva Llerena
HIGHLIGHT: In this work, we will develop efficient estimators of the predictive uncertainty that are robust to data scarcity and outliers.
- 746, TITLE: End-to-End Signal Factorization for Speech: Identity, Content, and Style
<https://www.ijcai.org/proceedings/2020/746>
AUTHORS: Jennifer Williams
HIGHLIGHT: Based on these findings, a new technique is proposed to factorize multiple types of information from the speech signal simultaneously using a combination of state-of-the-art machine learning methods for speech processing.
- 747, TITLE: Beyond Labels: Knowledge Elicitation using Deep Metric Learning and Psychometric Testing
<https://www.ijcai.org/proceedings/2020/747>
AUTHORS: Lu Yin
HIGHLIGHT: Here, we provide a method for efficient hierarchical knowledge elicitation (HKE) from experts working with high-dimensional data such as images or videos.
- 748, TITLE: Generalized Representation Learning Methods for Deep Reinforcement Learning
<https://www.ijcai.org/proceedings/2020/748>
AUTHORS: Hanhua Zhu
HIGHLIGHT: In this work, I propose generalized representation learning methods to obtain compact state space suitable for RL from a raw observation state.
- 749, TITLE: GenC: A Fast Tool for Applications Involving Belief Revision
<https://www.ijcai.org/proceedings/2020/749>
AUTHORS: Aaron Hunter, John Agapeyev
HIGHLIGHT: In this demonstration paper, we describe GenC, a tool that is able to quickly calculate the result of AGM belief revision for formulas with hundreds of variables and millions of clauses.
- 750, TITLE: PyDL8.5: a Library for Learning Optimal Decision Trees
<https://www.ijcai.org/proceedings/2020/750>
AUTHORS: Gaël Aglin, Siegfried Nijssen, Pierre Schaus
HIGHLIGHT: We introduce PyDL8.5, a Python library to infer depth-constrained Optimal Decision Trees (ODTs).
- 751, TITLE: Pattern-Based Music Generation with Wasserstein Autoencoders and PRC Descriptions
<https://www.ijcai.org/proceedings/2020/751>
AUTHORS: Valentijn Borghuis, Luca Angioloni, Lorenzo Brusci, Paolo Frasconi
HIGHLIGHT: We demonstrate a pattern-based MIDI music generation system with a generation strategy based on Wasserstein autoencoders and a novel variant of pianoroll descriptions of patterns which employs separate channels for note velocities and note durations and can be fed into classic DCGAN-style convolutional architectures.
- 752, TITLE: An Anomaly Detection and Explainability Framework using Convolutional Autoencoders for Data Storage Systems
<https://www.ijcai.org/proceedings/2020/752>
AUTHORS: Roy Assaf, Ioana Giurgiu, Jonas Pfefferle, Serge Monney, Haris Pozidis, Anika Schumann
HIGHLIGHT: We demonstrate the application of this framework along with an intuitive interactive web interface which was developed for data storage system anomaly detection.
- 753, TITLE: DeepVentilation: Learning to Predict Physical Effort from Breathing
<https://www.ijcai.org/proceedings/2020/753>
AUTHORS: Sagar Sen, Pierre Bernabé, Erik Johannes B.L.G. Husom
HIGHLIGHT: In this demo, we present DeepVentilation, a deep learning system to predict minute ventilation in litres of air a person moves in one minute uniquely from real-time measurement of rib-cage breathing forces.

- 754, TITLE: Yolo4Apnea: Real-time Detection of Obstructive Sleep Apnea
<https://www.ijcai.org/proceedings/2020/754>
AUTHORS: Sondre Hamnvik, Pierre Bernabé, Sagar Sen
HIGHLIGHT: In this demo, we present Yolo4Apnea a deep learning system extending You Only Look Once (Yolo) system to detect sleep apnea events from abdominal breathing patterns in real-time enabling immediate awareness and action.
- 755, TITLE: Efficient and Modularized Training on FPGA for Real-time Applications
<https://www.ijcai.org/proceedings/2020/755>
AUTHORS: Shreyas Kolala Venkataramanaiah, Xiacong Du, Zheng Li, Shihui Yin, Yu Cao, Jae-sun Seo
HIGHLIGHT: We demonstrate the performance of representative CNNs trained for CIFAR-10 on Intel Stratix-10 MX FPGA, evaluating both the conventional training procedure and the online learning algorithm.
- 756, TITLE: TouIST: a Friendly Language for Propositional Logic and More
<https://www.ijcai.org/proceedings/2020/756>
AUTHORS: Jorge Fernandez, Olivier Gasquet, Andreas Herzig, Dominique Longin, Emiliano Lorini, Frédéric Maris, Pierre Régnier
HIGHLIGHT: We present the automatic translator TouIST that provides a simple language to generate logical formulas from a problem description.
- 757, TITLE: Ddo, a Generic and Efficient Framework for MDD-Based Optimization
<https://www.ijcai.org/proceedings/2020/757>
AUTHORS: Xavier Gillard, Pierre Schaus, Vianney Coppé
HIGHLIGHT: This paper presents ddo, a generic and efficient library to solve constraint optimization problems with decision diagrams.
- 758, TITLE: How Causal Structural Knowledge Adds Decision-Support in Monitoring of Automotive Body Shop Assembly Lines
<https://www.ijcai.org/proceedings/2020/758>
AUTHORS: Johannes Huegle, Christopher Hagedorn, Matthias Uflacker
HIGHLIGHT: In this demo, we showcase how a CGM of the production process is incorporated into a monitoring tool to function as a decision-support system for an operator of a modern automotive body shop assembly line and enables fast and effective handling of failures and quality deviations.
- 759, TITLE: Certifai: A Toolkit for Building Trust in AI Systems
<https://www.ijcai.org/proceedings/2020/759>
AUTHORS: Jette Henderson, Shubham Sharma, Alan Gee, Valeri Alexiev, Steve Draper, Carlos Marin, Yessel Hinojosa, Christine Draper, Michael Perng, Luis Aguirre, Michael Li, Sara Rouhani, Shorya Consul, Susan Michalski, Akarsh Prasad, Mayank Chutani, Aditya Kumar, Shahzad Alam, Prajna Kandarpa, Binnu Jesudasan, Colton Lee, Michael Criscolo, Sinead Williamson, Matt Sanchez, Joydeep Ghosh
HIGHLIGHT: In this paper, we provide a brief overview of a demonstration of Cortex Certifai's capabilities.
- 760, TITLE: BlueMemo: Depression Analysis through Twitter Posts
<https://www.ijcai.org/proceedings/2020/760>
AUTHORS: Pengwei Hu, Chenhao Lin, Hui Su, Shaochun Li, Xue Han, Yuan Zhang, Jing Mei
HIGHLIGHT: To address this problem, we proposed a new system for social media screening of depressed patients named BlueMemo.
- 761, TITLE: AutoSurvey: Automatic Survey Generation based on a Research Draft
<https://www.ijcai.org/proceedings/2020/761>
AUTHORS: Hen-Hsen Huang
HIGHLIGHT: This work presents AutoSurvey, an intelligent system that performs literature survey and generates a summary specific to a research draft.
- 762, TITLE: AILA: A Question Answering System in the Legal Domain
<https://www.ijcai.org/proceedings/2020/762>
AUTHORS: Weiyi Huang, Jiahao Jiang, Qiang Qu, Min Yang
HIGHLIGHT: In this paper, we develop an Artificial Intelligence Law Assistant (AILA) for question answering in the domain of Chinese laws.

763, TITLE: An Interactive Visualization Platform for Deep Symbolic Regression
<https://www.ijcai.org/proceedings/2020/763>
AUTHORS: Joanne T. Kim, Sookyung Kim, Brenden K. Petersen
HIGHLIGHT: Thus, we present an interactive symbolic regression framework that allows users not only to configure runs, but also to control the system during training.

764, TITLE: RLCard: A Platform for Reinforcement Learning in Card Games
<https://www.ijcai.org/proceedings/2020/764>
AUTHORS: Daochen Zha, Kwei-Herng Lai, Songyi Huang, Yuanpu Cao, Keerthana Reddy, Juan Vargas, Alex Nguyen, Ruzhe Wei, Junyu Guo, Xia Hu
HIGHLIGHT: We present RLCard, a Python platform for reinforcement learning research and development in card games.

765, TITLE: An AI-empowered Visual Storyline Generator
<https://www.ijcai.org/proceedings/2020/765>
AUTHORS: Chang Liu, Zhao Yong Lim, Han Yu, Zhiqi Shen, Ian Dixon, Zhanning Gao, Pan Wang, Peiran Ren, Xuansong Xie, Lizhen Cui, Chunyan Miao
HIGHLIGHT: This paper outlines Visual Storyline Generator (VSG), an artificial intelligence (AI)-empowered system that automatically generates visual storylines based on a set of images and video footages provided by the user.

766, TITLE: Keep It Real: a Window to Real Reality in Virtual Reality
<https://www.ijcai.org/proceedings/2020/766>
AUTHORS: Baihan Lin
HIGHLIGHT: This paper proposed a new interaction paradigm in the virtual reality (VR) environments, which consists of a virtual mirror or window projected onto a virtual surface, representing the correct perspective geometry of a mirror or window reflecting the real world.

767, TITLE: FlowSynth: Simplifying Complex Audio Generation Through Explorable Latent Spaces with Normalizing Flows
<https://www.ijcai.org/proceedings/2020/767>
AUTHORS: Philippe Esling, Naotake Masuda, Axel Chemla--Romeu-Santos
HIGHLIGHT: Here, we discuss the details of integrating these high-level features to develop new interaction schemes between a human user and the generating device: parameters inference from audio, high-level preset visualization and interpolation, that can be used both in off-time and real-time situations.

768, TITLE: Putting Accountability of AI Systems into Practice
<https://www.ijcai.org/proceedings/2020/768>
AUTHORS: Beatriz San Miguel, Aisha Naseer, Hiroya Inakoshi
HIGHLIGHT: To put accountability into practice, this paper presents the Global-view Accountability Framework (GAF) that considers auditability and redress of conflicting information arising from a context with two or more AI systems which can produce a negative impact.

769, TITLE: A Multi-player Game for Studying Federated Learning Incentive Schemes
<https://www.ijcai.org/proceedings/2020/769>
AUTHORS: Kang Loon Ng, Zichen Chen, Zelei Liu, Han Yu, Yang Liu, Qiang Yang
HIGHLIGHT: This paper proposes FedGame, a multi-player game to study how FL participants make action selection decisions under different incentive schemes.

770, TITLE: Inspection of Blackbox Models for Evaluating Vulnerability in Maternal, Newborn, and Child Health
<https://www.ijcai.org/proceedings/2020/770>
AUTHORS: William Ogallo, Skyler Speakman, Victor Akinwande, Kush R Varshney, Aisha Walcott-Bryant, Charity Wayua, Komminist Weldemariam
HIGHLIGHT: In this work, we demonstrate how a tool for inspecting "black box" machine learning models can be used to generate actionable insights from models trained on demographic health survey data to predict neonatal mortality.

771, TITLE: ProbAnch: a Modular Probabilistic Anchoring Framework
<https://www.ijcai.org/proceedings/2020/771>
AUTHORS: Andreas Persson, Pedro Zuidberg Dos Martires, Luc de Raedt, Amy Loufi
HIGHLIGHT: In this paper, we present ProbAnch, a modular data-driven anchoring framework, whose implementation requires a variety of well-orchestrated components, including a probabilistic reasoning system.

772, TITLE: Decision Platform for Pattern Discovery and Causal Effect Estimation in Contraceptive Discontinuation

<https://www.ijcai.org/proceedings/2020/772>

AUTHORS: Celia Cintas, Ramya Raghavendra, Victor Akinwande, Aisha Walcott-Bryant, Charity Wayua, Komminist Weldemariam

HIGHLIGHT: We introduce an AI-based decision platform capable of analyzing event data to identify patterns of contraceptive uptake that are unique to a subpopulation of interest.

773, TITLE: Lossless Semantic Round-Tripping in PENG ASP

<https://www.ijcai.org/proceedings/2020/773>

AUTHORS: Rolf Schwitter

HIGHLIGHT: We demonstrate that the PENG ASP system can be used to bridge the gap between a (seemingly) informal specification and an executable answer set program.

774, TITLE: A Testbed for Studying COVID-19 Spreading in Ride-Sharing Systems

<https://www.ijcai.org/proceedings/2020/774>

AUTHORS: Harrison Jun Yong Wong, Zichao Deng, Han Yu, Jianqiang Huang, Cyril Leung, Chunyan Miao

HIGHLIGHT: In this paper, we present a multi-agent testbed to study the spread of infectious diseases through such a system.

775, TITLE: A Gamified Assessment Platform for Predicting the Risk of Dementia +Parkinson's disease (DPD) Co-Morbidity

<https://www.ijcai.org/proceedings/2020/775>

AUTHORS: Zhiwei Zeng, Hongchao Jiang, Yanci Zhang, Zhiqi Shen, Jun Ji, Martin J. Mckeown, Jing Jih Chin, Cyril Leung, Chunyan Miao

HIGHLIGHT: In this paper, we demonstrate a novel AI-powered solution to provide early detection of the onset of Dementia + Parkinson's disease (DPD) co-morbidity, a condition which severely limits a senior's ability to live actively and independently.

776, TITLE: SiamBOMB: A Real-time AI-based System for Home-cage Animal Tracking, Segmentation and Behavioral Analysis

<https://www.ijcai.org/proceedings/2020/776>

AUTHORS: Xi Chen, Hao Zhai, Danqian Liu, Weifu Li, Chaoyue Ding, Qiwei Xie, Hua Han

HIGHLIGHT: Therefore, we develop an AI-based multi-species tracking and segmentation system, SiamBOMB, for real-time and automatic home-cage animal behavioral analysis.

777, TITLE: A Speech-to-Knowledge-Graph Construction System

<https://www.ijcai.org/proceedings/2020/777>

AUTHORS: Xiaoyi Fu, Jie Zhang, Hao Yu, Jiachen Li, Dong Chen, Jie Yuan, Xindong Wu

HIGHLIGHT: This paper presents a HAO-Graph system that generates and visualizes knowledge graphs from a speech in real-time.

778, TITLE: Towards Real-Time DNN Inference on Mobile Platforms with Model Pruning and Compiler Optimization

<https://www.ijcai.org/proceedings/2020/778>

AUTHORS: Wei Niu, Pu Zhao, Zheng Zhan, Xue Lin, Yanzhi Wang, Bin Ren

HIGHLIGHT: To address this problem, we propose a set of hardware-friendly structured model pruning and compiler optimization techniques to accelerate DNN executions on mobile devices.

779, TITLE: AI-Powered Oracle Bone Inscriptions Recognition and Fragments Rejoining

<https://www.ijcai.org/proceedings/2020/779>

AUTHORS: Chongsheng Zhang, Ruixing Zong, Shuang Cao, Yi Men, Bofeng Mo

HIGHLIGHT: In this paper, we introduce our contributions in AI-Powered Oracle Bone (OB) fragments rejoining and OBI recognition.