

- 1, TITLE: Distance Polymatrix Coordination Games
<https://www.ijcai.org/proceedings/2021/1>
AUTHORS: Alessandro Aloisio, Michele Flammini, Bojana Kodric, Cosimo Vinci
HIGHLIGHT: We propose the new class of distance polymatrix coordination games, properly generalizing polymatrix coordination games, in which the overall utility of player x further depends on the payoffs arising from mutual actions of players v, z that are the endpoints of edges at any distance $h < d$ from x , for a fixed threshold value $d \leq n$.
- 2, TITLE: Diversity in Kemeny Rank Aggregation: A Parameterized Approach
<https://www.ijcai.org/proceedings/2021/2>
AUTHORS: Emmanuel Arrighi, Henning Fernau, Daniel Lokshantov, Mateus de Oliveira Oliveira, Petra Wolf
HIGHLIGHT: In this work, we investigate the impact of this combination in the field of Kemeny Rank Aggregation, a well-studied class of problems lying in the intersection of order theory and social choice theory and also in the field of order theory itself.
- 3, TITLE: School Choice with Flexible Diversity Goals and Specialized Seats
<https://www.ijcai.org/proceedings/2021/3>
AUTHORS: Haris Aziz, Zhaohong Sun
HIGHLIGHT: We present a new and rich model of school choice with flexible diversity goals and specialized seats.
- 4, TITLE: PROPm Allocations of Indivisible Goods to Multiple Agents
<https://www.ijcai.org/proceedings/2021/4>
AUTHORS: Artem Baklanov, Pranav Garimidi, Vasilis Gkatzelis, Daniel Schoepflin
HIGHLIGHT: We study the classic problem of fairly allocating a set of indivisible goods among a group of agents, and focus on the notion of approximate proportionality known as PROPm.
- 5, TITLE: Learning Within an Instance for Designing High-Revenue Combinatorial Auctions
<https://www.ijcai.org/proceedings/2021/5>
AUTHORS: Maria-Florina Balcan, Siddharth Prasad, Tuomas Sandholm
HIGHLIGHT: We develop a new framework for designing truthful, high-revenue (combinatorial) auctions for limited supply.
- 6, TITLE: Combining Fairness and Optimality when Selecting and Allocating Projects
<https://www.ijcai.org/proceedings/2021/6>
AUTHORS: Khaled Belahcene, Vincent Mousseau, Anaella Wilczynski
HIGHLIGHT: We consider the problem of the conjoint selection and allocation of projects to a population of agents, e.g. students are assigned papers and shall present them to their peers.
- 7, TITLE: Two Influence Maximization Games on Graphs Made Temporal
<https://www.ijcai.org/proceedings/2021/7>
AUTHORS: Niclas Boehmer, Vincent Froese, Julia Henkel, Yvonne Lasars, Rolf Niedermeier, Malte Renken
HIGHLIGHT: To address the dynamic nature of real-world networks, we generalize competitive diffusion games and Voronoi games from static to temporal graphs, where edges may appear or disappear over time.
- 8, TITLE: Winner Robustness via Swap- and Shift-Bribery: Parameterized Counting Complexity and Experiments
<https://www.ijcai.org/proceedings/2021/8>
AUTHORS: Niclas Boehmer, Robert Bredereck, Piotr Faliszewski, Rolf Niedermeier
HIGHLIGHT: We study the parameterized complexity of counting variants of Swap- and Shift-Bribery, focusing on the parameterizations by the number of swaps and the number of voters.
- 9, TITLE: Putting a Compass on the Map of Elections
<https://www.ijcai.org/proceedings/2021/9>
AUTHORS: Niclas Boehmer, Robert Bredereck, Piotr Faliszewski, Rolf Niedermeier, Stanisław Szufa
HIGHLIGHT: We provide such an interpretation by introducing four canonical “extreme” elections, acting as a compass on the map.
- 10, TITLE: Loyalty in Cardinal Hedonic Games
<https://www.ijcai.org/proceedings/2021/10>
AUTHORS: Martin Bullinger, Stefan Kober
HIGHLIGHT: Based on the assumption that agents are benevolent towards other agents they like to form coalitions with, we propose loyalty in hedonic games, a binary relation dependent on agents' utilities.
- 11, TITLE: Approximating the Shapley Value Using Stratified Empirical Bernstein Sampling

<https://www.ijcai.org/proceedings/2021/11>

AUTHORS: Mark A. Burgess, Archie C. Chapman

HIGHLIGHT: For this task, we provide two contributions to the state of the art. First, we derive a novel concentration inequality that is tailored to stratified Shapley value estimation using sample variance information. Second, by sequentially choosing samples to minimize our inequality, we develop a new and more efficient method of sampling to estimate the Shapley value.

12, TITLE: Picking Sequences and Monotonicity in Weighted Fair Division

<https://www.ijcai.org/proceedings/2021/12>

AUTHORS: Mithun Chakraborty, Ulrike Schmidt-Kraepelin, Warut Suksompong

HIGHLIGHT: We study the problem of fairly allocating indivisible items to agents with different entitlements, which captures, for example, the distribution of ministries among political parties in a coalition government.

13, TITLE: Fractional Matchings under Preferences: Stability and Optimality

<https://www.ijcai.org/proceedings/2021/13>

AUTHORS: Jiehua Chen, Sanjukta Roy, Manuel Sorge

HIGHLIGHT: We study generalizations of stable matching in which agents may be matched fractionally; this models time-sharing assignments.

14, TITLE: Temporal Induced Self-Play for Stochastic Bayesian Games

<https://www.ijcai.org/proceedings/2021/14>

AUTHORS: Weizhe Chen, Zihan Zhou, Yi Wu, Fei Fang

HIGHLIGHT: In this paper, we propose Temporal-Induced Self-Play (TISP), a novel reinforcement learning-based framework to find strategies with decent performances from any decision point onward.

15, TITLE: Cooperation in Threshold Public Projects with Binary Actions

<https://www.ijcai.org/proceedings/2021/15>

AUTHORS: Yiling Chen, Biaoshuai Tao, Fang-Yi Yu

HIGHLIGHT: When can cooperation arise from self-interested decisions in public goods games? And how can we help agents to act cooperatively? We examine these classical questions in a pivotal participation game, a variant of public good games, where heterogeneous agents make binary participation decisions on contributing their endowments, and the public project succeeds when it has enough contributions.

16, TITLE: Learning in Markets: Greed Leads to Chaos but Following the Price is Right

<https://www.ijcai.org/proceedings/2021/16>

AUTHORS: Yun Kuen Cheung, Stefanos Leonardos, Georgios Piliouras

HIGHLIGHT: We study learning dynamics in distributed production economies such as blockchain mining, peer-to-peer file sharing and crowdsourcing.

17, TITLE: Identifying Norms from Observation Using MCMC Sampling

<https://www.ijcai.org/proceedings/2021/17>

AUTHORS: Stephen Cranefield, Ashish Dhiman

HIGHLIGHT: This paper investigates the problem of identifying norm candidates from a normative language expressed as a probabilistic context-free grammar, using Markov Chain Monte Carlo (MCMC) search.

18, TITLE: Improving Multi-agent Coordination by Learning to Estimate Contention

<https://www.ijcai.org/proceedings/2021/18>

AUTHORS: Panayiotis Danassis, Florian Wiedemair, Boi Faltings

HIGHLIGHT: We present a multi-agent learning algorithm, ALMA-Learning, for efficient and fair allocations in large-scale systems.

19, TITLE: Multi-Agent Intention Progression with Black-Box Agents

<https://www.ijcai.org/proceedings/2021/19>

AUTHORS: Michael Dann, Yuan Yao, Brian Logan, John Thangarajah

HIGHLIGHT: We propose a new approach to intention progression in multi-agent settings where other agents are effectively black boxes.

20, TITLE: The Parameterized Complexity of Connected Fair Division

<https://www.ijcai.org/proceedings/2021/20>

AUTHORS: Argyrios Deligkas, Eduard Eiben, Robert Ganian, Thekla Hamm, Sebastian Ordyniak

HIGHLIGHT: We study the Connected Fair Division problem (CFD), which generalizes the fundamental problem of fairly allocating resources to agents by requiring that the items allocated to each agent form a connected subgraph in a provided item graph G .

21, **TITLE:** Neural Regret-Matching for Distributed Constraint Optimization Problems

<https://www.ijcai.org/proceedings/2021/21>

AUTHORS: Yan Chen Deng, Runsheng Yu, Xinrun Wang, Bo An

HIGHLIGHT: This paper tackles the limitation by incorporating deep neural networks in solving DCOPs for the first time and presents a neural-based sampling scheme built upon regret-matching.

22, **TITLE:** Online Selection of Diverse Committees

<https://www.ijcai.org/proceedings/2021/22>

AUTHORS: Virginie Do, Jamal Atif, Jérôme Lang, Nicolas Usunier

HIGHLIGHT: We study three methods, theoretically and experimentally: a greedy algorithm that includes volunteers as long as proportionality is not violated; a non-adaptive method that includes a volunteer with a probability depending only on their features, assuming that the joint feature distribution in the volunteer pool is known; and a reinforcement learning based approach when this distribution is not known a priori but learnt online.

23, **TITLE:** Graphical Cake Cutting via Maximin Share

<https://www.ijcai.org/proceedings/2021/23>

AUTHORS: Edith Elkind, Erel Segal-Halevi, Warut Suksompong

HIGHLIGHT: We study the recently introduced cake-cutting setting in which the cake is represented by an undirected graph.

24, **TITLE:** Keep Your Distance: Land Division With Separation

<https://www.ijcai.org/proceedings/2021/24>

AUTHORS: Edith Elkind, Erel Segal-Halevi, Warut Suksompong

HIGHLIGHT: This paper is part of an ongoing endeavor to bring the theory of fair division closer to practice by handling requirements from real-life applications. We focus on two requirements originating from the division of land estates: (1) each agent should receive a plot of a usable geometric shape, and (2) plots of different agents must be physically separated.

25, **TITLE:** On a Competitive Secretary Problem with Deferred Selections

<https://www.ijcai.org/proceedings/2021/25>

AUTHORS: Tomer Ezra, Michal Feldman, Ron Kupfer

HIGHLIGHT: We introduce a novel multi-agent secretary model, in which the competition is explicit.

26, **TITLE:** Relaxed Core Stability in Fractional Hedonic Games

<https://www.ijcai.org/proceedings/2021/26>

AUTHORS: Angelo Fanelli, Gianpiero Monaco, Luca Moscardelli

HIGHLIGHT: For this reason, we consider relaxed core stable outcomes where the notion of permissible deviations is modified along two orthogonal directions: the former takes into account the size of the deviating coalition, and the latter the amount of utility gain for each member of the deviating coalition.

27, **TITLE:** Reasoning over Argument-Incomplete AAFs in the Presence of Correlations

<https://www.ijcai.org/proceedings/2021/27>

AUTHORS: Bettina Fazzinga, Sergio Flesca, Filippo Furfaro

HIGHLIGHT: We introduce “argument-incomplete Abstract Argumentation Frameworks with dependencies”, that extend the traditional abstract argumentation reasoning to the case where some arguments are uncertain and correlated through logical dependencies (such as mutual exclusion, implication, etc.).

28, **TITLE:** Kemeny Consensus Complexity

<https://www.ijcai.org/proceedings/2021/28>

AUTHORS: Zack Fitzsimmons, Edith Hemaspaandra

HIGHLIGHT: We study the complexity of consensus-related questions, with a particular focus on Kemeny and its qualitative version Slater.

29, **TITLE:** Two-Sided Matching Meets Fair Division

<https://www.ijcai.org/proceedings/2021/29>

AUTHORS: Rupert Freeman, Evi Micha, Nisarg Shah

HIGHLIGHT: We introduce a new model for two-sided matching which allows us to borrow popular fairness notions from the fair division literature such as envy-freeness up to one good and maximin share guarantee.

- 30, TITLE: Worst-case Bounds on Power vs. Proportion in Weighted Voting Games with Application to False-name Manipulation
<https://www.ijcai.org/proceedings/2021/30>
AUTHORS: Yotam Gafni, Ron Lavi, Moshe Tennenholtz
HIGHLIGHT: We take a novel approach to the study of the power of big vs.-small players in these games.
- 31, TITLE: Even More Effort Towards Improved Bounds and Fixed-Parameter Tractability for Multiwinner Rules
<https://www.ijcai.org/proceedings/2021/31>
AUTHORS: Sushmita Gupta, Pallavi Jain, Saket Saurabh, Nimrod Talmon
HIGHLIGHT: In this paper we consider several utilitarian and egalitarian OWA (ordered weighted average) scoring rules, which are an extensively researched family of rules (and a subfamily of the family of committee scoring rules).
- 32, TITLE: Fair and Efficient Resource Allocation with Partial Information
<https://www.ijcai.org/proceedings/2021/32>
AUTHORS: Daniel Halpern, Nisarg Shah
HIGHLIGHT: We study the fundamental problem of allocating indivisible goods to agents with additive preferences.
- 33, TITLE: Accomplice Manipulation of the Deferred Acceptance Algorithm
<https://www.ijcai.org/proceedings/2021/33>
AUTHORS: Hadi Hosseini, Fatima Umar, Rohit Vaish
HIGHLIGHT: We study a novel model of strategic behavior under the deferred acceptance algorithm: manipulation through an accomplice.
- 34, TITLE: Guaranteeing Maximin Shares: Some Agents Left Behind
<https://www.ijcai.org/proceedings/2021/34>
AUTHORS: Hadi Hosseini, Andrew Seams
HIGHLIGHT: While MMS allocations do not always exist, several approximation techniques have been developed to ensure that all agents receive a fraction of their maximin share. We focus on an alternative approximation notion, based on the population of agents, that seeks to guarantee MMS for a fraction of agents.
- 35, TITLE: Surprisingly Popular Voting Recovers Rankings, Surprisingly!
<https://www.ijcai.org/proceedings/2021/35>
AUTHORS: Hadi Hosseini, Debmalya Mandal, Nisarg Shah, Kevin Shi
HIGHLIGHT: We explore practical techniques for extending the surprisingly popular algorithm to ranked voting by partial votes and predictions and designing robust aggregation rules.
- 36, TITLE: SURPRISE! and When to Schedule It.
<https://www.ijcai.org/proceedings/2021/36>
AUTHORS: Zhihuan Huang, Shengwei Xu, You Shan, Yuxuan Lu, Yuqing Kong, Tracy Xiao Liu, Grant Schoenebeck
HIGHLIGHT: To quantify the relationship between information flow and audiences' perceived quality, we conduct a case study where subjects watch one of the world's biggest esports events, LOL S10.
- 37, TITLE: Dynamic Proportional Rankings
<https://www.ijcai.org/proceedings/2021/37>
AUTHORS: Jonas Israel, Markus Brill
HIGHLIGHT: We propose generalizations of well-known aggregation rules to this setting and study their monotonicity and proportionality properties.
- 38, TITLE: A Polynomial-time, Truthful, Individually Rational and Budget Balanced Ridesharing Mechanism
<https://www.ijcai.org/proceedings/2021/38>
AUTHORS: Tatsuya Iwase, Sebastian Stein, Enrico H. Gerding
HIGHLIGHT: To address this, we formulate a general ridesharing problem and apply mechanism design to develop a novel mechanism which satisfies all four properties and whose social cost is within 8.6% of the optimal on average.
- 39, TITLE: Participatory Budgeting with Project Groups
<https://www.ijcai.org/proceedings/2021/39>
AUTHORS: Pallavi Jain, Krzysztof Sornat, Nimrod Talmon, Meirav Zehavi
HIGHLIGHT: We show that the problem is generally intractable and describe efficient exact algorithms for several special cases, including instances with only few groups and instances where the group structure is close to being hierarchical, as well as efficient approximation algorithms.

40, TITLE: Interaction Considerations in Learning from Humans
<https://www.ijcai.org/proceedings/2021/40>
AUTHORS: Pallavi Koppol, Henny Admoni, Reid Simmons
HIGHLIGHT: Our findings show that Evaluating interactions are more cognitively loading and less usable than the others, and Categorizing and Showing interactions are the least cognitively loading and most usable.

41, TITLE: Two-Stage Facility Location Games with Strategic Clients and Facilities
<https://www.ijcai.org/proceedings/2021/41>
AUTHORS: Simon Krogmann, Pascal Lenzner, Louise Molitor, Alexander Skopalik
HIGHLIGHT: We consider non-cooperative facility location games where both facilities and clients act strategically and heavily influence each other.

42, TITLE: Fairness in Long-Term Participatory Budgeting
<https://www.ijcai.org/proceedings/2021/42>
AUTHORS: Martin Lackner, Jan Maly, Simon Rey
HIGHLIGHT: We introduce a theory of fairness for this setting, focusing on three main concepts that apply to types (groups) of voters: (i) achieving equal welfare for all types, (ii) minimizing inequality of welfare (as measured by the Gini coefficient), and (iii) achieving equal welfare in the long run.

43, TITLE: Strategyproof Randomized Social Choice for Restricted Sets of Utility Functions
<https://www.ijcai.org/proceedings/2021/43>
AUTHORS: Patrick Lederer
HIGHLIGHT: For finding more insights into the trade-off between strategyproofness and decisiveness, we propose the notion of U-strategyproofness which requires that only voters with a utility function in the set U cannot manipulate.

44, TITLE: Budget-feasible Mechanisms for Representing Groups of Agents Proportionally
<https://www.ijcai.org/proceedings/2021/44>
AUTHORS: Xiang Liu, Hau Chan, Minming Li, Weiwei Wu
HIGHLIGHT: In this paper, we consider the problem of designing budget-feasible mechanisms for selecting agents with private costs from various groups to ensure proportional representation, where the minimum proportion of the selected agents from each group is maximized.

45, TITLE: Improving Welfare in One-Sided Matchings using Simple Threshold Queries
<https://www.ijcai.org/proceedings/2021/45>
AUTHORS: Thomas Ma, Vijay Menon, Kate Larson
HIGHLIGHT: We study one-sided matching problems where each agent must be assigned at most one object.

46, TITLE: Generalized Kings and Single-Elimination Winners in Random Tournaments
<https://www.ijcai.org/proceedings/2021/46>
AUTHORS: Pasin Manurangsi, Warut Suksompong
HIGHLIGHT: In this paper, we provide an almost complete characterization of the probability threshold such that all, a large number, or a small number of alternatives are k-kings with high probability in two random models.

47, TITLE: Almost Envy-Freeness for Groups: Improved Bounds via Discrepancy Theory
<https://www.ijcai.org/proceedings/2021/47>
AUTHORS: Pasin Manurangsi, Warut Suksompong
HIGHLIGHT: We study the allocation of indivisible goods among groups of agents using well-known fairness notions such as envy-freeness and proportionality.

48, TITLE: Winner Determination and Strategic Control in Conditional Approval Voting
<https://www.ijcai.org/proceedings/2021/48>
AUTHORS: Evangelos Markakis, Georgios Papsotiropoulos
HIGHLIGHT: Our work focuses on a generalization of the classic Minisum approval voting rule, introduced by Barrot and Lang (2016), and referred to as Conditional Minisum (CMS), for multi-issue elections.

49, TITLE: Majority Vote in Social Networks: Make Random Friends or Be Stubborn to Overpower Elites
<https://www.ijcai.org/proceedings/2021/49>
AUTHORS: Charlotte Out, Ahad N. Zehmakan

HIGHLIGHT: We propose two countermeasures that can be adopted by individual nodes relatively easily and guarantee that the elites will not have this disproportionate power to engineer the dominant output color.

50, **TITLE:** Mean Field Games Flock! The Reinforcement Learning Way
<https://www.ijcai.org/proceedings/2021/50>
AUTHORS: Sarah Perrin, Mathieu Lauri, Julien Perolat, Matthieu Geist, Romuald Lie, Olivier Pietquin
HIGHLIGHT: We present a method enabling a large number of agents to learn how to flock.

51, **TITLE:** Data-Driven Methods for Balancing Fairness and Efficiency in Ride-Pooling
<https://www.ijcai.org/proceedings/2021/51>
AUTHORS: Naveen Raman, Sanket Shah, John Dickerson
HIGHLIGHT: We investigate two methods to reduce forms of inequality in ride-pooling platforms: by incorporating fairness constraints into the objective function and redistributing income to drivers who deserve more.

52, **TITLE:** Shortlisting Rules and Incentives in an End-to-End Model for Participatory Budgeting
<https://www.ijcai.org/proceedings/2021/52>
AUTHORS: Simon Rey, Ulle Endriss, Ronald de Haan
HIGHLIGHT: We introduce an end-to-end model for participatory budgeting grounded in social choice theory.

53, **TITLE:** Matchings with Group Fairness Constraints: Online and Offline Algorithms
<https://www.ijcai.org/proceedings/2021/53>
AUTHORS: Govind S. Sankar, Anand Louis, Meghana Nasre, Prajakta Nimbhorkar
HIGHLIGHT: We consider the problem of assigning items to platforms in the presence of group fairness constraints.

54, **TITLE:** Stochastic Market Games
<https://www.ijcai.org/proceedings/2021/54>
AUTHORS: Kyrill Schmid, Lenz Belzner, Robert Müller, Johannes Tochtermann, Claudia Linnhoff-Popien
HIGHLIGHT: Motivated from real world societies, in this work we propose to utilize market forces to provide incentives for agents to become cooperative.

55, **TITLE:** Tango: Declarative Semantics for Multiagent Communication Protocols
<https://www.ijcai.org/proceedings/2021/55>
AUTHORS: Munindar P. Singh, Samuel H. Christie V.
HIGHLIGHT: This paper formulates a protocol semantics declaratively via inference rules that determine when a message emission or reception becomes enabled during an enactment, and its effect on the local state of an agent.

56, **TITLE:** Vitality Indices are Equivalent to Induced Game-Theoretic Centralities
<https://www.ijcai.org/proceedings/2021/56>
AUTHORS: Oskar Skibski
HIGHLIGHT: In this paper, we show that vitality indices can be characterized using the axiom of Balanced Contributions proposed by Myerson in the coalitional game theory literature.

57, **TITLE:** Game-theoretic Analysis of Effort Allocation of Contributors to Public Projects
<https://www.ijcai.org/proceedings/2021/57>
AUTHORS: Jared Soundy, Chenhao Wang, Clay Stevens, Hau Chan
HIGHLIGHT: In this paper, we introduce a game-theoretic effort allocation model of contributors to public projects for modeling effort allocation of strategic contributors.

58, **TITLE:** New Algorithms for Japanese Residency Matching
<https://www.ijcai.org/proceedings/2021/58>
AUTHORS: Zhaohong Sun, Taiki Todo, Makoto Yokoo
HIGHLIGHT: In this paper, we propose two suitable algorithms to reduce waste with minimal modification to the current system and show that they are superior to the algorithm currently deployed in JRMP by comparing them theoretically and empirically.

59, **TITLE:** Fair Pairwise Exchange among Groups
<https://www.ijcai.org/proceedings/2021/59>
AUTHORS: Zhaohong Sun, Taiki Todo, Toby Walsh
HIGHLIGHT: We study the pairwise organ exchange problem among groups motivated by real-world applications and consider two types of group formulations.

- 60, TITLE: Reducing Bus Bunching with Asynchronous Multi-Agent Reinforcement Learning
<https://www.ijcai.org/proceedings/2021/60>
AUTHORS: Jiawei Wang, Lijun Sun
HIGHLIGHT: In this study, we formulate route-level bus fleet control as an asynchronous multi-agent reinforcement learning (ASMR) problem and extend the classical actor-critic architecture to handle the asynchronous issue.
- 61, TITLE: Emergent Prosociality in Multi-Agent Games Through Gifting
<https://www.ijcai.org/proceedings/2021/61>
AUTHORS: Woodrow Z. Wang, Mark Beliaev, Erdem B'y'k, Daniel A. Lazar, Ramtin Pedarsani, Dorsa Sadigh
HIGHLIGHT: We propose using a less restrictive peer-rewarding mechanism, gifting, that guides the agents toward more socially desirable equilibria while allowing agents to remain selfish and decentralized.
- 62, TITLE: An Axiom System for Feedback Centralities
<https://www.ijcai.org/proceedings/2021/62>
AUTHORS: Tomasz W's, Oskar Skibski
HIGHLIGHT: In this paper, we propose an axiom system for four classic feedback centralities: Eigenvector centrality, Katz centrality, Katz prestige and PageRank.
- 63, TITLE: Manipulation of k-Coalitional Games on Social Networks
<https://www.ijcai.org/proceedings/2021/63>
AUTHORS: Naftali Waxman, Sarit Kraus, Noam Hazon
HIGHLIGHT: In this paper we study the susceptibility for manipulation of these objectives, given the abilities and information that the manipulator has.
- 64, TITLE: State-Aware Value Function Approximation with Attention Mechanism for Restless Multi-armed Bandits
<https://www.ijcai.org/proceedings/2021/64>
AUTHORS: Shuang Wu, Jingyu Zhao, Guangjian Tian, Jun Wang
HIGHLIGHT: We propose considering both factors using the attention mechanism, which has achieved great success in deep learning.
- 65, TITLE: Budget-feasible Maximum Nash Social Welfare is Almost Envy-free
<https://www.ijcai.org/proceedings/2021/65>
AUTHORS: Xiaowei Wu, Bo Li, Jiarui Gan
HIGHLIGHT: In this paper, we are interested in the fairness of the NSW in a budget-feasible allocation problem, in which each item has a cost that will be incurred to the agent it is allocated to, and each agent has a budget constraint on the total cost of items she receives.
- 66, TITLE: Learning with Generated Teammates to Achieve Type-Free Ad-Hoc Teamwork
<https://www.ijcai.org/proceedings/2021/66>
AUTHORS: Dong Xing, Qianhui Liu, Qian Zheng, Gang Pan
HIGHLIGHT: Specifically, we propose the model of Entropy-regularized Deep Recurrent Q-Network (EDRQN) to generate teammates automatically, meanwhile utilize them to pre-train our agent.
- 67, TITLE: H-FL: A Hierarchical Communication-Efficient and Privacy-Protected Architecture for Federated Learning
<https://www.ijcai.org/proceedings/2021/67>
AUTHORS: He Yang
HIGHLIGHT: In this paper, we propose a novel framework called hierarchical federated learning (H-FL) to tackle this challenge.
- 68, TITLE: Dominant Resource Fairness with Meta-Types
<https://www.ijcai.org/proceedings/2021/68>
AUTHORS: Steven Yin, Shatian Wang, Lingyi Zhang, Christian Kroer
HIGHLIGHT: We propose a new mechanism called Dominant Resource Fairness with Meta Types which determines the allocations by solving a small number of linear programs.
- 69, TITLE: Altruism Design in Networked Public Goods Games
<https://www.ijcai.org/proceedings/2021/69>
AUTHORS: Sixie Yu, David Kempe, Yevgeniy Vorobeychik

HIGHLIGHT: We introduce a novel extension of public goods games to account for altruistic motivations by adding a term in the utility function that incorporates the perceived benefits an agent obtains from the welfare of others, mediated by an altruism graph.

70, **TITLE:** MFVFD: A Multi-Agent Q-Learning Approach to Cooperative and Non-Cooperative Tasks

<https://www.ijcai.org/proceedings/2021/70>

AUTHORS: Tianhao Zhang, Qiwei Ye, Jiang Bian, Guangming Xie, Tie-Yan Liu

HIGHLIGHT: With the individual value function decomposition, we propose MFVFD, a novel multi-agent Q-learning approach for solving cooperative and non-cooperative tasks based on mean-field theory.

71, **TITLE:** Data-Efficient Reinforcement Learning for Malaria Control

<https://www.ijcai.org/proceedings/2021/71>

AUTHORS: Lixin Zou

HIGHLIGHT: With the GP world model, we propose a variance-bonus reward to measure the uncertainty about the world.

72, **TITLE:** Interacting with Explanations through Critiquing

<https://www.ijcai.org/proceedings/2021/72>

AUTHORS: Diego Antognini, Claudiu Musat, Boi Faltings

HIGHLIGHT: We present a novel technique using aspect markers that learns to generate personalized explanations of recommendations from review texts, and we show that human users significantly prefer these explanations over those produced by state-of-the-art techniques.

73, **TITLE:** On Smoother Attributions using Neural Stochastic Differential Equations

<https://www.ijcai.org/proceedings/2021/73>

AUTHORS: Sumit Jha, Rickard Ewetz, Alvaro Velasquez, Susmit Jha

HIGHLIGHT: This paper uses the recently identified connection between dynamical systems and residual neural networks to show that the attributions computed over neural stochastic differential equations (SDEs) are less noisy, visually sharper, and quantitatively more robust.

74, **TITLE:** Location Predicts You: Location Prediction via Bi-direction Speculation and Dual-level Association

<https://www.ijcai.org/proceedings/2021/74>

AUTHORS: Xixi Li, Ruimin Hu, Zheng Wang, Toshihiko Yamasaki

HIGHLIGHT: To address the issues above, we propose a novel Bi-direction Speculation and Dual-level Association method (BSDA), which considers both users' interests in POIs and POIs' appeal to users.

75, **TITLE:** Addressing the Long-term Impact of ML Decisions via Policy Regret

<https://www.ijcai.org/proceedings/2021/75>

AUTHORS: David Lindner, Hoda Heidari, Andreas Krause

HIGHLIGHT: We capture these considerations through the notion of policy regret, a much stronger notion than the often-studied external regret, and present an algorithm with provably sub-linear policy regret for sufficiently long time horizons.

76, **TITLE:** Multi-Objective Reinforcement Learning for Designing Ethical Environments

<https://www.ijcai.org/proceedings/2021/76>

AUTHORS: Manel Rodriguez-Soto, Maite Lopez-Sanchez, Juan A. Rodriguez Aguilar

HIGHLIGHT: Here, we make headway along this direction by proposing a novel way of designing environments wherein it is formally guaranteed that an agent learns to behave ethically while pursuing its individual objectives.

77, **TITLE:** Bias Silhouette Analysis: Towards Assessing the Quality of Bias Metrics for Word Embedding Models

<https://www.ijcai.org/proceedings/2021/77>

AUTHORS: Maximilian Splieth, Henning Wachsmuth

HIGHLIGHT: In this paper, we study how to assess the quality of bias metrics for word embedding models.

78, **TITLE:** Decision Making with Differential Privacy under a Fairness Lens

<https://www.ijcai.org/proceedings/2021/78>

AUTHORS: Cuong Tran, Ferdinando Fioretto, Pascal Van Hentenryck, Zhiyan Yao

HIGHLIGHT: The paper analyzes the reasons for these disproportionate impacts and proposes guidelines to mitigate these effects.

79, **TITLE:** An Examination of Fairness of AI Models for Deepfake Detection

<https://www.ijcai.org/proceedings/2021/79>

AUTHORS: Loc Trinh, Yan Liu

HIGHLIGHT: In this work, we evaluate bias present in deepfake datasets and detection models across protected subgroups.

80, TITLE: Characteristic Examples: High-Robustness, Low-Transferability Fingerprinting of Neural Networks
<https://www.ijcai.org/proceedings/2021/80>
AUTHORS: Siyue Wang, Xiao Wang, Pin-Yu Chen, Pu Zhao, Xue Lin
HIGHLIGHT: This paper proposes Characteristic Examples for effectively fingerprinting deep neural networks, featuring high-robustness to the base model against model pruning as well as low-transferability to unassociated models.

81, TITLE: GASP: Gated Attention for Saliency Prediction
<https://www.ijcai.org/proceedings/2021/81>
AUTHORS: Fares Abawi, Tom Weber, Stefan Wernter
HIGHLIGHT: Social cues greatly influence our attention, consequently altering our eye movements and behavior. To emphasize the efficacy of such features, we present a neural model for integrating social cues and weighting their influences.

82, TITLE: Explaining Self-Supervised Image Representations with Visual Probing
<https://www.ijcai.org/proceedings/2021/82>
AUTHORS: Dominika Basaj, Witold Oleszkiewicz, Igor Sieradzki, Michał Górszczak, Barbara Rychalska, Tomasz Trzcinski, Bartosz Zielinski
HIGHLIGHT: Hence, we propose a systematic approach to obtain analogs of natural language in vision, such as visual words, context, and taxonomy.

83, TITLE: Themis: A Fair Evaluation Platform for Computer Vision Competitions
<https://www.ijcai.org/proceedings/2021/83>
AUTHORS: Zinuo Cai, Jianyong Yuan, Yang Hua, Tao Song, Hao Wang, Zhengui Xue, Ningxin Hu, Jonathan Ding, Ruhui Ma, Mohammad Reza Haghighat, Haibing Guan
HIGHLIGHT: Thus, we propose Themis, a framework that trains a noise generator jointly with organizers and participants to prevent intentional fine-tuning by protecting test datasets from surreptitious manual labeling.

84, TITLE: Novelty Detection via Contrastive Learning with Negative Data Augmentation
<https://www.ijcai.org/proceedings/2021/84>
AUTHORS: Chengwei Chen, Yuan Xie, Shaohui Lin, Ruizhi Qiao, Jian Zhou, Xin Tan, Yi Zhang, Lizhuang Ma
HIGHLIGHT: Previous generative adversarial networks based methods and self-supervised approaches suffer from instability training, mode dropping, and low discriminative ability. We overcome such problems by introducing a novel decoder-encoder framework.

85, TITLE: Zero-Shot Chinese Character Recognition with Stroke-Level Decomposition
<https://www.ijcai.org/proceedings/2021/85>
AUTHORS: Jingye Chen, Bin Li, Xiangyang Xue
HIGHLIGHT: Inspired by the fact that humans can generalize to know how to write characters unseen before if they have learned stroke orders of some characters, we propose a stroke-based method by decomposing each character into a sequence of strokes, which are the most basic units of Chinese characters.

86, TITLE: Leveraging Human Attention in Novel Object Captioning
<https://www.ijcai.org/proceedings/2021/86>
AUTHORS: Xianyu Chen, Ming Jiang, Qi Zhao
HIGHLIGHT: While previous novel object captioning methods rely on external image taggers or object detectors to describe novel objects, we present the Attention-based Novel Object Captioner (ANOC) that complements novel object captioners with human attention features that characterize generally important information independent of tasks.

87, TITLE: Boundary Knowledge Translation based Reference Semantic Segmentation
<https://www.ijcai.org/proceedings/2021/87>
AUTHORS: Lechao Cheng, Zunlei Feng, Xinchao Wang, Ya Jie Liu, Jie Lei, Mingli Song
HIGHLIGHT: In this paper, we introduce a novel Reference semantic segmentation Network (Ref-Net) to conduct visual boundary knowledge translation.

88, TITLE: Hierarchical Object-oriented Spatio-Temporal Reasoning for Video Question Answering
<https://www.ijcai.org/proceedings/2021/88>
AUTHORS: Long Hoang Dang, Thao Minh Le, Vuong Le, Truyen Tran
HIGHLIGHT: Toward reaching this goal we propose an object-oriented reasoning approach in that video is abstracted as a dynamic stream of interacting objects.

- 89, TITLE: Phonovisual Biases in Language: is the Lexicon Tied to the Visual World?
<https://www.ijcai.org/proceedings/2021/89>
AUTHORS: Andrea Gregor de Varda, Carlo Strapparava
HIGHLIGHT: The present paper addresses the study of cross-linguistic and cross-modal iconicity within a deep learning framework.
- 90, TITLE: Direction-aware Feature-level Frequency Decomposition for Single Image Deraining
<https://www.ijcai.org/proceedings/2021/90>
AUTHORS: Sen Deng, Yidan Feng, Mingqiang Wei, Haoran Xie, Yiping Chen, Jonathan Li, Xiao-Ping Zhang, Jing Qin
HIGHLIGHT: We present a novel direction-aware feature-level frequency decomposition network for single image deraining.
- 91, TITLE: TCIC: Theme Concepts Learning Cross Language and Vision for Image Captioning
<https://www.ijcai.org/proceedings/2021/91>
AUTHORS: Zhihao Fan, Zhongyu Wei, Siyuan Wang, Ruize Wang, Zejun Li, Haijun Shan, Xuanjing Huang
HIGHLIGHT: In this paper, we propose a Theme Concepts extended Image Captioning (TCIC) framework that incorporates theme concepts to represent high-level cross-modality semantics.
- 92, TITLE: Chop Chop BERT: Visual Question Answering by Chopping VisualBERT's Heads
<https://www.ijcai.org/proceedings/2021/92>
AUTHORS: Chenyu Gao, Qi Zhu, Peng Wang, Qi Wu
HIGHLIGHT: To investigate why and how these models work on VQA so well, in this paper we explore the roles of individual heads and layers in Transformer models when handling 12 different types of questions.
- 93, TITLE: Feature Space Targeted Attacks by Statistic Alignment
<https://www.ijcai.org/proceedings/2021/93>
AUTHORS: Lianli Gao, Yaya Cheng, Qilong Zhang, Xing Xu, Jingkuan Song
HIGHLIGHT: To address this issue, we propose to measure this discrepancy using statistic alignment.
- 94, TITLE: Multi-view Feature Augmentation with Adaptive Class Activation Mapping
<https://www.ijcai.org/proceedings/2021/94>
AUTHORS: Xiang Gao, Yingjie Tian, Zhiqian Qi
HIGHLIGHT: We propose an end-to-end-trainable feature augmentation module built for image classification that extracts and exploits multi-view local features to boost model performance.
- 95, TITLE: Learning Spectral Dictionary for Local Representation of Mesh
<https://www.ijcai.org/proceedings/2021/95>
AUTHORS: Zhongpai Gao, Junchi Yan, Guangtao Zhai, Xiaokang Yang
HIGHLIGHT: In this paper, we learn spectral dictionary (i.e., bases) for the weighting matrices such that the parameter size is independent of the resolution of 3D shapes.
- 96, TITLE: Self-Supervised Video Action Localization with Adversarial Temporal Transforms
<https://www.ijcai.org/proceedings/2021/96>
AUTHORS: Guoqiang Gong, Liangfeng Zheng, Wenhao Jiang, Yadong Mu
HIGHLIGHT: Our motivating insight is that the temporal boundary of action should be stably predicted under various temporal transforms.
- 97, TITLE: EventDrop: Data Augmentation for Event-based Learning
<https://www.ijcai.org/proceedings/2021/97>
AUTHORS: Fuqiang Gu, Weicong Sng, Xuke Hu, Fangwen Yu
HIGHLIGHT: In this paper, we introduce EventDrop, a new method for augmenting asynchronous event data to improve the generalization of deep models.
- 98, TITLE: AdaVQA: Overcoming Language Priors with Adapted Margin Cosine Loss
<https://www.ijcai.org/proceedings/2021/98>
AUTHORS: Yangyang Guo, Liqiang Nie, Zhiyong Cheng, Feng Ji, Ji Zhang, Alberto Del Bimbo
HIGHLIGHT: Inspired by this, in this work, we attempt to tackle the language prior problem from the viewpoint of the feature space learning.
- 99, TITLE: Disentangled Face Attribute Editing via Instance-Aware Latent Space Search

<https://www.ijcai.org/proceedings/2021/99>

AUTHORS: Yuxuan Han, Jiaolong Yang, Ying Fu

HIGHLIGHT: In this paper, we propose a novel framework (IALS) that performs Instance-Aware Latent-Space Search to find semantic directions for disentangled attribute editing.

100, TITLE: DeepME: Deep Mixture Experts for Large-scale Image Classification

<https://www.ijcai.org/proceedings/2021/100>

AUTHORS: Ming He, Guangyi Lv, Weidong He, Jianping Fan, Guihua Zeng

HIGHLIGHT: According to our best knowledge, how to adaptively and effectively fuse multiple CNNs for large-scale image classification is still under-explored. On this basis, a deep mixture algorithm is developed to support large-scale image classification in this paper.

101, TITLE: Multi-Scale Selective Feedback Network with Dual Loss for Real Image Denoising

<https://www.ijcai.org/proceedings/2021/101>

AUTHORS: Xiaowan Hu, Yuanhao Cai, Zhihong Liu, Haoqian Wang, Yulun Zhang

HIGHLIGHT: However, unpaired images without noise-free labels are ubiquitous in the real world. Therefore, we proposed a multi-scale selective feedback network (MSFN) with the dual loss.

102, TITLE: Dynamic Inconsistency-aware DeepFake Video Detection

<https://www.ijcai.org/proceedings/2021/102>

AUTHORS: Ziheng Hu, Hongtao Xie, YuXin Wang, Jiahong Li, Zhongyuan Wang, Yongdong Zhang

HIGHLIGHT: In this paper, we propose a novel Dynamic Inconsistency-aware Network to handle the inconsistent problem, which uses a Cross-Reference module (CRM) to capture both the global and local inter-frame inconsistencies.

103, TITLE: AgeFlow: Conditional Age Progression and Regression with Normalizing Flows

<https://www.ijcai.org/proceedings/2021/103>

AUTHORS: Zhizhong Huang, Shouzhen Chen, Junping Zhang, Hongming Shan

HIGHLIGHT: To overcome these issues, this paper proposes a novel framework, termed AgeFlow, to integrate the advantages of both flow-based models and GANs.

104, TITLE: Self-Supervised Video Representation Learning with Constrained Spatiotemporal Jigsaw

<https://www.ijcai.org/proceedings/2021/104>

AUTHORS: Yuqi Huo, Mingyu Ding, Haoyu Lu, Ziyuan Huang, Mingqian Tang, Zhiwu Lu, Tao Xiang

HIGHLIGHT: This paper proposes a novel pretext task for self-supervised video representation learning by exploiting spatiotemporal continuity in videos.

105, TITLE: Perturb, Predict & Paraphrase: Semi-Supervised Learning using Noisy Student for Image Captioning

<https://www.ijcai.org/proceedings/2021/105>

AUTHORS: Arit Jain, Pranay Reddy Samala, Preethi Jyothi, Deepak Mittal, Maneesh Singh

HIGHLIGHT: In this work, we provide an in-depth analysis of the noisy student SSL framework for the task of image captioning and derive state-of-the-art results.

106, TITLE: Step-Wise Hierarchical Alignment Network for Image-Text Matching

<https://www.ijcai.org/proceedings/2021/106>

AUTHORS: Zhong Ji, Kexin Chen, Haoran Wang

HIGHLIGHT: Different from them, in this work, we propose a step-wise hierarchical alignment network (SHAN) that decomposes image-text matching into multi-step cross-modal reasoning process.

107, TITLE: Planning with Learned Dynamic Model for Unsupervised Point Cloud Registration

<https://www.ijcai.org/proceedings/2021/107>

AUTHORS: Haobo Jiang, Jianjun Qian, Jin Xie, Jian Yang

HIGHLIGHT: In this paper, we cast point cloud registration into a planning problem in reinforcement learning, which can seek the transformation between the source and target point clouds through trial and error.

108, TITLE: Information Bottleneck Approach to Spatial Attention Learning

<https://www.ijcai.org/proceedings/2021/108>

AUTHORS: Qiuxia Lai, Yu Li, Ailing Zeng, Minhao Liu, Hanqiu Sun, Qiang Xu

HIGHLIGHT: In this paper, we propose an IB-inspired spatial attention module for DNN structures built for visual recognition.

- 109, TITLE: Noise Doesn't Lie: Towards Universal Detection of Deep Inpainting
<https://www.ijcai.org/proceedings/2021/109>
AUTHORS: Ang Li, Qihong Ke, Xingjun Ma, Haiqin Weng, Zhiyuan Zong, Feng Xue, Rui Zhang
HIGHLIGHT: In this paper, we make the first attempt towards universal detection of deep inpainting, where the detection network can generalize well when detecting different deep inpainting methods.
- 110, TITLE: IMENet: Joint 3D Semantic Scene Completion and 2D Semantic Segmentation through Iterative Mutual Enhancement
<https://www.ijcai.org/proceedings/2021/110>
AUTHORS: Jie Li, Laiyan Ding, Rui Huang
HIGHLIGHT: We argue that this sequential scheme does not ensure these two tasks fully benefit each other, and present an Iterative Mutual Enhancement Network (IMENet) to solve them jointly, which interactively refines the two tasks at the late prediction stage.
- 111, TITLE: Deep Automatic Natural Image Matting
<https://www.ijcai.org/proceedings/2021/111>
AUTHORS: Jizhizi Li, Jing Zhang, Dacheng Tao
HIGHLIGHT: In this paper, we investigate the difficulties when extending them to natural images with salient transparent/meticulous foregrounds or non-salient foregrounds.
- 112, TITLE: Medical Image Segmentation using Squeeze-and-Expansion Transformers
<https://www.ijcai.org/proceedings/2021/112>
AUTHORS: Shaohua Li, Xiuchao Sui, Xiangde Luo, Xinxing Xu, Yong Liu, Rick Goh
HIGHLIGHT: In this work, we propose Segtran, an alternative segmentation framework based on transformers, which have unlimited "effective receptive fields" even at high feature resolutions.
- 113, TITLE: PIANO: A Parametric Hand Bone Model from Magnetic Resonance Imaging
<https://www.ijcai.org/proceedings/2021/113>
AUTHORS: Yuwei Li, Minye Wu, Yuyao Zhang, Lan Xu, Jingyi Yu
HIGHLIGHT: In this paper, we present PIANO, the first parametric bone model of human hands from MRI data.
- 114, TITLE: Instance-Aware Coherent Video Style Transfer for Chinese Ink Wash Painting
<https://www.ijcai.org/proceedings/2021/114>
AUTHORS: Hao Liang, Shuai Yang, Wenjing Wang, Jiaying Liu
HIGHLIGHT: In this paper, we present a novel video style transfer framework for Chinese ink wash paintings.
- 115, TITLE: Noise2Grad: Extract Image Noise to Denoise
<https://www.ijcai.org/proceedings/2021/115>
AUTHORS: Huangxing Lin, Yihong Zhuang, Yue Huang, Xinghao Ding, Xiaoqing Liu, Yizhou Yu
HIGHLIGHT: We consider such a case in which paired data and noise statistics are not accessible, but unpaired noisy and clean images are easy to collect. To form the necessary supervision, our strategy is to extract the noise from the noisy image to synthesize new data.
- 116, TITLE: Direct Measure Matching for Crowd Counting
<https://www.ijcai.org/proceedings/2021/116>
AUTHORS: Hui Lin, Xiaopeng Hong, Zhiheng Ma, Xing Wei, Yunfeng Qiu, Yaowei Wang, Yihong Gong
HIGHLIGHT: In this paper, we propose a new measure-based counting approach to regress the predicted density maps to the scattered point-annotated ground truth directly.
- 117, TITLE: A Multi-Constraint Similarity Learning with Adaptive Weighting for Visible-Thermal Person Re-Identification
<https://www.ijcai.org/proceedings/2021/117>
AUTHORS: Yongguo Ling, Zhiming Luo, Yaojin Lin, Shaozi Li
HIGHLIGHT: To address these issues, we propose a Multi-Constraint (MC) similarity learning method that jointly considers the cross-modality relationships from three different aspects, i.e., Instance-to-Instance (I2I), Center-to-Instance (C2I), and Center-to-Center (C2C).
- 118, TITLE: Learning 3-D Human Pose Estimation from Catadioptric Videos
<https://www.ijcai.org/proceedings/2021/118>
AUTHORS: Chenchen Liu, Yongzhi Li, Kangqi Ma, Duo Zhang, Peijun Bao, Yadong Mu
HIGHLIGHT: In this work, we explore a novel way of obtaining gigantic 3-D human pose data without manual annotations.

- 119, TITLE: Bipartite Matching for Crowd Counting with Point Supervision
<https://www.ijcai.org/proceedings/2021/119>
AUTHORS: Hao Liu, Qiang Zhao, Yike Ma, Feng Dai
HIGHLIGHT: To address the problem, we propose a bipartite matching based method for crowd counting with only point supervision (BM-Count).
- 120, TITLE: Dual Reweighting Domain Generalization for Face Presentation Attack Detection
<https://www.ijcai.org/proceedings/2021/120>
AUTHORS: Shubao Liu, Ke-Yue Zhang, Taiping Yao, Kekai Sheng, Shouhong Ding, Ying Tai, Jilin Li, Yuan Xie, Lizhuang Ma
HIGHLIGHT: To settle the issue, we propose a novel Dual Reweighting Domain Generalization (DRDG) framework which iteratively reweights the relative importance between samples to further improve the generalization.
- 121, TITLE: Graph Consistency Based Mean-Teaching for Unsupervised Domain Adaptive Person Re-Identification
<https://www.ijcai.org/proceedings/2021/121>
AUTHORS: Xiaobin Liu, Shiliang Zhang
HIGHLIGHT: To handle these issues, this paper proposes a Graph Consistency based Mean-Teaching (GCMT) method with constructing the Graph Consistency Constraint (GCC) between teacher and student networks.
- 122, TITLE: Domain Generalization under Conditional and Label Shifts via Variational Bayesian Inference
<https://www.ijcai.org/proceedings/2021/122>
AUTHORS: Xiaofeng Liu, Bo Hu, Linghao Jin, Xu Han, Fangxu Xing, Jinsong Ouyang, Jun Lu, Georges El Fakhri, Jonghye Woo
HIGHLIGHT: In this work, we propose a domain generalization (DG) approach to learn on several labeled source domains and transfer knowledge to a target domain that is inaccessible in training.
- 123, TITLE: Learn from Concepts: Towards the Purified Memory for Few-shot Learning
<https://www.ijcai.org/proceedings/2021/123>
AUTHORS: Xuncheng Liu, Xudong Tian, Shaohui Lin, Yanyun Qu, Lizhuang Ma, Wang Yuan, Zhizhong Zhang, Yuan Xie
HIGHLIGHT: In this paper, we present a novel purified memory mechanism that simulates the recognition process of human beings.
- 124, TITLE: One-Shot Affordance Detection
<https://www.ijcai.org/proceedings/2021/124>
AUTHORS: Hongchen Luo, Wei Zhai, Jing Zhang, Yang Cao, Dacheng Tao
HIGHLIGHT: To empower robots with this ability in unseen scenarios, we consider the challenging one-shot affordance detection problem in this paper, i.e., given a support image that depicts the action purpose, all objects in a scene with the common affordance should be detected.
- 125, TITLE: CIMON: Towards High-quality Hash Codes
<https://www.ijcai.org/proceedings/2021/125>
AUTHORS: Xiao Luo, Daqing Wu, Zeyu Ma, Chong Chen, Minghua Deng, Jinwen Ma, Zhongming Jin, Jianqiang Huang, Xian-Sheng Hua
HIGHLIGHT: In this paper, we propose a new method named Comprehensive similarity Mining and cOnsistency learNing (CIMON).
- 126, TITLE: Point-based Acoustic Scattering for Interactive Sound Propagation via Surface Encoding
<https://www.ijcai.org/proceedings/2021/126>
AUTHORS: Hsien-Yu Meng, Zhenyu Tang, Dinesh Manocha
HIGHLIGHT: We present a novel geometric deep learning method to compute the acoustic scattering properties of geometric objects.
- 127, TITLE: Modality-aware Style Adaptation for RGB-Infrared Person Re-Identification
<https://www.ijcai.org/proceedings/2021/127>
AUTHORS: Ziling Miao, Hong Liu, Wei Shi, Wanlu Xu, Hanrong Ye
HIGHLIGHT: In this paper, we propose a highly compact modality-aware style adaptation (MSA) framework, which aims to explore more potential relations between RGB and IR modalities by introducing new related modalities.
- 128, TITLE: Look Wide and Interpret Twice: Improving Performance on Interactive Instruction-following Tasks
<https://www.ijcai.org/proceedings/2021/128>

- AUTHORS: Van-Quang Nguyen, Masanori Suganuma, Takayuki Okatani
HIGHLIGHT: This paper proposes a new method, which outperforms the previous methods by a large margin.
- 129, TITLE: Attention-based Pyramid Dilated Lattice Network for Blind Image Denoising
<https://www.ijcai.org/proceedings/2021/129>
AUTHORS: Mohammad Nikzad, Yongsheng Gao, Jun Zhou
HIGHLIGHT: In this paper, to overcome this shortcoming we present a novel attention-based pyramid dilated lattice (APDL) architecture and investigate its capability for blind image denoising.
- 130, TITLE: Few-shot Neural Human Performance Rendering from Sparse RGBD Videos
<https://www.ijcai.org/proceedings/2021/130>
AUTHORS: Anqi Pang, Xin Chen, Haimin Luo, Minye Wu, Jingyi Yu, Lan Xu
HIGHLIGHT: We introduce a two-branch neural blending to combine the neural point render and classical graphics texturing pipeline, which integrates reliable observations over sparse key-frames.
- 131, TITLE: Self-boosting for Feature Distillation
<https://www.ijcai.org/proceedings/2021/131>
AUTHORS: Yulong Pei, Yanyun Qu, Junping Zhang
HIGHLIGHT: Specifically, we propose a novel distillation method named Self-boosting Feature Distillation (SFD), which eases the Teacher-Student gap by feature integration and self-distillation of Student.
- 132, TITLE: SiamRCR: Reciprocal Classification and Regression for Visual Object Tracking
<https://www.ijcai.org/proceedings/2021/132>
AUTHORS: Jinlong Peng, Zhengkai Jiang, Yueyang Gu, Yang Wu, Yabiao Wang, Ying Tai, Chengjie Wang, Weiyao Lin
HIGHLIGHT: In this paper, we propose a novel siamese tracking algorithm called SiamRCR, addressing this problem with a simple, light and effective solution.
- 133, TITLE: Unsupervised Hashing with Contrastive Information Bottleneck
<https://www.ijcai.org/proceedings/2021/133>
AUTHORS: Zexuan Qiu, Qinliang Su, Zijing Ou, Jianxing Yu, Changyou Chen
HIGHLIGHT: To tackle this problem, inspired by the recent success of contrastive learning in learning continuous representations, we propose to adapt this framework to learn binary hashing codes.
- 134, TITLE: Adaptive Edge Attention for Graph Matching with Outliers
<https://www.ijcai.org/proceedings/2021/134>
AUTHORS: Jingwei Qu, Haibin Ling, Chenrui Zhang, Xiaoqing Lyu, Zhi Tang
HIGHLIGHT: To address these issues, we present an Edge Attention-adaptive Graph Matching (EAGM) network and a novel description of edge features.
- 135, TITLE: Multi-Level Graph Encoding with Structural-Collaborative Relation Learning for Skeleton-Based Person Re-Identification
<https://www.ijcai.org/proceedings/2021/135>
AUTHORS: Haocong Rao, Shihao Xu, Xiping Hu, Jun Cheng, Bin Hu
HIGHLIGHT: To fully explore body relations, we construct graphs to model human skeletons from different levels, and for the first time propose a Multi-level Graph encoding approach with Structural-Collaborative Relation learning (MG-SCR) to encode discriminative graph features for person Re-ID.
- 136, TITLE: Learning Visual Words for Weakly-Supervised Semantic Segmentation
<https://www.ijcai.org/proceedings/2021/136>
AUTHORS: Lixiang Ru, Bo Du, Chen Wu
HIGHLIGHT: In this work, to tackle this problem, we proposed to simultaneously learn the image-level labels and local visual word labels.
- 137, TITLE: Learning with Selective Forgetting
<https://www.ijcai.org/proceedings/2021/137>
AUTHORS: Takashi Shibata, Go Irie, Daiki Ikami, Yu Mitsuzumi
HIGHLIGHT: In this paper, we propose a new framework for lifelong learning, called Learning with Selective Forgetting, which is to update a model for the new task with forgetting only the selected classes of the previous tasks while maintaining the rest.
- 138, TITLE: Structure Guided Lane Detection

<https://www.ijcai.org/proceedings/2021/138>

AUTHORS: Jinming Su, Chao Chen, Ke Zhang, Junfeng Luo, Xiaoming Wei, Xiaolin Wei

HIGHLIGHT: In this paper, we propose a novel structure guided framework to solve these problems simultaneously.

139, TITLE: Towards Unsupervised Deformable-Instances Image-to-Image Translation

<https://www.ijcai.org/proceedings/2021/139>

AUTHORS: Sitong Su, Jingkuan Song, Lianli Gao, Junchen Zhu

HIGHLIGHT: In this paper, we propose an effective pipeline named Mask-Guided Deformable-instances GAN (MGD-GAN) which first generates target masks in batch and then utilizes them to synthesize corresponding instances on the background image, with all instances efficiently translated and background well preserved.

140, TITLE: Enhance Image as You Like with Unpaired Learning

<https://www.ijcai.org/proceedings/2021/140>

AUTHORS: Xiaopeng Sun, Muxingzi Li, Tianyu He, Lubin Fan

HIGHLIGHT: In contrast, we propose a lightweight one-path conditional generative adversarial network (cGAN) to learn a one-to-many relation from low-light to normal-light image space, given only sets of low- and normal-light training images without any correspondence.

141, TITLE: Speech2Talking-Face: Inferring and Driving a Face with Synchronized Audio-Visual Representation

<https://www.ijcai.org/proceedings/2021/141>

AUTHORS: Yasheng Sun, Hang Zhou, Ziwei Liu, Hideki Koike

HIGHLIGHT: Our key insight is to synchronize audio and visual representations from two perspectives in a style-based generative framework.

142, TITLE: Context-aware Cross-level Fusion Network for Camouflaged Object Detection

<https://www.ijcai.org/proceedings/2021/142>

AUTHORS: Yujia Sun, Geng Chen, Tao Zhou, Yi Zhang, Nian Liu

HIGHLIGHT: In this paper, we propose a novel Context-aware Cross level Fusion Network (C2F-Net) to address the challenging COD task.

143, TITLE: Proposal-free One-stage Referring Expression via Grid-Word Cross-Attention

<https://www.ijcai.org/proceedings/2021/143>

AUTHORS: Wei Suo, MengYang Sun, Peng Wang, Qi Wu

HIGHLIGHT: In this paper, we present a proposal-free one-stage (PFOS) model that is able to regress the region-of-interest from the image, based on a textual query, in an end-to-end manner.

144, TITLE: MatchVIE: Exploiting Match Relevancy between Entities for Visual Information Extraction

<https://www.ijcai.org/proceedings/2021/144>

AUTHORS: Guozhi Tang, Lele Xie, Lianwen Jin, Jiapeng Wang, Jingdong Chen, Zhen Xu, Qianying Wang, Yaqiang Wu, Hui Li

HIGHLIGHT: To address this issue, in this paper we propose a novel key-value matching model based on a graph neural network for VIE (MatchVIE).

145, TITLE: AVA: Adversarial Vignetting Attack against Visual Recognition

<https://www.ijcai.org/proceedings/2021/145>

AUTHORS: Binyu Tian, Felix Juefei-Xu, Qing Guo, Xiaofei Xie, Xiaohong Li, Yang Liu

HIGHLIGHT: Due to this natural advantage, in this work, we study the vignetting from a new viewpoint, i.e., adversarial vignetting attack (AVA), which aims to embed intentionally misleading information into the vignetting and produce a natural adversarial example without noise patterns.

146, TITLE: Towards Cross-View Consistency in Semantic Segmentation While Varying View Direction

<https://www.ijcai.org/proceedings/2021/146>

AUTHORS: Xin Tong, Xianghua Ying, Yongjie Shi, He Zhao, Ruibin Wang

HIGHLIGHT: Based on this fact, we propose to generate images which are the same as real images of the scene taken in certain novel view directions for training and evaluation.

147, TITLE: Learning Interpretable Concept Groups in CNNs

<https://www.ijcai.org/proceedings/2021/147>

AUTHORS: Saurabh Varshneya, Antoine Ledent, Robert A. Vandermeulen, Yunwen Lei, Matthias Enders, Damian Borth, Marius Kloft

HIGHLIGHT: We propose a novel training methodology---Concept Group Learning (CGL)---that encourages training of interpretable CNN filters by partitioning filters in each layer into \emph{concept groups}, each of which is trained to learn a single visual concept.

148, **TITLE:** Text-based Person Search via Multi-Granularity Embedding Learning

<https://www.ijcai.org/proceedings/2021/148>

AUTHORS: Chengji Wang, Zhiming Luo, Yaojin Lin, Shaozi Li

HIGHLIGHT: In this study, we propose a novel multi-granularity embedding learning model for text-based person search.

149, **TITLE:** Cross-Domain Few-Shot Classification via Adversarial Task Augmentation

<https://www.ijcai.org/proceedings/2021/149>

AUTHORS: Haoqing Wang, Zhi-Hong Deng

HIGHLIGHT: In this work, we aim to improve the robustness of the inductive bias through task augmentation.

150, **TITLE:** Tag, Copy or Predict: A Unified Weakly-Supervised Learning Framework for Visual Information Extraction using Sequences

<https://www.ijcai.org/proceedings/2021/150>

AUTHORS: Jiapeng Wang, Tianwei Wang, Guozhi Tang, Lianwen Jin, Weihong Ma, Kai Ding, Yichao Huang

HIGHLIGHT: In this paper, we propose a unified weakly-supervised learning framework called TCPNet (Tag, Copy or Predict Network), which introduces 1) an efficient encoder to simultaneously model the semantic and layout information in 2D OCR results, 2) a weakly-supervised training method that utilizes only sequence-level supervision; and 3) a flexible and switchable decoder which contains two inference modes: one (Copy or Predict Mode) is to output key information sequences of different categories by copying a token from the input or predicting one in each time step, and the other (Tag Mode) is to directly tag the input sequence in a single forward pass.

151, **TITLE:** Spline Positional Encoding for Learning 3D Implicit Signed Distance Fields

<https://www.ijcai.org/proceedings/2021/151>

AUTHORS: Peng-Shuai Wang, Yang Liu, Yu-Qi Yang, Xin Tong

HIGHLIGHT: In this paper, we propose a novel positional encoding scheme, called Spline Positional Encoding, to map the input coordinates to a high dimensional space before passing them to MLPs, which help recover 3D signed distance fields with fine-scale geometric details from unorganized 3D point clouds.

152, **TITLE:** Audio2Head: Audio-driven One-shot Talking-head Generation with Natural Head Motion

<https://www.ijcai.org/proceedings/2021/152>

AUTHORS: Suzhen Wang, Lincheng Li, Yu Ding, Changjie Fan, Xin Yu

HIGHLIGHT: We propose an audio-driven talking-head method to generate photo-realistic talking-head videos from a single reference image.

153, **TITLE:** Norm-guided Adaptive Visual Embedding for Zero-Shot Sketch-Based Image Retrieval

<https://www.ijcai.org/proceedings/2021/153>

AUTHORS: Wenjie Wang, Yufeng Shi, Shiming Chen, Qinmu Peng, Feng Zheng, Xinge You

HIGHLIGHT: To this end, we propose a novel Norm-guided Adaptive Visual Embedding (NAVE) model, for adaptively building the common space based on visual similarity instead of language-based pre-defined prototypes.

154, **TITLE:** Dig into Multi-modal Cues for Video Retrieval with Hierarchical Alignment

<https://www.ijcai.org/proceedings/2021/154>

AUTHORS: Wenzhe Wang, Mengdan Zhang, Runnan Chen, Guanyu Cai, Penghao Zhou, Pai Peng, Xiaowei Guo, Jian Wu, Xing Sun

HIGHLIGHT: Thus, in this paper, we leverage the hierarchical video-text alignment to fully explore the detailed diverse characteristics in multi-modal cues for fine-grained alignment with local semantics from phrases, as well as to capture a high-level semantic correspondence.

155, **TITLE:** Towards Compact Single Image Super-Resolution via Contrastive Self-distillation

<https://www.ijcai.org/proceedings/2021/155>

AUTHORS: Yanbo Wang, Shaohui Lin, Yanyun Qu, Haiyan Wu, Zhizhong Zhang, Yuan Xie, Angela Yao

HIGHLIGHT: In this paper, we proposed a novel contrastive self-distillation (CSD) framework to simultaneously compress and accelerate various off-the-shelf SR models.

156, **TITLE:** Deep Unified Cross-Modality Hashing by Pairwise Data Alignment

<https://www.ijcai.org/proceedings/2021/156>

AUTHORS: Yimu Wang, Bo Xue, Quan Cheng, Yuhui Chen, Lijun Zhang

HIGHLIGHT: In this paper, to address the issues above, we propose a novel end-to-end Deep Unified Cross-Modality Hashing method named DUCMH, which is able to jointly learn unified hash codes and unified hash functions by alternate learning and data alignment.

157, **TITLE:** HifiFace: 3D Shape and Semantic Prior Guided High Fidelity Face Swapping
<https://www.ijcai.org/proceedings/2021/157>
AUTHORS: Yuhan Wang, Xu Chen, Junwei Zhu, Wenqing Chu, Ying Tai, Chengjie Wang, Jilin Li, Yongjian Wu, Feiyue Huang, Rongrong Ji
HIGHLIGHT: In this work, we propose a high fidelity face swapping method, called HifiFace, which can well preserve the face shape of the source face and generate photo-realistic results.

158, **TITLE:** Domain-Smoothing Network for Zero-Shot Sketch-Based Image Retrieval
<https://www.ijcai.org/proceedings/2021/158>
AUTHORS: Zhipeng Wang, Hao Wang, Jiexi Yan, Aming Wu, Cheng Deng
HIGHLIGHT: Specifically, a cross-modal contrastive method is proposed to learn generalized representations to smooth the domain gap by mining relations with additional augmented samples.

159, **TITLE:** Local Representation is Not Enough: Soft Point-Wise Transformer for Descriptor and Detector of Local Features
<https://www.ijcai.org/proceedings/2021/159>
AUTHORS: Zihao Wang, Xueyi Li, Zhen Li
HIGHLIGHT: To address these issues, we propose a novel Soft Point-Wise Transformer for Descriptor and Detector, simultaneously mining long-range intrinsic and cross-scale dependencies of local features.

160, **TITLE:** Weakly Supervised Dense Video Captioning via Jointly Usage of Knowledge Distillation and Cross-modal Matching
<https://www.ijcai.org/proceedings/2021/160>
AUTHORS: Bofeng Wu, Guocheng Niu, Jun Yu, Xinyan Xiao, Jian Zhang, Hua Wu
HIGHLIGHT: This paper proposes an approach to Dense Video Captioning (DVC) without pairwise event-sentence annotation.

161, **TITLE:** Tracklet Proposal Network for Multi-Object Tracking on Point Clouds
<https://www.ijcai.org/proceedings/2021/161>
AUTHORS: Hai Wu, Qing Li, Chenglu Wen, Xin Li, Xiaoliang Fan, Cheng Wang
HIGHLIGHT: This paper proposes the first tracklet proposal network, named PC-TCNN, for Multi-Object Tracking (MOT) on point clouds.

162, **TITLE:** Weakly-Supervised Spatio-Temporal Anomaly Detection in Surveillance Video
<https://www.ijcai.org/proceedings/2021/162>
AUTHORS: Jie Wu, Wei Zhang, Guanbin Li, Wenhao Wu, Xiao Tan, Yingying Li, Errui Ding, Liang Lin
HIGHLIGHT: In this paper, we introduce a novel task, referred to as Weakly-Supervised Spatio-Temporal Anomaly Detection (WSSTAD) in surveillance video.

163, **TITLE:** GM-MLIC: Graph Matching based Multi-Label Image Classification
<https://www.ijcai.org/proceedings/2021/163>
AUTHORS: Yanan Wu, He Liu, Songhe Feng, Yi Jin, Gengyu Lyu, Zizhang Wu
HIGHLIGHT: In this paper, we treat each image as a bag of instances, and reformulate the task of MLIC as a instance-label matching selection problem.

164, **TITLE:** Micro-Expression Recognition Enhanced by Macro-Expression from Spatial-Temporal Domain
<https://www.ijcai.org/proceedings/2021/164>
AUTHORS: Bin Xia, Shangfei Wang
HIGHLIGHT: Since micro-expression and macro-expression share some similarities in both spatial and temporal facial behavior patterns, we propose a macro-to-micro transformation framework for micro-expression recognition.

165, **TITLE:** Segmenting Transparent Objects in the Wild with Transformer
<https://www.ijcai.org/proceedings/2021/165>
AUTHORS: Enze Xie, Wenjia Wang, Wenhai Wang, Peize Sun, Hang Xu, Ding Liang, Ping Luo
HIGHLIGHT: This work presents a new fine-grained transparent object segmentation dataset, termed Trans10K-v2, extending Trans10K-v1, the first large-scale transparent object segmentation dataset.

- 166, TITLE: Adversarial Feature Disentanglement for Long-Term Person Re-identification
<https://www.ijcai.org/proceedings/2021/166>
AUTHORS: Wanlu Xu, Hong Liu, Wei Shi, Ziling Miao, Zhisheng Lu, Feihu Chen
HIGHLIGHT: To this end, we propose an adversarial feature disentanglement network (AFD-Net) which contains intra-class reconstruction and inter-class adversary to disentangle the identity-related and identity-unrelated (clothing) features. Moreover, we collect a challenging Market-Clothes dataset and a real-world PKU-Market-Reid dataset for evaluation.
- 167, TITLE: Tool- and Domain-Agnostic Parameterization of Style Transfer Effects Leveraging Pretrained Perceptual Metrics
<https://www.ijcai.org/proceedings/2021/167>
AUTHORS: Hiromu Yakura, Yuki Koyama, Masataka Goto
HIGHLIGHT: To enable this, we introduce a framework that utilizes an existing pretrained model for style transfer to calculate a perceptual style distance to the reference sample and uses black-box optimization to find the parameters that minimize this distance.
- 168, TITLE: Hierarchical Self-supervised Augmented Knowledge Distillation
<https://www.ijcai.org/proceedings/2021/168>
AUTHORS: Chuanguang Yang, Zhulin An, Linhang Cai, Yongjun Xu
HIGHLIGHT: We propose to append several auxiliary classifiers to hierarchical intermediate feature maps to generate diverse self-supervised knowledge and perform the one-to-one transfer to teach the student network thoroughly.
- 169, TITLE: RR-Net: Injecting Interactive Semantics in Human-Object Interaction Detection
<https://www.ijcai.org/proceedings/2021/169>
AUTHORS: Dongming Yang, Yuexian Zou, Can Zhang, Meng Cao, Jie Chen
HIGHLIGHT: In this paper, we therefore propose novel relation reasoning for HOI detection.
- 170, TITLE: Non-contact Pain Recognition from Video Sequences with Remote Physiological Measurements Prediction
<https://www.ijcai.org/proceedings/2021/170>
AUTHORS: Ruijing Yang, Ziyu Guan, Zitong Yu, Xiaoyi Feng, Jinye Peng, Guoying Zhao
HIGHLIGHT: In this paper, we present a novel multi-task learning framework which encodes both appearance changes and physiological cues in a non-contact manner for pain recognition.
- 171, TITLE: Coupling Intent and Action for Pedestrian Crossing Behavior Prediction
<https://www.ijcai.org/proceedings/2021/171>
AUTHORS: Yu Yao, Ella Atkins, Matthew Johnson-Roberson, Ram Vasudevan, Xiaoxiao Du
HIGHLIGHT: In this work, we follow the neuroscience and psychological literature to define pedestrian crossing behavior as a combination of an unobserved inner will (a probabilistic representation of binary intent of crossing vs. not crossing) and a set of multi-class actions (e.g., walking, standing, etc.).
- 172, TITLE: Object Detection in Densely Packed Scenes via Semi-Supervised Learning with Dual Consistency
<https://www.ijcai.org/proceedings/2021/172>
AUTHORS: Chao Ye, Huaidong Zhang, Xuemiao Xu, Weiwei Cai, Jing Qin, Kup-Sze Choi
HIGHLIGHT: We present a novel semi-supervised approach to addressing this problem, which is designed based on a common teacher-student model, integrated with a novel intersection-over-union (IoU) aware consistency loss and a new proposal consistency loss.
- 173, TITLE: Adv-Makeup: A New Imperceptible and Transferable Attack on Face Recognition
<https://www.ijcai.org/proceedings/2021/173>
AUTHORS: Bangjie Yin, Wenxuan Wang, Taiping Yao, Junfeng Guo, Zelun Kong, Shouhong Ding, Jilin Li, Cong Liu
HIGHLIGHT: In this paper, we propose a unified adversarial face generation method - Adv-Makeup, which can realize imperceptible and transferable attack under the black-box setting.
- 174, TITLE: Multimodal Transformer Networks for Pedestrian Trajectory Prediction
<https://www.ijcai.org/proceedings/2021/174>
AUTHORS: Ziyi Yin, Ruijin Liu, Zhiliang Xiong, Zejian Yuan
HIGHLIGHT: To address these issues, we propose an efficient multimodal transformer network that aggregates the trajectory and ego-vehicle speed variations at a coarse granularity and interacts with the optical flow in a fine-grained level to fill the vacancy of highly dynamic motion.
- 175, TITLE: EmbedMask: Embedding Coupling for Instance Segmentation
<https://www.ijcai.org/proceedings/2021/175>

AUTHORS: Hui Ying, Zhaojin Huang, Shu Liu, Tianjia Shao, Kun Zhou
HIGHLIGHT: In this work, we propose a single-stage method, named EmbedMask, that unifies both methods by taking their advantages, so it can achieve good performance in instance segmentation and produce high-resolution masks in a high speed.

176, TITLE: CogTree: Cognition Tree Loss for Unbiased Scene Graph Generation
<https://www.ijcai.org/proceedings/2021/176>
AUTHORS: Jing Yu, Yuan Chai, Yujing Wang, Yue Hu, Qi Wu
HIGHLIGHT: In this work, we analyze this problem from a novel cognition perspective: automatically building a hierarchical cognitive structure from the biased predictions and navigating that hierarchy to locate the relationships, making the tail relationships receive more attention in a coarse-to-fine mode.

177, TITLE: Dual-Cross Central Difference Network for Face Anti-Spoofing
<https://www.ijcai.org/proceedings/2021/177>
AUTHORS: Zitong Yu, Yunxiao Qin, Hengshuang Zhao, Xiaobai Li, Guoying Zhao
HIGHLIGHT: In this paper, we propose two Cross Central Difference Convolutions (C-CDC), which exploit the difference of the center and surround sparse local features from the horizontal/vertical and diagonal directions, respectively.

178, TITLE: Detecting Deepfake Videos with Temporal Dropout 3DCNN
<https://www.ijcai.org/proceedings/2021/178>
AUTHORS: Daichi Zhang, Chenyu Li, Fanzhao Lin, Dan Zeng, Shiming Ge
HIGHLIGHT: To address that, this paper aims to leverage the possible inconsistent cues among video frames and proposes a Temporal Dropout 3-Dimensional Convolutional Neural Network (TD-3DCNN) to detect deepfake videos.

179, TITLE: Low Resolution Information Also Matters: Learning Multi-Resolution Representations for Person Re-Identification
<https://www.ijcai.org/proceedings/2021/179>
AUTHORS: Guoqing Zhang, Yuhao Chen, Weisi Lin, Arun Chandran, Xuan Jing
HIGHLIGHT: In this work, we explore the influence of resolutions on feature extraction and develop a novel method for cross-resolution person re-ID called Multi-Resolution Representations Joint Learning (MRJL).

180, TITLE: Removing Foreground Occlusions in Light Field using Micro-lens Dynamic Filter
<https://www.ijcai.org/proceedings/2021/180>
AUTHORS: Shuo Zhang, Zeqi Shen, Youfang Lin
HIGHLIGHT: In this paper, we propose a learning-based method combining 'seeking' and 'generating' to recover occluded background.

181, TITLE: Learning Implicit Temporal Alignment for Few-shot Video Classification
<https://www.ijcai.org/proceedings/2021/181>
AUTHORS: Songyang Zhang, Jiale Zhou, Xuming He
HIGHLIGHT: Our main idea is to introduce an implicit temporal alignment for a video pair, capable of estimating the similarity between them in an accurate and robust manner.

182, TITLE: What If We Could Not See? Counterfactual Analysis for Egocentric Action Anticipation
<https://www.ijcai.org/proceedings/2021/182>
AUTHORS: Tianyu Zhang, Weiqing Min, Jiahao Yang, Tao Liu, Shuqiang Jiang, Yong Rui
HIGHLIGHT: While future actions may be wrongly predicted due to the dataset bias, we present a counterfactual analysis framework for egocentric action anticipation (CA-EAA) to enhance the capacity.

183, TITLE: Context-Aware Image Inpainting with Learned Semantic Priors
<https://www.ijcai.org/proceedings/2021/183>
AUTHORS: Wendong Zhang, Junwei Zhu, Ying Tai, Yunbo Wang, Wenqing Chu, Bingbing Ni, Chengjie Wang, Xiaokang Yang
HIGHLIGHT: To tackle this problem, we introduce pretext tasks that are semantically meaningful to estimating the missing contents.

184, TITLE: Sequential 3D Human Pose Estimation Using Adaptive Point Cloud Sampling Strategy
<https://www.ijcai.org/proceedings/2021/184>
AUTHORS: Zihao Zhang, Lei Hu, Xiaoming Deng, Shihong Xia
HIGHLIGHT: In this paper, we present a new perspective on the 3D human pose estimation method from point cloud sequences.

- 185, TITLE: Rescuing Deep Hashing from Dead Bits Problem
<https://www.ijcai.org/proceedings/2021/185>
AUTHORS: Shu Zhao, Dayan Wu, Yucan Zhou, Bo Li, Weiping Wang
HIGHLIGHT: In this paper, we propose a simple but effective gradient amplifier which acts before activation functions to alleviate DBP.
- 186, TITLE: PointLIE: Locally Invertible Embedding for Point Cloud Sampling and Recovery
<https://www.ijcai.org/proceedings/2021/186>
AUTHORS: Weibing Zhao, Xu Yan, Jiantao Gao, Ruimao Zhang, Jiayan Zhang, Zhen Li, Song Wu, Shuguang Cui
HIGHLIGHT: We propose a novel Locally Invertible Embedding (PointLIE) framework to unify the point cloud sampling and upsampling into one single framework through bi-directional learning.
- 187, TITLE: A Sketch-Transformer Network for Face Photo-Sketch Synthesis
<https://www.ijcai.org/proceedings/2021/187>
AUTHORS: Mingrui Zhu, Changcheng Liang, Nannan Wang, Xiaoyu Wang, Zhifeng Li, Xinbo Gao
HIGHLIGHT: We present a face photo-sketch synthesis model, which converts a face photo into an artistic face sketch or recover a photo-realistic facial image from a sketch portrait.
- 188, TITLE: PoseGTAC: Graph Transformer Encoder-Decoder with Atrous Convolution for 3D Human Pose Estimation
<https://www.ijcai.org/proceedings/2021/188>
AUTHORS: Yiran Zhu, Xing Xu, Fumin Shen, Yanli Ji, Lianli Gao, Heng Tao Shen
HIGHLIGHT: To tackle this issue, we propose a novel Graph Transformer Encoder-Decoder with Atrous Convolution, named PoseGTAC, to effectively extract multi-scale context and long-range information.
- 189, TITLE: Reducing SAT to Max2SAT
<https://www.ijcai.org/proceedings/2021/189>
AUTHORS: Carlos Ansorega, Jordi Levy
HIGHLIGHT: In this paper, we provide an efficient and constructive method for Reducing SAT to Max2SAT and show empirical results of how MaxSAT solvers are more efficient than SAT solvers solving the translation of hard formulas for Resolution.
- 190, TITLE: Improved CP-Based Lagrangian Relaxation Approach with an Application to the TSP
<https://www.ijcai.org/proceedings/2021/190>
AUTHORS: Raphaël Boudreault, Claude-Guy Quimper
HIGHLIGHT: In this paper, we propose an improved CP-LR approach that locally modifies the Lagrangian multipliers in order to increase the number of filtered values.
- 191, TITLE: Efficiently Explaining CSPs with Unsatisfiable Subset Optimization
<https://www.ijcai.org/proceedings/2021/191>
AUTHORS: Emilio Gamba, Bart Bogaerts, Tias Guns
HIGHLIGHT: We build on these formal foundations and tackle two emerging questions, namely how to generate explanations that are provably optimal (with respect to the given cost metric) and how to generate them efficiently.
- 192, TITLE: Decomposition Strategies to Count Integer Solutions over Linear Constraints
<https://www.ijcai.org/proceedings/2021/192>
AUTHORS: Cunjing Ge, Armin Biere
HIGHLIGHT: In this paper, we propose new decomposition techniques which target both the elimination of variables as well as inequalities using structural properties of counting problems.
- 193, TITLE: Solving Graph Homomorphism and Subgraph Isomorphism Problems Faster Through Clique Neighbourhood Constraints
<https://www.ijcai.org/proceedings/2021/193>
AUTHORS: Sonja Kraiczy, Ciaran McCreesh
HIGHLIGHT: We show how techniques from the state-of-the-art in subgraph isomorphism solving can be applied to broader graph homomorphism problems, and introduce a new form of filtering based upon clique-finding.
- 194, TITLE: Backdoor DNFs
<https://www.ijcai.org/proceedings/2021/194>
AUTHORS: Sebastian Ordyniak, Andre Schidler, Stefan Szeider
HIGHLIGHT: We introduce backdoor DNFs, as a tool to measure the theoretical hardness of CNF formulas.

- 195, TITLE: Learning Implicitly with Noisy Data in Linear Arithmetic
<https://www.ijcai.org/proceedings/2021/195>
AUTHORS: Alexander Rader, Ionela G Mocanu, Vaishak Belle, Brendan Juba
HIGHLIGHT: In this work, we extend implicit learning in PAC-Semantics to handle noisy data in the form of intervals and threshold uncertainty in the language of linear arithmetic.
- 196, TITLE: Computing Optimal Hypertree Decompositions with SAT
<https://www.ijcai.org/proceedings/2021/196>
AUTHORS: Andre Schidler, Stefan Szeider
HIGHLIGHT: We propose a novel characterization for hypertree width in terms of linear elimination orderings.
- 197, TITLE: Exploring Periodicity and Interactivity in Multi-Interest Framework for Sequential Recommendation
<https://www.ijcai.org/proceedings/2021/197>
AUTHORS: Gaode Chen, Xinghua Zhang, Yanyan Zhao, Cong Xue, Ji Xiang
HIGHLIGHT: To this end, we propose a novel method called PIMI to mitigate this issue.
- 198, TITLE: Masked Contrastive Learning for Anomaly Detection
<https://www.ijcai.org/proceedings/2021/198>
AUTHORS: Hyunsoo Cho, Jinseok Seol, Sang-goo Lee
HIGHLIGHT: In this paper, we propose a task-specific variant of contrastive learning named masked contrastive learning, which is more befitting for anomaly detection.
- 199, TITLE: Multi-Channel Pooling Graph Neural Networks
<https://www.ijcai.org/proceedings/2021/199>
AUTHORS: Jinlong Du, Senzhang Wang, Hao Miao, Jiaqiang Zhang
HIGHLIGHT: To address this issue, we propose a Multi-channel Graph Pooling method named MuchPool, which captures the local structure, the global structure, and node feature simultaneously in graph pooling.
- 200, TITLE: Guided Attention Network for Concept Extraction
<https://www.ijcai.org/proceedings/2021/200>
AUTHORS: Songtao Fang, Zhenya Huang, Ming He, Shiwei Tong, Xiaoqing Huang, Ye Liu, Jie Huang, Qi Liu
HIGHLIGHT: In this paper, we propose a novel model, named Guided Attention Concept Extraction Network (GACEN), which uses title, topic, and clue words as additional supervision to provide guidance directly.
- 201, TITLE: Learning Stochastic Equivalence based on Discrete Ricci Curvature
<https://www.ijcai.org/proceedings/2021/201>
AUTHORS: Xuan Guo, Qiang Tian, Wang Zhang, Wenjun Wang, Pengfei Jiao
HIGHLIGHT: Because automorphic equivalence and regular equivalence strictly tie the role of a node to the identities of all its neighbors. To mitigate this problem, we construct a framework called Curvature-based Network Embedding with Stochastic Equivalence (CNESE) to embed stochastic equivalence.
- 202, TITLE: Federated Learning with Sparsification-Amplified Privacy and Adaptive Optimization
<https://www.ijcai.org/proceedings/2021/202>
AUTHORS: Rui Hu, Yanmin Gong, Yuanxiong Guo
HIGHLIGHT: In this paper, we propose a new FL framework with sparsification-amplified privacy.
- 203, TITLE: Temporal Heterogeneous Information Network Embedding
<https://www.ijcai.org/proceedings/2021/203>
AUTHORS: Hong Huang, Ruize Shi, Wei Zhou, Xiao Wang, Hai Jin, Xiaoming Fu
HIGHLIGHT: In order to fill the gap of obtaining multi-type node embeddings by considering all temporal dynamics during the evolution, we propose a novel temporal HIN embedding method (THINE).
- 204, TITLE: Multi-Scale Contrastive Siamese Networks for Self-Supervised Graph Representation Learning
<https://www.ijcai.org/proceedings/2021/204>
AUTHORS: Ming Jin, Yizhen Zheng, Yuan-Fang Li, Chen Gong, Chuan Zhou, Shirui Pan
HIGHLIGHT: To overcome this problem, inspired by the recent success of graph contrastive learning and Siamese networks in visual representation learning, we propose a novel self-supervised approach in this paper to learn node representations by enhancing Siamese self-distillation with multi-scale contrastive learning.

- 205, TITLE: Practical One-Shot Federated Learning for Cross-Silo Setting
<https://www.ijcai.org/proceedings/2021/205>
AUTHORS: Qinbin Li, Bingsheng He, Dawn Song
HIGHLIGHT: In this paper, we propose a practical one-shot federated learning algorithm named FedKT.
- 206, TITLE: Discovering Collaborative Signals for Next POI Recommendation with Iterative Seq2Graph Augmentation
<https://www.ijcai.org/proceedings/2021/206>
AUTHORS: Yang Li, Tong Chen, Yadan Luo, Hongzhi Yin, Zi Huang
HIGHLIGHT: In this paper, we propose Sequence-to-Graph (Seq2Graph) augmentation for each POI sequence, allowing collaborative signals to be propagated from correlated POIs belonging to other sequences.
- 207, TITLE: Modeling Trajectories with Neural Ordinary Differential Equations
<https://www.ijcai.org/proceedings/2021/207>
AUTHORS: Yuxuan Liang, Kun Ouyang, Hanshu Yan, Yiwei Wang, Zekun Tong, Roger Zimmermann
HIGHLIGHT: To tackle these challenges, we devise a novel method entitled TrajODE for more natural modeling of trajectories.
- 208, TITLE: RCA: A Deep Collaborative Autoencoder Approach for Anomaly Detection
<https://www.ijcai.org/proceedings/2021/208>
AUTHORS: Boyang Liu, Ding Wang, Kaixiang Lin, Pang-Ning Tan, Jiayu Zhou
HIGHLIGHT: To alleviate this problem, we propose a robust framework using collaborative autoencoders to jointly identify normal observations from the data while learning its feature representation.
- 209, TITLE: MG-DVD: A Real-time Framework for Malware Variant Detection Based on Dynamic Heterogeneous Graph Learning
<https://www.ijcai.org/proceedings/2021/209>
AUTHORS: Chen Liu, Bo Li, Jun Zhao, Ming Su, Xu-Dong Liu
HIGHLIGHT: In this paper, we propose MG-DVD, a novel detection framework based on dynamic heterogeneous graph learning, to detect malware variants in real time.
- 210, TITLE: Node-wise Localization of Graph Neural Networks
<https://www.ijcai.org/proceedings/2021/210>
AUTHORS: Zemin Liu, Yuan Fang, Chenghao Liu, Steven C.H. Hoi
HIGHLIGHT: To utilize node locality without overfitting, we propose a node-wise localization of GNNs by accounting for both global and local aspects of the graph.
- 211, TITLE: GraphReach: Position-Aware Graph Neural Network using Reachability Estimations
<https://www.ijcai.org/proceedings/2021/211>
AUTHORS: Sunil Nishad, Shubhangi Agarwal, Arnab Bhattacharya, Sayan Ranu
HIGHLIGHT: In this paper, we develop GRAPHREACH, a position-aware inductive GNN that captures the global positions of nodes through reachability estimations with respect to a set of anchor nodes.
- 212, TITLE: Graph Edit Distance Learning via Modeling Optimum Matchings with Constraints
<https://www.ijcai.org/proceedings/2021/212>
AUTHORS: Yun Peng, Byron Choi, Jianliang Xu
HIGHLIGHT: In this paper, we propose a novel GED-specific loss function that simultaneously encodes the two characteristics.
- 213, TITLE: GAEN: Graph Attention Evolving Networks
<https://www.ijcai.org/proceedings/2021/213>
AUTHORS: Min Shi, Yu Huang, Xingquan Zhu, Yufei Tang, Yuan Zhuang, Jianxun Liu
HIGHLIGHT: In this paper, we propose Graph Attention Evolving Networks (GAEN) for dynamic network embedding with preserved similarities between nodes derived from their temporal variation patterns.
- 214, TITLE: Masked Label Prediction: Unified Message Passing Model for Semi-Supervised Classification
<https://www.ijcai.org/proceedings/2021/214>
AUTHORS: Yunsheng Shi, Zhengjie Huang, Shikun Feng, Hui Zhong, Wenjing Wang, Yu Sun
HIGHLIGHT: To address this issue, we propose a novel Unified Message Passing Model (UniMP) that can incorporate feature and label propagation at both training and inference time.

- 215, TITLE: Keyword-Based Knowledge Graph Exploration Based on Quadratic Group Steiner Trees
<https://www.ijcai.org/proceedings/2021/215>
AUTHORS: Yuxuan Shi, Gong Cheng, Trung-Kien Tran, Jie Tang, Evgeny Kharlamov
HIGHLIGHT: In this paper, to model cohesiveness in a generalized way, the quadratic group Steiner tree problem (QGSTP) is formulated where the cost function extends GST with quadratic terms representing semantic distances.
- 216, TITLE: Federated Model Distillation with Noise-Free Differential Privacy
<https://www.ijcai.org/proceedings/2021/216>
AUTHORS: Lichao Sun, Lingjuan Lyu
HIGHLIGHT: In this paper, we propose a novel framework called FEDMD-NFDP, which applies a Noise-Free Differential Privacy (NFDP) mechanism into a federated model distillation framework.
- 217, TITLE: LDP-FL: Practical Private Aggregation in Federated Learning with Local Differential Privacy
<https://www.ijcai.org/proceedings/2021/217>
AUTHORS: Lichao Sun, Jianwei Qian, Xun Chen
HIGHLIGHT: In this paper, we proposed a novel design of local differential privacy mechanism for federated learning to address the abovementioned issues.
- 218, TITLE: Does Every Data Instance Matter? Enhancing Sequential Recommendation by Eliminating Unreliable Data
<https://www.ijcai.org/proceedings/2021/218>
AUTHORS: Yatong Sun, Bin Wang, Zhu Sun, Xiaochun Yang
HIGHLIGHT: This inspires us to design a novel SRS By Eliminating unReliable Data (BERD) guided with two observations: (1) unreliable instances generally have high training loss; and (2) high-loss instances are not necessarily unreliable but uncertain ones caused by blurry sequential pattern.
- 219, TITLE: Cooperative Joint Attentive Network for Patient Outcome Prediction on Irregular Multi-Rate Multivariate Health Data
<https://www.ijcai.org/proceedings/2021/219>
AUTHORS: Qingxiong Tan, Mang Ye, Grace Lai-Hung Wong, PongChi Yuen
HIGHLIGHT: Hence, we propose a novel Cooperative Joint Attentive Network (CJANet) to analyze IMR-MTS in frequency domain, which adaptively handling discrepant dominant frequencies while tackling diverse data qualities caused by irregular sampling.
- 220, TITLE: Pattern-enhanced Contrastive Policy Learning Network for Sequential Recommendation
<https://www.ijcai.org/proceedings/2021/220>
AUTHORS: Xiaohai Tong, Pengfei Wang, Chenliang Li, Long Xia, Shaozhang Niu
HIGHLIGHT: In this paper, we propose a Pattern-enhanced Contrastive Policy Learning Network (RAP for short) for sequential recommendation, RAP formalizes the denoising problem in the form of Markov Decision Process (MDP), and sample actions for each item to determine whether it is relevant with the target item.
- 221, TITLE: Heuristic Search for Approximating One Matrix in Terms of Another Matrix
<https://www.ijcai.org/proceedings/2021/221>
AUTHORS: Guihong Wan, Haim Schweitzer
HIGHLIGHT: We propose the first nontrivial optimal algorithm for the general case, using a heuristic search setting similar to the classical A* algorithm.
- 222, TITLE: Preference-Adaptive Meta-Learning for Cold-Start Recommendation
<https://www.ijcai.org/proceedings/2021/222>
AUTHORS: Li Wang, Binbin Jin, Zhenya Huang, Hongke Zhao, Defu Lian, Qi Liu, Enhong Chen
HIGHLIGHT: To this end, in this paper, we propose a Preference-Adaptive Meta-Learning approach (PAML) to improve existing meta-learning frameworks with better generalization capacity.
- 223, TITLE: Federated Learning with Fair Averaging
<https://www.ijcai.org/proceedings/2021/223>
AUTHORS: Zheng Wang, Xiaoliang Fan, Jianzhong Qi, Chenglu Wen, Cheng Wang, Rongshan Yu
HIGHLIGHT: In this work, we identify a cause of unfairness in FL -- conflicting gradients with large differences in the magnitudes.
- 224, TITLE: User-as-Graph: User Modeling with Heterogeneous Graph Pooling for News Recommendation
<https://www.ijcai.org/proceedings/2021/224>
AUTHORS: Chuhan Wu, Fangzhao Wu, Yongfeng Huang, Xing Xie

HIGHLIGHT: In this paper, we propose a novel user modeling approach for news recommendation, which models each user as a personalized heterogeneous graph built from user behaviors to better capture the fine-grained behavior relatedness.

225, **TITLE:** Spatial-Temporal Sequential Hypergraph Network for Crime Prediction with Dynamic Multiplex Relation Learning

<https://www.ijcai.org/proceedings/2021/225>

AUTHORS: Lianghao Xia, Chao Huang, Yong Xu, Peng Dai, Liefeng Bo, Xiyue Zhang, Tianyi Chen

HIGHLIGHT: To tackle these challenges, we propose Spatial-Temporal Sequential Hypergraph Network (ST-SHN) to collectively encode complex crime spatial-temporal patterns as well as the underlying category-wise crime semantic relationships.

226, **TITLE:** Heterogeneous Graph Information Bottleneck

<https://www.ijcai.org/proceedings/2021/226>

AUTHORS: Liang Yang, Fan Wu, Zichen Zheng, Bingxin Niu, Junhua Gu, Chuan Wang, Xiaochun Cao, Yuanfang Guo

HIGHLIGHT: In this paper, a novel Heterogeneous Graph Information Bottleneck (HGIB) is proposed to implement the consensus hypothesis in an unsupervised manner.

227, **TITLE:** Graph Deformer Network

<https://www.ijcai.org/proceedings/2021/227>

AUTHORS: Wenting Zhao, Yuan Fang, Zhen Cui, Tong Zhang, Jian Yang

HIGHLIGHT: In this paper, we propose a simple yet effective Graph Deformer Network (GDN) to fulfill anisotropic convolution filtering on graphs, analogous to the standard convolution operation on images.

228, **TITLE:** Knowledge-based Residual Learning

<https://www.ijcai.org/proceedings/2021/228>

AUTHORS: Guanjie Zheng, Chang Liu, Hua Wei, Porter Jenkins, Chacha Chen, Tao Wen, Zhenhui Li

HIGHLIGHT: Hence, in this paper, we propose a hybrid model KRL that treats domain knowledge model as a weak learner and uses another neural net model to boost it.

229, **TITLE:** Faster Guarantees of Evolutionary Algorithms for Maximization of Monotone Submodular Functions

<https://www.ijcai.org/proceedings/2021/229>

AUTHORS: Victoria G. Crawford

HIGHLIGHT: In this paper, the monotone submodular maximization problem (SM) is studied.

230, **TITLE:** DACBench: A Benchmark Library for Dynamic Algorithm Configuration

<https://www.ijcai.org/proceedings/2021/230>

AUTHORS: Theresa Eimer, Andr e Biedenkapp, Maximilian Reimer, Steven Adriansen, Frank Hutter, Marius Lindauer

HIGHLIGHT: To facilitate benchmarking and thus research on DAC, we propose DACBench, a benchmark library that seeks to collect and standardize existing DAC benchmarks from different AI domains, as well as provide a template for new ones.

231, **TITLE:** Bounded-cost Search Using Estimates of Uncertainty

<https://www.ijcai.org/proceedings/2021/231>

AUTHORS: Maximilian Fickert, Tianyi Gu, Wheeler Ruml

HIGHLIGHT: This paper introduces a relatively simple algorithm, Expected Effort Search (XES), which uses not just point estimates but belief distributions in order to estimate the probability that a node will lead to a plan within the bound.

232, **TITLE:** A Runtime Analysis of Typical Decomposition Approaches in MOEA/D Framework for Many-objective Optimization Problems

<https://www.ijcai.org/proceedings/2021/232>

AUTHORS: Zhengxin Huang, Yuren Zhou, Chuan Luo, Qingwei Lin

HIGHLIGHT: This paper presents a theoretical analysis on the convergence ability of using the typical weighted sum (WS), Tehebycheff (TCH) or penalty-based boundary intersection (PBI) approach in a basic MOEA/D for solving two benchmark MaOPs.

233, **TITLE:** A New Upper Bound Based on Vertex Partitioning for the Maximum K-plex Problem

<https://www.ijcai.org/proceedings/2021/233>

AUTHORS: Hua Jiang, Dongming Zhu, Zhichao Xie, Shaowen Yao, Zhang-Hua Fu

HIGHLIGHT: In this paper, we propose a new upper bound for MKP, which is a partitioning of the candidate vertex set with respect to the constructing solution.

234, **TITLE:** Choosing the Right Algorithm With Hints From Complexity Theory

<https://www.ijcai.org/proceedings/2021/234>

AUTHORS: Shouda Wang, Weijie Zheng, Benjamin Doerr

HIGHLIGHT: In this work, we argue that the purely academic question of what could be the best possible algorithm in a certain broad class of black-box optimizers can give fruitful indications in which direction to search for good established optimization heuristics.

235, TITLE: UIBert: Learning Generic Multimodal Representations for UI Understanding

<https://www.ijcai.org/proceedings/2021/235>

AUTHORS: Chongyang Bai, Xiaoxue Zang, Ying Xu, Srinivas Sunkara, Abhinav Rastogi, Jindong Chen, Blaise Agüera y Arcas

HIGHLIGHT: To address such challenges we introduce UIBert, a transformer-based joint image-text model trained through novel pre-training tasks on large-scale unlabeled UI data to learn generic feature representations for a UI and its components.

236, TITLE: Pruning of Deep Spiking Neural Networks through Gradient Rewiring

<https://www.ijcai.org/proceedings/2021/236>

AUTHORS: Yanqi Chen, Zhaofei Yu, Wei Fang, Tiejun Huang, Yonghong Tian

HIGHLIGHT: In this paper, inspired by synaptogenesis and synapse elimination in the neural system, we propose gradient rewiring (Grad R), a joint learning algorithm of connectivity and weight for SNNs, that enables us to seamlessly optimize network structure without retraining.

237, TITLE: Human-AI Collaboration with Bandit Feedback

<https://www.ijcai.org/proceedings/2021/237>

AUTHORS: Ruijiang Gao, Maytal Saar-Tsechansky, Maria De-Arteaga, Ligong Han, Min Kyung Lee, Matthew Lease

HIGHLIGHT: Our solution aims to exploit the human-machine complementarity to maximize decision rewards.

238, TITLE: Accounting for Confirmation Bias in Crowdsourced Label Aggregation

<https://www.ijcai.org/proceedings/2021/238>

AUTHORS: Meric Altug Gemalmaz, Ming Yin

HIGHLIGHT: In this paper, we present an algorithmic approach to infer the correct answers of tasks by aggregating the annotations from multiple crowd workers, while taking workers' various levels of confirmation bias into consideration.

239, TITLE: An Entanglement-driven Fusion Neural Network for Video Sentiment Analysis

<https://www.ijcai.org/proceedings/2021/239>

AUTHORS: Dimitris Gkoumas, Qiuchi Li, Yijun Yu, Dawei Song

HIGHLIGHT: To fill this gap, we propose a transparent quantum probabilistic neural model.

240, TITLE: Event-based Action Recognition Using Motion Information and Spiking Neural Networks

<https://www.ijcai.org/proceedings/2021/240>

AUTHORS: Qianhui Liu, Dong Xing, Huajin Tang, De Ma, Gang Pan

HIGHLIGHT: Inspired by the dorsal stream in visual cortex, we propose a hierarchical SNN architecture for event-based action recognition using motion information.

241, TITLE: Item Response Ranking for Cognitive Diagnosis

<https://www.ijcai.org/proceedings/2021/241>

AUTHORS: Shiwei Tong, Qi Liu, Runlong Yu, Wei Huang, Zhenya Huang, Zachary A. Pardos, Weijie Jiang

HIGHLIGHT: To this end, we propose Item Response Ranking framework (IRR), aiming at introducing pairwise learning into cognitive diagnosis to well model the monotonicity between item responses.

242, TITLE: Type Anywhere You Want: An Introduction to Invisible Mobile Keyboard

<https://www.ijcai.org/proceedings/2021/242>

AUTHORS: Sahng-Min Yoo, Ue-Hwan Kim, Yewon Hwang, Jong-Hwan Kim

HIGHLIGHT: To overcome these limitations, we propose an Invisible Mobile Keyboard (IMK), which lets users freely type on the desired area without any constraints.

243, TITLE: Best-Effort Synthesis: Doing Your Best Is Not Harder Than Giving Up

<https://www.ijcai.org/proceedings/2021/243>

AUTHORS: Benjamin Aminof, Giuseppe De Giacomo, Sasha Rubin

HIGHLIGHT: We provide optimal algorithms for computing best-effort strategies, both in the case of LTL over infinite traces and LTL over finite traces (i.e., LTLf).

- 244, TITLE: A Game-Theoretic Account of Responsibility Allocation
<https://www.ijcai.org/proceedings/2021/244>
AUTHORS: Christel Baier, Florian Funke, Rupak Majumdar
HIGHLIGHT: We model strategic multi-agent interaction as an extensive form game of imperfect information and define notions of forward (prospective) and backward (retrospective) responsibility.
- 245, TITLE: On Cycles, Attackers and Supporters --- A Contribution to The Investigation of Dynamics in Abstract Argumentation
<https://www.ijcai.org/proceedings/2021/245>
AUTHORS: Ringo Baumann, Markus Ulbricht
HIGHLIGHT: In particular, we investigate the impact of addition or removal of arguments, a line of research that has been around for more than a decade.
- 246, TITLE: Reasoning About Agents That May Know Other Agents' Strategies
<https://www.ijcai.org/proceedings/2021/246>
AUTHORS: Francesco Belardinelli, Sophia Knight, Alessio Lomuscio, Bastien Maubert, Aniello Murano, Sasha Rubin
HIGHLIGHT: We study the semantics of knowledge in strategic reasoning.
- 247, TITLE: Choice Logics and Their Computational Properties
<https://www.ijcai.org/proceedings/2021/247>
AUTHORS: Michael Bernreiter, Jan Maly, Stefan Woltran
HIGHLIGHT: In particular, we investigate strong equivalence, a core concept in non-classical logics for understanding formula simplification, and computational complexity.
- 248, TITLE: Cardinality Queries over DL-Lite Ontologies
<https://www.ijcai.org/proceedings/2021/248>
AUTHORS: Meghyn Bienvenu, Quentin Maniègre, Michaël Thomazo
HIGHLIGHT: In this paper, we advance this line of research by investigating cardinality queries (which correspond to Boolean atomic counting queries) coupled with DL-Lite ontologies.
- 249, TITLE: Budget-Constrained Coalition Strategies with Discounting
<https://www.ijcai.org/proceedings/2021/249>
AUTHORS: Lia Bozzone, Pavel Naumov
HIGHLIGHT: The paper proposes a sound and complete logical system for reasoning about budget-constrained strategic abilities that incorporates discounting into its semantics.
- 250, TITLE: Abductive Learning with Ground Knowledge Base
<https://www.ijcai.org/proceedings/2021/250>
AUTHORS: Le-Wen Cai, Wang-Zhou Dai, Yu-Xuan Huang, Yu-Feng Li, Stephen Muggleton, Yuan Jiang
HIGHLIGHT: This paper proposes Grounded Abductive Learning (GABL) to enhance machine learning models with abductive reasoning in a ground domain knowledge base, which offers inexact supervision through a set of logic propositions.
- 251, TITLE: Intensional and Extensional Views in DL-Lite Ontologies
<https://www.ijcai.org/proceedings/2021/251>
AUTHORS: Marco Console, Giuseppe De Giacomo, Maurizio Lenzerini, Manuel Namicì
HIGHLIGHT: In this work, we study views in Ontology-Based Data Access (OBDA) systems.
- 252, TITLE: On Belief Change for Multi-Label Classifier Encodings
<https://www.ijcai.org/proceedings/2021/252>
AUTHORS: Sylvie Coste-Marquis, Pierre Marquis
HIGHLIGHT: However, usual change operations are not suited to the task of modifying the classifier encoding S in a minimal way, to make it complying with T . To fill the gap, we present a new belief change operation, called rectification.
- 253, TITLE: A Uniform Abstraction Framework for Generalized Planning
<https://www.ijcai.org/proceedings/2021/253>
AUTHORS: Zhenhe Cui, Yongmei Liu, Kailun Luo
HIGHLIGHT: In this paper, by extending their abstraction framework, we propose a uniform abstraction framework for generalized planning.
- 254, TITLE: Abductive Knowledge Induction from Raw Data

<https://www.ijcai.org/proceedings/2021/254>

AUTHORS: Wang-Zhou Dai, Stephen Muggleton

HIGHLIGHT: In this paper, we present Abductive Meta-Interpretive Learning (MetaAbd) that unites abduction and induction to learn neural networks and logic theories jointly from raw data.

255, TITLE: Finite-Trace and Generalized-Reactivity Specifications in Temporal Synthesis

<https://www.ijcai.org/proceedings/2021/255>

AUTHORS: Giuseppe De Giacomo, Antonio Di Stasio, Lucas M. Tabajara, Moshe Vardi, Shufang Zhu

HIGHLIGHT: We first study the case in which we have an LTLf agent goal and a GR(1) assumption. We then add to the framework safety conditions for both the environment and the agent, obtaining a highly expressive yet still scalable form of LTL synthesis.

256, TITLE: HyperLDL: a Logic for Checking Properties of Finite Traces Process Logs

<https://www.ijcai.org/proceedings/2021/256>

AUTHORS: Giuseppe De Giacomo, Paolo Felli, Marco Montali, Giuseppe Perelli

HIGHLIGHT: In this paper, motivated by BPM, we introduce HyperLDL, a logic that extends LDL with the hyper features of HyperLTL.

257, TITLE: How Hard to Tell? Complexity of Belief Manipulation Through Propositional Announcements

<https://www.ijcai.org/proceedings/2021/257>

AUTHORS: Thomas Eiter, Aaron Hunter, Francois Schwarzentruber

HIGHLIGHT: This paper studies the problem of the existence of such an announcement in the context of model-preference definable revision operators.

258, TITLE: Improved Algorithms for Allen's Interval Algebra: a Dynamic Programming Approach

<https://www.ijcai.org/proceedings/2021/258>

AUTHORS: Leif Eriksson, Victor Lagerkvist

HIGHLIGHT: In this paper we narrow this gap by presenting two novel algorithms for temporal CSPs based on dynamic programming.

259, TITLE: Decomposition-Guided Reductions for Argumentation and Treewidth

<https://www.ijcai.org/proceedings/2021/259>

AUTHORS: Johannes Fichte, Markus Hecher, Yasir Mahmood, Arne Meier

HIGHLIGHT: In this paper, we address whether one can design reductions from argumentation problems to SAT-problems while linearly preserving the treewidth, which results in decomposition-guided (DG) reductions.

260, TITLE: Actively Learning Concepts and Conjunctive Queries under ELr-Ontologies

<https://www.ijcai.org/proceedings/2021/260>

AUTHORS: Maurice Funk, Jean Christoph Jung, Carsten Lutz

HIGHLIGHT: We consider the problem to learn a concept or a query in the presence of an ontology formulated in the description logic ELr, in Angluin's framework of active learning that allows the learning algorithm to interactively query an oracle (such as a domain expert).

261, TITLE: Program Synthesis as Dependency Quantified Formula Modulo Theory

<https://www.ijcai.org/proceedings/2021/261>

AUTHORS: Priyanka Golia, Subhjit Roy, Kuldeep S. Meel

HIGHLIGHT: This paper investigates the feasibility of synthesis techniques without grammar, a sub-class defined as T constrained synthesis.

262, TITLE: Updating the Belief Promotion Operator

<https://www.ijcai.org/proceedings/2021/262>

AUTHORS: Daniel A. Grimaldi, M. Vanina Martinez, Ricardo O. Rodriguez

HIGHLIGHT: In this note, we introduce the local version of the operator for belief promotion proposed by Schwind et al. We propose a set of postulates and provide a representation theorem that characterizes the proposal.

263, TITLE: Using Platform Models for a Guided Explanatory Diagnosis Generation for Mobile Robots

<https://www.ijcai.org/proceedings/2021/263>

AUTHORS: Daniel Habering, Till Hofmann, Gerhard Lakemeyer

HIGHLIGHT: In this paper, we present a novel approach to explanatory diagnosis, based on the assumption that most failures occur due to some robot hardware failure.

- 264, TITLE: HIP Network: Historical Information Passing Network for Extrapolation Reasoning on Temporal Knowledge Graph
<https://www.ijcai.org/proceedings/2021/264>
AUTHORS: Yongquan He, Peng Zhang, Luchen Liu, Qi Liang, Wenyuan Zhang, Chuang Zhang
HIGHLIGHT: In this paper, we propose the Historical Information Passing (HIP) network to predict future events.
- 265, TITLE: Multi-Agent Abstract Argumentation Frameworks With Incomplete Knowledge of Attacks
<https://www.ijcai.org/proceedings/2021/265>
AUTHORS: Andreas Herzig, Antonio Yuste Ginel
HIGHLIGHT: We introduce a multi-agent, dynamic extension of abstract argumentation frameworks (AFs), strongly inspired by epistemic logic, where agents have only partial information about the conflicts between arguments.
- 266, TITLE: Signature-Based Abduction with Fresh Individuals and Complex Concepts for Description Logics
<https://www.ijcai.org/proceedings/2021/266>
AUTHORS: Patrick Koopmann
HIGHLIGHT: In this paper, we investigate the computational complexity of this form of abduction---allowing either fresh individuals, complex concepts, or both---for various description logics, and give size bounds on the hypotheses if they exist.
- 267, TITLE: Scalable Non-observational Predicate Learning in ASP
<https://www.ijcai.org/proceedings/2021/267>
AUTHORS: Mark Law, Alessandra Russo, Krysia Broda, Elisa Bertino
HIGHLIGHT: In particular, we present our new FastNonOPL system, which upgrades FastLAS with the new possibility generation.
- 268, TITLE: Inferring Time-delayed Causal Relations in POMDPs from the Principle of Independence of Cause and Mechanism
<https://www.ijcai.org/proceedings/2021/268>
AUTHORS: Junchi Liang, Abdeslam Boularias
HIGHLIGHT: This paper introduces an algorithm for discovering implicit and delayed causal relations between events observed by a robot at regular or arbitrary times, with the objective of improving data-efficiency and interpretability of model-based reinforcement learning (RL) techniques.
- 269, TITLE: Reasoning about Beliefs and Meta-Beliefs by Regression in an Expressive Probabilistic Action Logic
<https://www.ijcai.org/proceedings/2021/269>
AUTHORS: Daxin Liu, Gerhard Lakemeyer
HIGHLIGHT: In this paper we will address this and other shortcomings by extending the language and modifying the semantics of belief and only-believing.
- 270, TITLE: Multi-Agent Belief Base Revision
<https://www.ijcai.org/proceedings/2021/270>
AUTHORS: Emiliano Lorini, Francois Schwarzentruber
HIGHLIGHT: We present a generalization of belief base revision to the multi-agent case.
- 271, TITLE: Bounded Predicates in Description Logics with Counting
<https://www.ijcai.org/proceedings/2021/271>
AUTHORS: Sanja Lukumbuzya, Mantas Simkus
HIGHLIGHT: This paper investigates reasoning about upper bounds on predicate sizes for ontologies written in the expressive DL ALCHOIQ extended with closed predicates.
- 272, TITLE: On the Relation Between Approximation Fixpoint Theory and Justification Theory
<https://www.ijcai.org/proceedings/2021/272>
AUTHORS: Simon Marynissen, Bart Bogaerts, Marc Denecker
HIGHLIGHT: To be precise, we show that every justification frame induces an approximator and that this mapping from JT to AFT preserves all major semantics.
- 273, TITLE: Faster Smarter Proof by Induction in Isabelle/HOL
<https://www.ijcai.org/proceedings/2021/273>
AUTHORS: Yutaka Nagashima
HIGHLIGHT: We present `sem_ind`, a recommendation tool for proof by induction in Isabelle/HOL.

- 274, TITLE: Two Forms of Responsibility in Strategic Games
<https://www.ijcai.org/proceedings/2021/274>
AUTHORS: Pavel Naumov, Jia Tao
HIGHLIGHT: The paper shows that being blamable is definable through seeing to it, but not the other way around.
- 275, TITLE: Compressing Exact Cover Problems with Zero-suppressed Binary Decision Diagrams
<https://www.ijcai.org/proceedings/2021/275>
AUTHORS: Masaaki Nishino, Norihito Yasuda, Kengo Nakamura
HIGHLIGHT: Our proposal can improve DLX by exploiting a novel data structure, DanceDD, which extends the zero-suppressed binary decision diagram (ZDD) by adding links to enable efficient modifications of the data structure.
- 276, TITLE: Modeling Precomputation In Games Played Under Computational Constraints
<https://www.ijcai.org/proceedings/2021/276>
AUTHORS: Thomas Orton
HIGHLIGHT: This paper presents a novel model for the precomputation (preparing moves in advance) aspect of computationally constrained games.
- 277, TITLE: A Ladder of Causal Distances
<https://www.ijcai.org/proceedings/2021/277>
AUTHORS: Maxime Peyrard, Robert West
HIGHLIGHT: Here, we overcome this limitation by defining distances derived from the causal distributions induced by the models, rather than exclusively from their graphical structure.
- 278, TITLE: Unsupervised Knowledge Graph Alignment by Probabilistic Reasoning and Semantic Embedding
<https://www.ijcai.org/proceedings/2021/278>
AUTHORS: Zhiyuan Qi, Ziheng Zhang, Jiaoyan Chen, Xi Chen, Yuejia Xiang, Ningyu Zhang, Yefeng Zheng
HIGHLIGHT: In this study, we aim at combining the above two solutions and thus propose an iterative framework named PRASE which is based on probabilistic reasoning and semantic embedding.
- 279, TITLE: Efficient PAC Reinforcement Learning in Regular Decision Processes
<https://www.ijcai.org/proceedings/2021/279>
AUTHORS: Alessandro Ronca, Giuseppe De Giacomo
HIGHLIGHT: Our main contribution is to show that a near-optimal policy can be PAC-learned in polynomial time in a set of parameters that describe the underlying decision process.
- 280, TITLE: Inconsistency Measurement for Paraconsistent Inference
<https://www.ijcai.org/proceedings/2021/280>
AUTHORS: Yakoub Salhi
HIGHLIGHT: In this paper, we introduce an approach based on inconsistency measurement for defining non-monotonic paraconsistent consequence relations.
- 281, TITLE: A Description Logic for Analogical Reasoning
<https://www.ijcai.org/proceedings/2021/281>
AUTHORS: Steven Schockaert, Yazmin Ibanez-Garcia, Victor Gutierrez-Basulto
HIGHLIGHT: To mitigate this issue, we present a mechanism to infer plausible missing knowledge, which relies on reasoning by analogy.
- 282, TITLE: Ranking Extensions in Abstract Argumentation
<https://www.ijcai.org/proceedings/2021/282>
AUTHORS: Kenneth Skiba, Tjitze Rienstra, Matthias Thimm, Jesse Heyninck, Gabriele Kern-Isberner
HIGHLIGHT: In this paper, we present the notion of extension-ranking semantics, which determines a preordering over sets of arguments, where one set is deemed more plausible than another if it is somehow more acceptable.
- 283, TITLE: Physics-informed Spline Learning for Nonlinear Dynamics Discovery
<https://www.ijcai.org/proceedings/2021/283>
AUTHORS: Fangzheng Sun, Yang Liu, Hao Sun
HIGHLIGHT: To address this fundamental challenge, we propose a novel Physics-informed Spline Learning (PiSL) framework to discover parsimonious governing equations for nonlinear dynamics, based on sparsely sampled noisy data.

- 284, TITLE: Lifting Symmetry Breaking Constraints with Inductive Logic Programming
<https://www.ijcai.org/proceedings/2021/284>
AUTHORS: Alice Tarzariol, Martin Gebser, Konstantin Schekotihin
HIGHLIGHT: To overcome these limitations, we introduce a new model-oriented approach for Answer Set Programming that lifts the SBCs of small problem instances into a set of interpretable first-order constraints using the Inductive Logic Programming paradigm.
- 285, TITLE: Skeptical Reasoning with Preferred Semantics in Abstract Argumentation without Computing Preferred Extensions
<https://www.ijcai.org/proceedings/2021/285>
AUTHORS: Matthias Thimm, Federico Cerutti, Mauro Vallati
HIGHLIGHT: We address the problem of deciding skeptical acceptance wrt. preferred semantics of an argument in abstract argumentation frameworks, i.e., the problem of deciding whether an argument is contained in all maximally admissible sets, a.k.a. preferred extensions.
- 286, TITLE: Abstract Argumentation Frameworks with Domain Assignments
<https://www.ijcai.org/proceedings/2021/286>
AUTHORS: Alexandros Vassiliades, Theodore Patkos, Giorgos Flouris, Antonis Bikakis, Nick Bassiliades, Dimitris Plexousakis
HIGHLIGHT: In this paper, we propose an argumentation formalism that allows associating arguments with a domain of application.
- 287, TITLE: Transforming Robotic Plans with Timed Automata to Solve Temporal Platform Constraints
<https://www.ijcai.org/proceedings/2021/287>
AUTHORS: Tarik Viehmann, Till Hofmann, Gerhard Lakemeyer
HIGHLIGHT: In this paper, we describe how to transform an abstract plan into a platform-specific action sequence that satisfies all platform constraints.
- 288, TITLE: Neighborhood Intervention Consistency: Measuring Confidence for Knowledge Graph Link Prediction
<https://www.ijcai.org/proceedings/2021/288>
AUTHORS: Kai Wang, Yu Liu, Quan Z. Sheng
HIGHLIGHT: To fill this critical gap, we propose a novel confidence measurement method based on causal intervention, called Neighborhood Intervention Consistency (NIC).
- 289, TITLE: Causal Discovery with Multi-Domain LiNGAM for Latent Factors
<https://www.ijcai.org/proceedings/2021/289>
AUTHORS: Yan Zeng, Shohei Shimizu, Ruichu Cai, Feng Xie, Michio Yamamoto, Zhifeng Hao
HIGHLIGHT: In this paper, we propose Multi-Domain Linear Non-Gaussian Acyclic Models for Latent Factors (MD-LiNA), where the causal structure among latent factors of interest is shared for all domains, and we provide its identification results.
- 290, TITLE: AMEIR: Automatic Behavior Modeling, Interaction Exploration and MLP Investigation in the Recommender System
<https://www.ijcai.org/proceedings/2021/290>
AUTHORS: Pengyu Zhao, Kecheng Xiao, Yuanxing Zhang, Kaigui Bian, Wei Yan
HIGHLIGHT: To relieve those efforts, we explore the potential of neural architecture search (NAS) and introduce AMEIR for Automatic behavior Modeling, interaction Exploration and multi-layer perceptron (MLP) Investigation in the Recommender system.
- 291, TITLE: The Surprising Power of Graph Neural Networks with Random Node Initialization
<https://www.ijcai.org/proceedings/2021/291>
AUTHORS: Ralph Abboud, ?smail ?lkan Ceylan, Martin Grohe, Thomas Lukasiewicz
HIGHLIGHT: In this work, we analyze the expressive power of GNNs with RNI, and prove that these models are universal, a first such result for GNNs not relying on computationally demanding higher-order properties.
- 292, TITLE: Likelihood-free Out-of-Distribution Detection with Invertible Generative Models
<https://www.ijcai.org/proceedings/2021/292>
AUTHORS: Amirhossein Ahmadian, Fredrik Lindsten
HIGHLIGHT: In this paper, we present a different framework for generative model-based OOD detection that employs the model in constructing a new representation space, instead of using it directly in computing typicality scores, where it is emphasized that the score function should be interpretable as the similarity between the input and training data in the new space.

- 293, TITLE: Simulation of Electron-Proton Scattering Events by a Feature-Augmented and Transformed Generative Adversarial Network (FAT-GAN)
<https://www.ijcai.org/proceedings/2021/293>
AUTHORS: Yasir Alanazi, Nobuo Sato, Tianbo Liu, Wally Melnitchouk, Pawel Ambrozewicz, Florian Hauenstein, Michelle P. Kuchera, Evan Pritchard, Michael Robertson, Ryan Strauss, Luisa Velasco, Yaohang Li
HIGHLIGHT: We develop a GAN that selects a set of transformed features from particle momenta that can be generated easily by the generator, and uses these to produce a set of augmented features that improve the sensitivity of the discriminator.
- 294, TITLE: Deep Reinforcement Learning for Navigation in AAA Video Games
<https://www.ijcai.org/proceedings/2021/294>
AUTHORS: Eloi Alonso, Maxim Peter, David Goumar, Joshua Romoff
HIGHLIGHT: As an alternative to the NavMesh, we propose to use Deep Reinforcement Learning (Deep RL) to learn how to navigate 3D maps in video games using any navigation ability.
- 295, TITLE: Conditional Self-Supervised Learning for Few-Shot Classification
<https://www.ijcai.org/proceedings/2021/295>
AUTHORS: Yuexuan An, Hui Xue, Xingyu Zhao, Lu Zhang
HIGHLIGHT: In this paper, we propose conditional self-supervised learning (CSS) to use auxiliary information to guide the representation learning of self-supervised tasks.
- 296, TITLE: DEHB: Evolutionary Hyperband for Scalable, Robust and Efficient Hyperparameter Optimization
<https://www.ijcai.org/proceedings/2021/296>
AUTHORS: Noor Awad, Neeratyoy Mallik, Frank Hutter
HIGHLIGHT: Here, we combine the advantages of the popular bandit-based HPO method Hyperband (HB) and the evolutionary search approach of Differential Evolution (DE) to yield a new HPO method which we call DEHB.
- 297, TITLE: Verifying Reinforcement Learning up to Infinity
<https://www.ijcai.org/proceedings/2021/297>
AUTHORS: Edoardo Bacci, Mirco Giacobbe, David Parker
HIGHLIGHT: We introduce the first method for verifying the time-unbounded safety of neural networks controlling dynamical systems.
- 298, TITLE: Robustly Learning Composable Options in Deep Reinforcement Learning
<https://www.ijcai.org/proceedings/2021/298>
AUTHORS: Akhil Bagaria, Jason Senthil, Matthew Slivinski, George Konidaris
HIGHLIGHT: We propose three methods for improving the composability of learned skills: representing skill initiation regions using a combination of pessimistic and optimistic classifiers; learning re-targetable policies that are robust to non-stationary subgoal regions; and learning robust option policies using model-based RL.
- 299, TITLE: Reconciling Rewards with Predictive State Representations
<https://www.ijcai.org/proceedings/2021/299>
AUTHORS: Andrea Baisero, Christopher Amato
HIGHLIGHT: We propose reward-predictive state representations (R-PSRs), a generalization of PSRs which accurately models both observations and rewards, and develop value iteration for R-PSRs.
- 300, TITLE: Optimal Algorithms for Range Searching over Multi-Armed Bandits
<https://www.ijcai.org/proceedings/2021/300>
AUTHORS: Siddharth Barman, Ramakrishnan Krishnamurthy, Saladi Rahul
HIGHLIGHT: This paper studies a multi-armed bandit (MAB) version of the range-searching problem.
- 301, TITLE: Efficient Neural Network Verification via Layer-based Semidefinite Relaxations and Linear Cuts
<https://www.ijcai.org/proceedings/2021/301>
AUTHORS: Ben Batten, Panagiotis Kouvaros, Alessio Lomuscio, Yang Zheng
HIGHLIGHT: We introduce an efficient and tight layer-based semidefinite relaxation for verifying local robustness of neural networks.
- 302, TITLE: Fast Pareto Optimization for Subset Selection with Dynamic Cost Constraints
<https://www.ijcai.org/proceedings/2021/302>
AUTHORS: Chao Bian, Chao Qian, Frank Neumann, Yang Yu
HIGHLIGHT: In this paper, we propose a new algorithm FPOMC by combining the merits of the generalized greedy algorithm and POMC.

- 303, TITLE: Partial Multi-Label Optimal Margin Distribution Machine
<https://www.ijcai.org/proceedings/2021/303>
AUTHORS: Nan Cao, Teng Zhang, Hai Jin
HIGHLIGHT: In this paper, we propose the Partial Multi-Label Optimal margin Distribution Machine (PML-ODM), which distinguishes the noisy labels through explicitly optimizing the distribution of ranking margin, and exhibits better generalization performance than minimum margin based counterparts.
- 304, TITLE: Towards Understanding the Spectral Bias of Deep Learning
<https://www.ijcai.org/proceedings/2021/304>
AUTHORS: Yuan Cao, Zhiying Fang, Yue Wu, Ding-Xuan Zhou, Quanquan Gu
HIGHLIGHT: In this paper, we give a comprehensive and rigorous explanation for spectral bias and relate it with the neural tangent kernel function proposed in recent work.
- 305, TITLE: Thompson Sampling for Bandits with Clustered Arms
<https://www.ijcai.org/proceedings/2021/305>
AUTHORS: Emil Carlsson, Devdatt Dubhashi, Fredrik D. Johansson
HIGHLIGHT: We propose algorithms based on a multi-level Thompson sampling scheme, for the stochastic multi-armed bandit and its contextual variant with linear expected rewards, in the setting where arms are clustered.
- 306, TITLE: Reinforcement Learning for Sparse-Reward Object-Interaction Tasks in a First-person Simulated 3D Environment
<https://www.ijcai.org/proceedings/2021/306>
AUTHORS: Wilka Carvalho, Anthony Liang, Kimin Lee, Sungryull Sohn, Honglak Lee, Richard Lewis, Satinder Singh
HIGHLIGHT: In this work, we formulate learning an attentive object dynamics model as a classification problem, using random object-images to define incorrect labels for our object-dynamics model.
- 307, TITLE: Generative Adversarial Neural Architecture Search
<https://www.ijcai.org/proceedings/2021/307>
AUTHORS: Seyed Saeed Changiz Rezaei, Fred X. Han, Di Niu, Mohammad Salameh, Keith Mills, Shuo Lian, Wei Lu, Shangling Jui
HIGHLIGHT: In this paper, we propose Generative Adversarial NAS (GA-NAS) with theoretically provable convergence guarantees, promoting stability and reproducibility in neural architecture search.
- 308, TITLE: AMA-GCN: Adaptive Multi-layer Aggregation Graph Convolutional Network for Disease Prediction
<https://www.ijcai.org/proceedings/2021/308>
AUTHORS: Hao Chen, Fuzhen Zhuang, Li Xiao, Ling Ma, Haiyan Liu, Ruifang Zhang, Huiqin Jiang, Qing He
HIGHLIGHT: In this paper, we propose an encoder that automatically selects the appropriate phenotypic measures according to their spatial distribution, and uses the text similarity awareness mechanism to calculate the edge weights between nodes.
- 309, TITLE: Learning Attributed Graph Representation with Communicative Message Passing Transformer
<https://www.ijcai.org/proceedings/2021/309>
AUTHORS: Jianwen Chen, Shuangjia Zheng, Ying Song, Jiahua Rao, Yuedong Yang
HIGHLIGHT: For this sake, we propose a Communicative Message Passing Transformer (CoMPT) neural network to improve the molecular graph representation by reinforcing message interactions between nodes and edges based on the Transformer architecture.
- 310, TITLE: Understanding Structural Vulnerability in Graph Convolutional Networks
<https://www.ijcai.org/proceedings/2021/310>
AUTHORS: Liang Chen, Jintang Li, Qibiao Peng, Yang Liu, Zibin Zheng, Carl Yang
HIGHLIGHT: In this work, we theoretically and empirically demonstrate that structural adversarial examples can be attributed to the non-robust aggregation scheme (i.e., the weighted mean) of GCNs.
- 311, TITLE: Monte Carlo Filtering Objectives
<https://www.ijcai.org/proceedings/2021/311>
AUTHORS: Shuangshuang Chen, Sihao Ding, Yiannis Karayiannidis, Mårten Björkmann
HIGHLIGHT: We propose Monte Carlo filtering objectives (MCFOs), a family of variational objectives for jointly learning parametric generative models and amortized adaptive importance proposals of time series.
- 312, TITLE: Dependent Multi-Task Learning with Causal Intervention for Image Captioning

<https://www.ijcai.org/proceedings/2021/312>

AUTHORS: Wenqing Chen, Jidong Tian, Caoyun Fan, Hao He, Yaohui Jin
HIGHLIGHT: In this paper, we propose a dependent multi-task learning framework with the causal intervention (DMTCI).

313, TITLE: Few-Shot Learning with Part Discovery and Augmentation from Unlabeled Images

<https://www.ijcai.org/proceedings/2021/313>

AUTHORS: Wentao Chen, Chenyang Si, Wei Wang, Liang Wang, Zilei Wang, Tieniu Tan
HIGHLIGHT: In this paper, we show that such inductive bias can be learned from a flat collection of unlabeled images, and instantiated as transferable representations among seen and unseen classes.

314, TITLE: On Self-Distilling Graph Neural Network

<https://www.ijcai.org/proceedings/2021/314>

AUTHORS: Yuzhao Chen, Yatao Bian, Xi Xiao, Yu Rong, Tingyang Xu, Junzhou Huang
HIGHLIGHT: In this paper, we propose the first teacher-free knowledge distillation method for GNNs, termed GNN Self-Distillation (GNN-SD), that serves as a drop-in replacement of the standard training process.

315, TITLE: Time-Aware Multi-Scale RNNs for Time Series Modeling

<https://www.ijcai.org/proceedings/2021/315>

AUTHORS: Zipeng Chen, Qianli Ma, Zhenxi Lin
HIGHLIGHT: To this end, we propose Time-Aware Multi-Scale Recurrent Neural Networks (TAMS-RNNs), which disentangle representations of different scales and adaptively select the most important scale for each sample at each time step.

316, TITLE: Variational Model-based Policy Optimization

<https://www.ijcai.org/proceedings/2021/316>

AUTHORS: Yinlam Chow, Brandon Cui, Moonkyung Ryu, Mohammad Ghavamzadeh
HIGHLIGHT: In this paper, we leverage the connection between RL and probabilistic inference, and formulate such an objective function as a variational lower-bound of a log-likelihood.

317, TITLE: CuCo: Graph Representation with Curriculum Contrastive Learning

<https://www.ijcai.org/proceedings/2021/317>

AUTHORS: Guanyi Chu, Xiao Wang, Chuan Shi, Xunqiang Jiang
HIGHLIGHT: In this paper, we study the impact of negative samples on learning graph-level representations, and a novel curriculum contrastive learning framework for self-supervised graph-level representation, called CuCo, is proposed.

318, TITLE: Convexified Graph Neural Networks for Distributed Control in Robotic Swarms

<https://www.ijcai.org/proceedings/2021/318>

AUTHORS: Saar Cohen, Noa Agmon
HIGHLIGHT: This paper introduces novel architectures which solve the convexity restriction and can be easily updated in a distributed, online manner.

319, TITLE: Isotonic Data Augmentation for Knowledge Distillation

<https://www.ijcai.org/proceedings/2021/319>

AUTHORS: Wanyun Cui, Sen Yan
HIGHLIGHT: In this paper, we denote eliminating rank violations in data augmentation for knowledge distillation as isotonic data augmentation (IDA).

320, TITLE: Graph-Free Knowledge Distillation for Graph Neural Networks

<https://www.ijcai.org/proceedings/2021/320>

AUTHORS: Xiang Deng, Zhongfei Zhang
HIGHLIGHT: In this paper, we propose to our best knowledge the first dedicated approach to distilling knowledge from a GNN without graph data.

321, TITLE: Optimal ANN-SNN Conversion for Fast and Accurate Inference in Deep Spiking Neural Networks

<https://www.ijcai.org/proceedings/2021/321>

AUTHORS: Jianhao Ding, Zhaofei Yu, Yonghong Tian, Tiejun Huang
HIGHLIGHT: In this paper, we theoretically analyze ANN-SNN conversion and derive sufficient conditions of the optimal conversion.

322, TITLE: Boosting Variational Inference With Locally Adaptive Step-Sizes

<https://www.ijcai.org/proceedings/2021/322>

AUTHORS: Gideon Dresdner, Saurav Shekhar, Fabian Pedregosa, Francesco Locatello, Gunnar Rättsch
HIGHLIGHT: We characterize how the global curvature impacts time and memory consumption, address the problem with the notion of local curvature, and provide a novel approximate backtracking algorithm for estimating local curvature.

323, TITLE: Automatic Translation of Music-to-Dance for In-Game Characters

<https://www.ijcai.org/proceedings/2021/323>

AUTHORS: Yinglin Duan, Tianyang Shi, Zhipeng Hu, Zhengxia Zou, Changjie Fan, Yi Yuan, Xi Li

HIGHLIGHT: This paper provides a new solution to this task where we re-formulate the translation as a piece-wise dance phrase retrieval problem based on the choreography theory.

324, TITLE: Time-Series Representation Learning via Temporal and Contextual Contrasting

<https://www.ijcai.org/proceedings/2021/324>

AUTHORS: Emadeldeen Eldele, Mohamed Ragab, Zhenghua Chen, Min Wu, Chee Keong Kwoh, Xiaoli Li, Cuntai Guan

HIGHLIGHT: In this paper, we propose an unsupervised Time-Series representation learning framework via Temporal and Contextual Contrasting (TS-TCC), to learn time-series representation from unlabeled data.

325, TITLE: Jointly Learning Prices and Product Features

<https://www.ijcai.org/proceedings/2021/325>

AUTHORS: Ehsan Emamjomeh-Zadeh, Renato Paes Leme, Jon Schneider, Balasubramanian Sivan

HIGHLIGHT: We study this problem from the viewpoint of online learning: a firm repeatedly interacts with a buyer by choosing a product configuration as well as a price and observing the buyer's purchasing decision.

326, TITLE: BAMBOO: A Multi-instance Multi-label Approach Towards VDI User Logon Behavior Modeling

<https://www.ijcai.org/proceedings/2021/326>

AUTHORS: Wenping Fan, Yao Zhang, Qichen Hao, Xinya Wu, Min-Ling Zhang

HIGHLIGHT: In this paper, a novel formulation towards VDI user logon behavior modeling is proposed by employing the multi-instance multi-label (MIML) techniques.

327, TITLE: Contrastive Model Inversion for Data-Free Knowledge Distillation

<https://www.ijcai.org/proceedings/2021/327>

AUTHORS: Gongfan Fang, Jie Song, Xinchao Wang, Chengchao Shen, Xingen Wang, Mingli Song

HIGHLIGHT: In this paper, we propose Contrastive Model Inversion (CMI), where the data diversity is explicitly modeled as an optimizable objective, to alleviate the mode collapse issue.

328, TITLE: Deep Reinforcement Learning for Multi-contact Motion Planning of Hexapod Robots

<https://www.ijcai.org/proceedings/2021/328>

AUTHORS: Huiqiao Fu, Kaiqiang Tang, Peng Li, Wenqi Zhang, Xinpeng Wang, Guizhou Deng, Tao Wang, Chunlin Chen

HIGHLIGHT: In this paper, a novel Deep Reinforcement Learning (DRL) method is proposed to implement multi-contact motion planning for hexapod robots moving on uneven plum-blossom piles.

329, TITLE: On the Convergence of Stochastic Compositional Gradient Descent Ascent Method

<https://www.ijcai.org/proceedings/2021/329>

AUTHORS: Hongchang Gao, Xiaoqian Wang, Lei Luo, Xinghua Shi

HIGHLIGHT: In this paper, we develop a novel efficient stochastic compositional gradient descent ascent method for optimizing the compositional minimax problem.

330, TITLE: Learning Groupwise Explanations for Black-Box Models

<https://www.ijcai.org/proceedings/2021/330>

AUTHORS: Jingyue Gao, Xiting Wang, Yasha Wang, Yulan Yan, Xing Xie

HIGHLIGHT: We illustrate that the two user demands correspond to two major sub-processes in the human cognitive process and propose a unified framework to fulfill them simultaneously.

331, TITLE: Video Summarization via Label Distributions Dual-Reward

<https://www.ijcai.org/proceedings/2021/331>

AUTHORS: Yongbiao Gao, Ning Xu, Xin Geng

HIGHLIGHT: To solve this problem, in this paper label distributions are mapped from the CNN and LSTM-based state representation to capture the subjectiveness of video summaries.

332, TITLE: BOBCAT: Bilevel Optimization-Based Computerized Adaptive Testing

<https://www.ijcai.org/proceedings/2021/332>

AUTHORS: Aritra Ghosh, Andrew Lan
HIGHLIGHT: In this paper, we propose BOBCAT, a Bilevel Optimization-Based framework for CAT to directly learn a data-driven question selection algorithm from training data.

333, TITLE: Method of Moments for Topic Models with Mixed Discrete and Continuous Features
<https://www.ijcai.org/proceedings/2021/333>
AUTHORS: Joachim Giesen, Paul Kahlmeyer, Sören Laue, Matthias Mitterreiter, Frank Nussbaum, Christoph Staudt, Sina Zarrieß
HIGHLIGHT: Here, we extend this line of work to topic models that feature discrete as well as continuous observable variables (features).

334, TITLE: Bayesian Experience Reuse for Learning from Multiple Demonstrators
<https://www.ijcai.org/proceedings/2021/334>
AUTHORS: Mike Gimelfarb, Scott Sanner, Chi-Guhn Lee
HIGHLIGHT: To address this, we formulate a quadratic program whose solution yields an adaptive weighting over experts, that can be used to sample experts with relevant goals.

335, TITLE: Fast Multi-label Learning
<https://www.ijcai.org/proceedings/2021/335>
AUTHORS: Xiuwen Gong, Dong Yuan, Wei Bao
HIGHLIGHT: The goal of this paper is to provide a simple method, yet with provable guarantees, which can achieve competitive performance without a complex training process.

336, TITLE: InverseNet: Augmenting Model Extraction Attacks with Training Data Inversion
<https://www.ijcai.org/proceedings/2021/336>
AUTHORS: Xueluan Gong, Yanjiao Chen, Wenbin Yang, Guanghao Mei, Qian Wang
HIGHLIGHT: In this paper, we put forth a novel and effective attack strategy, dubbed InverseNet, that steals the functionality of black-box cloud-based models with only a small number of queries.

337, TITLE: Hierarchical Class-Based Curriculum Loss
<https://www.ijcai.org/proceedings/2021/337>
AUTHORS: Palash Goyal, Divya Choudhary, Shalini Ghosh
HIGHLIGHT: In this paper, we propose a loss function, hierarchical curriculum loss, with two properties: (i) satisfy hierarchical constraints present in the label space, and (ii) provide non-uniform weights to labels based on their levels in the hierarchy, learned implicitly by the training paradigm.

338, TITLE: The Successful Ingredients of Policy Gradient Algorithms
<https://www.ijcai.org/proceedings/2021/338>
AUTHORS: Sven Gronauer, Martin Gottwald, Klaus Diepold
HIGHLIGHT: In this paper, we identify these mechanisms - which we call ingredients - in on-policy policy gradient methods and empirically determine their impact on the learning.

339, TITLE: Learning Nash Equilibria in Zero-Sum Stochastic Games via Entropy-Regularized Policy Approximation
<https://www.ijcai.org/proceedings/2021/339>
AUTHORS: Yue Guan, Qifan Zhang, Panagiotis Tsiotras
HIGHLIGHT: We propose a new Q-learning type algorithm that uses a sequence of entropy-regularized soft policies to approximate the Nash policy during the Q-function updates.

340, TITLE: Towards Understanding Deep Learning from Noisy Labels with Small-Loss Criterion
<https://www.ijcai.org/proceedings/2021/340>
AUTHORS: Xian-Jin Gui, Wei Wang, Zhang-Hao Tian
HIGHLIGHT: In this paper, we theoretically explain why the widely-used small-loss criterion works.

341, TITLE: Hindsight Value Function for Variance Reduction in Stochastic Dynamic Environment
<https://www.ijcai.org/proceedings/2021/341>
AUTHORS: Jiaming Guo, Rui Zhang, Xishan Zhang, Shaohui Peng, Qi Yi, Zidong Du, Xing Hu, Qi Guo, Yunji Chen
HIGHLIGHT: In this paper, we propose to replace the state value function with a novel hindsight value function, which leverages the information from the future to reduce the variance of the gradient estimate for stochastic dynamic environments.

- 342, TITLE: DA-GCN: A Domain-aware Attentive Graph Convolution Network for Shared-account Cross-domain Sequential Recommendation
<https://www.ijcai.org/proceedings/2021/342>
AUTHORS: Lei Guo, Li Tang, Tong Chen, Lei Zhu, Quoc Viet Hung Nguyen, Hongzhi Yin
HIGHLIGHT: In this work, we propose a novel graph-based solution, namely DA-GCN, to address the above challenges.
- 343, TITLE: Robust Regularization with Adversarial Labelling of Perturbed Samples
<https://www.ijcai.org/proceedings/2021/343>
AUTHORS: Xiaohui Guo, Richong Zhang, Yaowei Zheng, Yongyi Mao
HIGHLIGHT: Revisiting Vicinal Risk Minimization (VRM) as a unifying regularization principle, we propose Adversarial Labelling of Perturbed Samples (ALPS) as a regularization scheme that aims at improving the generalization ability and adversarial robustness of the trained model.
- 344, TITLE: Enabling Retrain-free Deep Neural Network Pruning Using Surrogate Lagrangian Relaxation
<https://www.ijcai.org/proceedings/2021/344>
AUTHORS: Deniz Gurevin, Mikhail Bragin, Caiwen Ding, Shanglin Zhou, Lynn Pepin, Bingbing Li, Fei Miao
HIGHLIGHT: In this paper, we develop a systematic weight-pruning optimization approach based on Surrogate Lagrangian relaxation (SLR), which is tailored to overcome difficulties caused by the discrete nature of the weight-pruning problem while ensuring fast convergence.
- 345, TITLE: Riemannian Stochastic Recursive Momentum Method for non-Convex Optimization
<https://www.ijcai.org/proceedings/2021/345>
AUTHORS: Andi Han, Junbin Gao
HIGHLIGHT: We propose a stochastic recursive momentum method for Riemannian non-convex optimization that achieves a nearly-optimal complexity to find epsilon-approximate solution with one sample.
- 346, TITLE: Fine-Grained Air Quality Inference via Multi-Channel Attention Model
<https://www.ijcai.org/proceedings/2021/346>
AUTHORS: Qilong Han, Dan Lu, Rui Chen
HIGHLIGHT: In this paper, we study the problem of fine-grained air quality inference that predicts the air quality level of any location from air quality readings of nearby monitoring stations.
- 347, TITLE: Model-Based Reinforcement Learning for Infinite-Horizon Discounted Constrained Markov Decision Processes
<https://www.ijcai.org/proceedings/2021/347>
AUTHORS: Aria HasanzadeZonuzi, Dileep Kalathil, Srinivas Shakkottai
HIGHLIGHT: We propose two model-based constrained reinforcement learning (CRL) algorithms for learning a safe policy, namely, (i) GM-CRL algorithm, where the algorithm has access to a generative model, and (ii) UC-CRL algorithm, where the algorithm learns the model using an upper confidence style online exploration method.
- 348, TITLE: State-Based Recurrent SPMNs for Decision-Theoretic Planning under Partial Observability
<https://www.ijcai.org/proceedings/2021/348>
AUTHORS: Layton Hayes, Prashant Doshi, Swaraj Pawar, Hari Teja Tatavarti
HIGHLIGHT: We present an algorithm for learning compact template structures by identifying unique belief states and the transitions between them through a state matching process that utilizes augmented data.
- 349, TITLE: Beyond the Spectrum: Detecting Deepfakes via Re-Synthesis
<https://www.ijcai.org/proceedings/2021/349>
AUTHORS: Yang He, Ning Yu, Margret Keuper, Mario Fritz
HIGHLIGHT: In order to overcome this issue, we propose a novel fake detection that is designed to re-synthesize testing images and extract visual cues for detection.
- 350, TITLE: Interpretable Minority Synthesis for Imbalanced Classification
<https://www.ijcai.org/proceedings/2021/350>
AUTHORS: Yi He, Fudong Lin, Xu Yuan, Nian-Feng Tzeng
HIGHLIGHT: This paper proposes a novel oversampling approach that strives to balance the class priors with a considerably imbalanced data distribution of high dimensionality.
- 351, TITLE: DEEPSPLIT: An Efficient Splitting Method for Neural Network Verification via Indirect Effect Analysis
<https://www.ijcai.org/proceedings/2021/351>
AUTHORS: Patrick Henriksen, Alessio Lomuscio

HIGHLIGHT: We propose a novel, complete algorithm for the verification and analysis of feed-forward, ReLU-based neural networks.

352, **TITLE:** Behavior Mimics Distribution: Combining Individual and Group Behaviors for Federated Learning
<https://www.ijcai.org/proceedings/2021/352>
AUTHORS: Hua Huang, Fanhua Shang, Yuanyuan Liu, Hongying Liu
HIGHLIGHT: This paper proposes a novel Federated Learning algorithm (called IGFL), which leverages both Individual and Group behaviors to mimic distribution, thereby improving the ability to deal with heterogeneity.

353, **TITLE:** UniGNN: a Unified Framework for Graph and Hypergraph Neural Networks
<https://www.ijcai.org/proceedings/2021/353>
AUTHORS: Jing Huang, Jie Yang
HIGHLIGHT: In this paper, we propose UniGNN, a unified framework for interpreting the message passing process in graph and hypergraph neural networks, which can generalize general GNN models into hypergraphs.

354, **TITLE:** Asynchronous Active Learning with Distributed Label Querying
<https://www.ijcai.org/proceedings/2021/354>
AUTHORS: Sheng-Jun Huang, Chen-Chen Zong, Kun-Peng Ning, Hai-Bo Ye
HIGHLIGHT: To overcome this challenge, we propose a multi-server multi-worker framework for asynchronous active learning in the distributed environment.

355, **TITLE:** On the Neural Tangent Kernel of Deep Networks with Orthogonal Initialization
<https://www.ijcai.org/proceedings/2021/355>
AUTHORS: Wei Huang, Weitao Du, Richard Yi Da Xu
HIGHLIGHT: In this work, we study the dynamics of ultra-wide networks across a range of architectures, including Fully Connected Networks (FCNs) and Convolutional Neural Networks (CNNs) with orthogonal initialization via neural tangent kernel (NTK).

356, **TITLE:** On Explaining Random Forests with SAT
<https://www.ijcai.org/proceedings/2021/356>
AUTHORS: Yacine Izza, Joao Marques-Silva
HIGHLIGHT: Hence, one question is whether finding explanations of RFs can be solved in polynomial time. This paper answers this question negatively, by proving that computing one PI-explanation of an RF is D^P -hard.

357, **TITLE:** Reinforcement Learning for Route Optimization with Robustness Guarantees
<https://www.ijcai.org/proceedings/2021/357>
AUTHORS: Tobias Jacobs, Francesco Alesiani, Gulcin Ermis
HIGHLIGHT: In this work we address robust optimization, which is a more complex variant where a max-min problem is to be solved.

358, **TITLE:** Learning CNF Theories Using MDL and Predicate Invention
<https://www.ijcai.org/proceedings/2021/358>
AUTHORS: Archit Jain, Clément Gautrais, Angelika Kimmig, Luc De Raedt
HIGHLIGHT: We present a novel algorithm, called Mistle -- Minimal SAT Theory Learner, for learning such theories.

359, **TITLE:** Learning to Learn Personalized Neural Network for Ventricular Arrhythmias Detection on Intracardiac EGMs
<https://www.ijcai.org/proceedings/2021/359>
AUTHORS: Zheng Jia, Zhepeng Wang, Feng Hong, Lichuan PING, Yiyu Shi, Jingtong Hu
HIGHLIGHT: In this work, we propose a one-dimensional convolutional neural network (1D-CNN) based life-threatening VAs detection on IEGMs.

360, **TITLE:** SalientSleepNet: Multimodal Salient Wave Detection Network for Sleep Staging
<https://www.ijcai.org/proceedings/2021/360>
AUTHORS: Ziyu Jia, Youfang Lin, Jing Wang, Xuehui Wang, Peiyi Xie, Yingbin Zhang
HIGHLIGHT: To address these challenges, we propose SalientSleepNet, a multimodal salient wave detection network for sleep staging.

361, **TITLE:** Knowledge Consolidation based Class Incremental Online Learning with Limited Data
<https://www.ijcai.org/proceedings/2021/361>
AUTHORS: Mohammed Asad Karim, Vinay Kumar Verma, Pravendra Singh, Vinay Namboodiri, Piyush Rai

HIGHLIGHT: We propose a novel approach for class incremental online learning in a limited data setting.

362, TITLE: Comparing Kullback-Leibler Divergence and Mean Squared Error Loss in Knowledge Distillation

<https://www.ijcai.org/proceedings/2021/362>

AUTHORS: Taehyeon Kim, Jaehoon Oh, Nak Yil Kim, Sangwook Cho, Se-Young Yun

HIGHLIGHT: Here, we theoretically show that the KL divergence loss focuses on the logit matching when η increases and the label matching when η goes to 0 and empirically show that the logit matching is positively correlated to performance improvement in general.

363, TITLE: Epsilon Best Arm Identification in Spectral Bandits

<https://www.ijcai.org/proceedings/2021/363>

AUTHORS: Tom Koc, Aurélien Garivier

HIGHLIGHT: We propose an analysis of Probably Approximately Correct (PAC) identification of an ϵ -best arm in graph bandit models with Gaussian distributions.

364, TITLE: Towards Scalable Complete Verification of Relu Neural Networks via Dependency-based Branching

<https://www.ijcai.org/proceedings/2021/364>

AUTHORS: Panagiotis Kouvaros, Alessio Lomuscio

HIGHLIGHT: We introduce an efficient method for the complete verification of ReLU-based feed-forward neural networks.

365, TITLE: Solving Continuous Control with Episodic Memory

<https://www.ijcai.org/proceedings/2021/365>

AUTHORS: Igor Kuznetsov, Andrey Filchenkov

HIGHLIGHT: Our study aims to answer the question: can episodic memory be used to improve agent's performance in continuous control?

366, TITLE: On Guaranteed Optimal Robust Explanations for NLP Models

<https://www.ijcai.org/proceedings/2021/366>

AUTHORS: Emanuele La Malfa, Rhiannon Michelmor, Agnieszka M. Zbrzezny, Nicola Paoletti, Marta Kwiatkowska

HIGHLIGHT: We present two solution algorithms, respectively based on implicit hitting sets and maximum universal subsets, introducing a number of algorithmic improvements to speed up convergence of hard instances.

367, TITLE: Topological Uncertainty: Monitoring Trained Neural Networks through Persistence of Activation Graphs

<https://www.ijcai.org/proceedings/2021/367>

AUTHORS: Théo Lacombe, Yuichi Ike, Mathieu Carrière, Frédéric Chazal, Marc Glisse, Yuhei Umeda

HIGHLIGHT: In this paper, we develop a method to monitor trained neural networks based on the topological properties of their activation graphs.

368, TITLE: RetCL: A Selection-based Approach for Retrosynthesis via Contrastive Learning

<https://www.ijcai.org/proceedings/2021/368>

AUTHORS: Hankook Lee, Sungsoo Ahn, Seung-Woo Seo, You Young Song, Eunho Yang, Sung Ju Hwang, Jinwoo Shin

HIGHLIGHT: In this paper, we propose a new approach that mitigates the issues by reformulating retrosynthesis into a selection problem of reactants from a candidate set of commercially available molecules.

369, TITLE: TextGTL: Graph-based Transductive Learning for Semi-supervised Text Classification via Structure-Sensitive Interpolation

<https://www.ijcai.org/proceedings/2021/369>

AUTHORS: Chen Li, Xutan Peng, Hao Peng, Jianxin Li, Lihong Wang

HIGHLIGHT: In this paper, beyond the existing architecture of heterogeneous word-document graphs, for the first time, we investigate how to construct lightweight non-heterogeneous graphs based on different linguistic information to better serve free text representation learning.

370, TITLE: Regularising Knowledge Transfer by Meta Functional Learning

<https://www.ijcai.org/proceedings/2021/370>

AUTHORS: Pan Li, Yanwei Fu, Shaogang Gong

HIGHLIGHT: To address this problem, this work proposes a novel Meta Functional Learning (MFL) by meta-learning a generalisable functional model from data-rich tasks whilst simultaneously regularising knowledge transfer to data-scarce tasks.

- 371, TITLE: Pairwise Half-graph Discrimination: A Simple Graph-level Self-supervised Strategy for Pre-training Graph Neural Networks
https://www.ijcai.org/proceedings/2021/371
AUTHORS: Pengyong Li, Jun Wang, Ziliang Li, Yixuan Qiao, Xianggen Liu, Fei Ma, Peng Gao, Sen Song, Guotong Xie
HIGHLIGHT: In this paper, we propose a simple and effective self-supervised pre-training strategy, named Pairwise Half-graph Discrimination (PHD), that explicitly pre-trains a graph neural network at graph-level.
- 372, TITLE: SHPOS: A Theoretical Guaranteed Accelerated Particle Optimization Sampling Method
https://www.ijcai.org/proceedings/2021/372
AUTHORS: Zhijian Li, Chao Zhang, Hui Qian, Xin Du, Lingwei Peng
HIGHLIGHT: In this paper, we propose an accelerated particle optimization sampling method called Stochastic Hamiltonian Particle Optimization Sampling (SHPOS).
- 373, TITLE: An Adaptive News-Driven Method for CVaR-sensitive Online Portfolio Selection in Non-Stationary Financial Markets
https://www.ijcai.org/proceedings/2021/373
AUTHORS: Qianqiao Liang, Mengying Zhu, Xiaolin Zheng, Yan Wang
HIGHLIGHT: To address the CS-OLPS problem in non-stationary markets, we propose an effective news-driven method, named CAND, which adaptively exploits news to determine the adjustment tendency and adjustment scale for tracking the dynamic optimal portfolio with minimal CVaR in each trading round.
- 374, TITLE: Residential Electric Load Forecasting via Attentive Transfer of Graph Neural Networks
https://www.ijcai.org/proceedings/2021/374
AUTHORS: Weixuan Lin, Di Wu
HIGHLIGHT: In this paper, we propose an attentive transfer learning-based GNN model that can utilize the learned prior knowledge to improve the learning process in a new area.
- 375, TITLE: Graph Filter-based Multi-view Attributed Graph Clustering
https://www.ijcai.org/proceedings/2021/375
AUTHORS: Zhiping Lin, Zhao Kang
HIGHLIGHT: In this paper, we propose a novel Multi-view Attributed Graph Clustering (MvAGC) method, which is simple yet effective.
- 376, TITLE: On the Intrinsic Differential Privacy of Bagging
https://www.ijcai.org/proceedings/2021/376
AUTHORS: Hongbin Liu, Jinyuan Jia, Neil Zhenqiang Gong
HIGHLIGHT: Our major theoretical results show that such intrinsic randomness already makes Bagging differentially private without the needs of additional noise.
- 377, TITLE: Two-stage Training for Learning from Label Proportions
https://www.ijcai.org/proceedings/2021/377
AUTHORS: Jiabin Liu, Bo Wang, Xin Shen, Zhiqian Qi, Yingjie Tian
HIGHLIGHT: In this paper, we regard these problems as noisy pseudo labeling, and instead impose the strict proportion consistency on the classifier with a constrained optimization as a continuous training stage for existing LLP classifiers.
- 378, TITLE: Adversarial Spectral Kernel Matching for Unsupervised Time Series Domain Adaptation
https://www.ijcai.org/proceedings/2021/378
AUTHORS: Qiao Liu, Hui Xue
HIGHLIGHT: In this paper, we propose an Adversarial Spectral Kernel Matching (AdvSKM) method, where a hybrid spectral kernel network is specifically designed as inner kernel to reform the Maximum Mean Discrepancy (MMD) metric for UTSDA.
- 379, TITLE: Smart Contract Vulnerability Detection: From Pure Neural Network to Interpretable Graph Feature and Expert Pattern Fusion
https://www.ijcai.org/proceedings/2021/379
AUTHORS: Zhenguang Liu, Peng Qian, Xiang Wang, Lei Zhu, Qinming He, Shouling Ji
HIGHLIGHT: In this paper, we explore combining deep learning with expert patterns in an explainable fashion.
- 380, TITLE: Transfer Learning via Optimal Transportation for Integrative Cancer Patient Stratification
https://www.ijcai.org/proceedings/2021/380
AUTHORS: Ziyu Liu, Wei Shao, Jie Zhang, Min Zhang, Kun Huang

HIGHLIGHT: We propose a novel unsupervised multi-view transfer learning algorithm to simultaneously analyze multiple biomarkers in different cancer types.

381, **TITLE:** Graph Entropy Guided Node Embedding Dimension Selection for Graph Neural Networks

<https://www.ijcai.org/proceedings/2021/381>

AUTHORS: Gongxu Luo, Jianxin Li, Hao Peng, Carl Yang, Lichao Sun, Philip S. Yu, Lifang He

HIGHLIGHT: In this paper, we revisit NEDS from the perspective of minimum entropy principle.

382, **TITLE:** Stochastic Actor-Executor-Critic for Image-to-Image Translation

<https://www.ijcai.org/proceedings/2021/382>

AUTHORS: Ziwei Luo, Jing Hu, Xin Wang, Siwei Lyu, Bin Kong, Youbing Yin, Qi Song, Xi Wu

HIGHLIGHT: In this paper, we draw inspiration from the recent success of the maximum entropy reinforcement learning framework designed for challenging continuous control problems to develop stochastic policies over high dimensional continuous spaces including image representation, generation, and control simultaneously.

383, **TITLE:** Hierarchical Temporal Multi-Instance Learning for Video-based Student Learning Engagement Assessment

<https://www.ijcai.org/proceedings/2021/383>

AUTHORS: Jiayao Ma, Xinbo Jiang, Songhua Xu, Xueying Qin

HIGHLIGHT: To overcome such a challenge, this paper proposes a novel hierarchical multiple instance learning (MIL) solution, which only requires labels anchored on full-length videos to learn to assess student engagement at an arbitrary temporal granularity and for an arbitrary duration in a study session.

384, **TITLE:** Multi-Cause Effect Estimation with Disentangled Confounder Representation

<https://www.ijcai.org/proceedings/2021/384>

AUTHORS: Jing Ma, Ruocheng Guo, Aidong Zhang, Jundong Li

HIGHLIGHT: In this paper, we focus on the multi-cause effect estimation problem from a new perspective by learning disentangled representations of confounders.

385, **TITLE:** Average-Reward Reinforcement Learning with Trust Region Methods

<https://www.ijcai.org/proceedings/2021/385>

AUTHORS: Xiaoteng Ma, Xiaohang Tang, Li Xia, Jun Yang, Qianchuan Zhao

HIGHLIGHT: In this paper, we study the reinforcement learning problem with the long-run average criterion.

386, **TITLE:** Temporal and Object Quantification Networks

<https://www.ijcai.org/proceedings/2021/386>

AUTHORS: Jiayuan Mao, Zhezheng Luo, Chuang Gan, Joshua B. Tenenbaum, Jiajun Wu, Leslie Pack Kaelbling, Tomer D. Ullman

HIGHLIGHT: We present Temporal and Object Quantification Networks (TOQ-Nets), a new class of neuro-symbolic networks with a structural bias that enables them to learn to recognize complex relational-temporal events.

387, **TITLE:** Evaluating Relaxations of Logic for Neural Networks: A Comprehensive Study

<https://www.ijcai.org/proceedings/2021/387>

AUTHORS: Mattia Medina Grespan, Ashim Gupta, Vivek Srikumar

HIGHLIGHT: In this paper, we study the question of how best to relax logical expressions that represent labeled examples and knowledge about a problem; we focus on sub-differentiable t-norm relaxations of logic.

388, **TITLE:** Minimization of Limit-Average Automata

<https://www.ijcai.org/proceedings/2021/388>

AUTHORS: Jakub Michaliszyn, Jan Otop

HIGHLIGHT: In this paper, we study the minimization problem for (deterministic) LimAvg-automata.

389, **TITLE:** Details (Don't) Matter: Isolating Cluster Information in Deep Embedded Spaces

<https://www.ijcai.org/proceedings/2021/389>

AUTHORS: Lukas Miklautz, Lena G. M. Bauer, Dominik Mautz, Sebastian Tschiatschek, Christian Böhm, Claudia Plant

HIGHLIGHT: We propose our framework, ACe/DeC, that is compatible with Autoencoder Centroid based Deep Clustering methods and automatically learns a latent representation consisting of two separate spaces.

390, **TITLE:** Contrastive Losses and Solution Caching for Predict-and-Optimize

<https://www.ijcai.org/proceedings/2021/390>

AUTHORS: Maxime Mulamba, Jayanta Mandi, Michelangelo Diligenti, Michele Lombardi, Victor Bucarey, Tias Guns
HIGHLIGHT: In this context, we provide two distinct contributions.

391, TITLE: Fine-grained Generalization Analysis of Structured Output Prediction
<https://www.ijcai.org/proceedings/2021/391>

AUTHORS: Waleed Mustafa, Yunwen Lei, Antoine Ledent, Marius Kloft
HIGHLIGHT: In this paper, we significantly improve the state of the art by developing novel high-probability bounds with a logarithmic dependency on d . Furthermore, we leverage the lens of algorithmic stability to develop generalization bounds in expectation without any dependency on d .

392, TITLE: Accelerating Neural Architecture Search via Proxy Data
<https://www.ijcai.org/proceedings/2021/392>

AUTHORS: Byunggook Na, Jisoo Mok, Hyeokjun Choe, Sungroh Yoon
HIGHLIGHT: By analyzing proxy data constructed using various selection methods through data entropy, we propose a novel proxy data selection method tailored for NAS.

393, TITLE: What Changed? Interpretable Model Comparison
<https://www.ijcai.org/proceedings/2021/393>

AUTHORS: Rahul Nair, Massimiliano Mattetti, Elizabeth Daly, Dennis Wei, Oznur Alkan, Yunfeng Zhang
HIGHLIGHT: We present a method for interpretable comparison of binary classification models by approximating them with Boolean decision rules.

394, TITLE: TIDOT: A Teacher Imitation Learning Approach for Domain Adaptation with Optimal Transport
<https://www.ijcai.org/proceedings/2021/394>

AUTHORS: Tuan Nguyen, Trung Le, Nhan Dam, Quan Hung Tran, Truyen Nguyen, Dinh Phung
HIGHLIGHT: Using the principle of imitation learning and the theory of optimal transport we propose in this paper a novel model for unsupervised domain adaptation named Teacher Imitation Domain Adaptation with Optimal Transport (TIDOT).

395, TITLE: Learning Embeddings from Knowledge Graphs With Numeric Edge Attributes
<https://www.ijcai.org/proceedings/2021/395>

AUTHORS: Sumit Pai, Luca Costabello
HIGHLIGHT: We propose a novel method that injects numeric edge attributes into the scoring layer of a traditional knowledge graph embedding architecture.

396, TITLE: Explaining Deep Neural Network Models with Adversarial Gradient Integration
<https://www.ijcai.org/proceedings/2021/396>

AUTHORS: Deng Pan, Xin Li, Dongxiao Zhu
HIGHLIGHT: Here we propose an Adversarial Gradient Integration (AGI) method that integrates the gradients from adversarial examples to the target example along the curve of steepest ascent to calculate the resulting contributions from all input features.

397, TITLE: Two Birds with One Stone: Series Saliency for Accurate and Interpretable Multivariate Time Series Forecasting
<https://www.ijcai.org/proceedings/2021/397>

AUTHORS: Qingyi Pan, Wenbo Hu, Ning Chen
HIGHLIGHT: In this paper, we present a new scheme of series saliency to boost both accuracy and interpretability.

398, TITLE: Learning Aggregation Functions
<https://www.ijcai.org/proceedings/2021/398>

AUTHORS: Giovanni Pellegrini, Alessandro Tibo, Paolo Frasconi, Andrea Passerini, Manfred Jaeger
HIGHLIGHT: To mitigate this problem, we introduce LAF (Learning Aggregation Function), a learnable aggregator for sets of arbitrary cardinality.

399, TITLE: Meta-Reinforcement Learning by Tracking Task Non-stationarity
<https://www.ijcai.org/proceedings/2021/399>

AUTHORS: Riccardo Poiani, Andrea Tirinzoni, Marcello Restelli
HIGHLIGHT: In this paper, we propose a novel algorithm (TRIO) that optimizes for the future by explicitly tracking the task evolution through time.

400, TITLE: Multi-version Tensor Completion for Time-delayed Spatio-temporal Data
<https://www.ijcai.org/proceedings/2021/400>

AUTHORS: Cheng Qian, Nikos Kargas, Cao Xiao, Lucas Glass, Nicholas Sidiropoulos, Jimeng Sun
HIGHLIGHT: We propose a low-rank tensor model to predict the updates over time.

401, TITLE: Multi-Agent Reinforcement Learning for Automated Peer-to-Peer Energy Trading in Double-Side Auction Market

<https://www.ijcai.org/proceedings/2021/401>

AUTHORS: Dawei Qiu, Jianhong Wang, Junkai Wang, Goran Strbac

HIGHLIGHT: For this reason, in this paper we model this task as a multi-agent reinforcement learning (MARL) problem and propose an algorithm called DA-MADDPG that is modified based on MADDPG by abstracting the other agents' observations and actions through the DA market public information for each agent's critic.

402, TITLE: Source-free Domain Adaptation via Avatar Prototype Generation and Adaptation

<https://www.ijcai.org/proceedings/2021/402>

AUTHORS: Zhen Qiu, Yifan Zhang, Hongbin Lin, Shuaicheng Niu, Yanxia Liu, Qing Du, Minghui Tan

HIGHLIGHT: To this end, we propose a Contrastive Prototype Generation and Adaptation (CPGA) method.

403, TITLE: Exact Acceleration of K-Means++ and K-Means||

<https://www.ijcai.org/proceedings/2021/403>

AUTHORS: Edward Raff

HIGHLIGHT: We focus on using triangle inequality based pruning methods to accelerate both of these algorithms to yield comparable or better run-time without sacrificing any of the benefits of these approaches.

404, TITLE: Stochastic Shortest Path with Adversarially Changing Costs

<https://www.ijcai.org/proceedings/2021/404>

AUTHORS: Aviv Rosenberg, Yishay Mansour

HIGHLIGHT: In this paper we present the adversarial SSP model that also accounts for adversarial changes in the costs over time, while the underlying transition function remains unchanged.

405, TITLE: Physics-aware Spatiotemporal Modules with Auxiliary Tasks for Meta-Learning

<https://www.ijcai.org/proceedings/2021/405>

AUTHORS: Sungyong Seo, Chuizheng Meng, Sirisha Rambhatla, Yan Liu

HIGHLIGHT: In this work, we propose a framework, physics-aware meta-learning with auxiliary tasks, whose spatial modules incorporate PDE-independent knowledge and temporal modules utilize the generalized features from the spatial modules to be adapted to the limited data, respectively.

406, TITLE: Don't Do What Doesn't Matter: Intrinsic Motivation with Action Usefulness

<https://www.ijcai.org/proceedings/2021/406>

AUTHORS: Mathieu Seurin, Florian Strub, Philippe Preux, Olivier Pietquin

HIGHLIGHT: We propose a new exploration method, called Don't Do What Doesn't Matter (DoWhaM), shifting the emphasis from state novelty to state with relevant actions.

407, TITLE: Towards Robust Model Reuse in the Presence of Latent Domains

<https://www.ijcai.org/proceedings/2021/407>

AUTHORS: Jie-Jing Shao, Zhanzhan Cheng, Yu-Feng Li, Shiliang Pu

HIGHLIGHT: To address the above issue, in this paper we propose the MRL (Model Reuse for multiple Latent domains) method.

408, TITLE: Regularizing Variational Autoencoder with Diversity and Uncertainty Awareness

<https://www.ijcai.org/proceedings/2021/408>

AUTHORS: Dazhong Shen, Chuan Qin, Chao Wang, Hengshu Zhu, Enhong Chen, Hui Xiong

HIGHLIGHT: To this end, in this paper, we propose an alternative model, DU-VAE, for learning a more Diverse and less Uncertain latent space, and thus the representation can be learned in a meaningful and compact manner.

409, TITLE: Interpretable Compositional Convolutional Neural Networks

<https://www.ijcai.org/proceedings/2021/409>

AUTHORS: Wen Shen, Zhihua Wei, Shikun Huang, Binbin Zhang, Jiaqi Fan, Ping Zhao, Quanshi Zhang

HIGHLIGHT: This paper proposes a method to modify a traditional convolutional neural network (CNN) into an interpretable compositional CNN, in order to learn filters that encode meaningful visual patterns in intermediate convolutional layers.

410, TITLE: Unsupervised Progressive Learning and the STAM Architecture

<https://www.ijcai.org/proceedings/2021/410>

AUTHORS: James Smith, Cameron Taylor, Seth Baer, Constantine Dovrolis
HIGHLIGHT: To solve the UPL problem we propose the Self-Taught Associative Memory (STAM) architecture.

411, TITLE: Online Risk-Averse Submodular Maximization

<https://www.ijcai.org/proceedings/2021/411>

AUTHORS: Tasuku Soma, Yuichi Yoshida
HIGHLIGHT: We present a polynomial-time online algorithm for maximizing the conditional value at risk (CVaR) of a monotone stochastic submodular function.

412, TITLE: Positive-Unlabeled Learning from Imbalanced Data

<https://www.ijcai.org/proceedings/2021/412>

AUTHORS: Guangxin Su, Weitong Chen, Miao Xu
HIGHLIGHT: In this paper, we explore this problem and propose a general learning objective for PU learning targeting specially at imbalanced data.

413, TITLE: Neural Architecture Search of SPD Manifold Networks

<https://www.ijcai.org/proceedings/2021/413>

AUTHORS: Rhea Sanjay Sukthanker, Zhiwu Huang, Suryansh Kumar, Erik Goron Endsjo, Yan Wu, Luc Van Gool
HIGHLIGHT: In this paper, we propose a new neural architecture search (NAS) problem of Symmetric Positive Definite (SPD) manifold networks, aiming to automate the design of SPD neural architectures.

414, TITLE: TE-ESN: Time Encoding Echo State Network for Prediction Based on Irregularly Sampled Time Series Data

<https://www.ijcai.org/proceedings/2021/414>

AUTHORS: Chenxi Sun, Shenda Hong, Moxian Song, Yen-Hsiu Chou, Yongyue Sun, Derun Cai, Hongyan Li
HIGHLIGHT: In this work, we propose a novel Time Encoding (TE) mechanism.

415, TITLE: MFNP: A Meta-optimized Model for Few-shot Next POI Recommendation

<https://www.ijcai.org/proceedings/2021/415>

AUTHORS: Huimin Sun, Jiajie Xu, Kai Zheng, Pengpeng Zhao, Pingfu Chao, Xiaofang Zhou
HIGHLIGHT: In this paper, we propose a novel meta-optimized model MFNP, which can rapidly adapt to users with few check-in records.

416, TITLE: Towards Reducing Biases in Combining Multiple Experts Online

<https://www.ijcai.org/proceedings/2021/416>

AUTHORS: Yi Sun, Iván Ramírez-Díaz, Alfredo Cuesta Infante, Kalyan Veeramachaneni
HIGHLIGHT: In this paper, we aim to accomplish approximate group fairness in an online stochastic decision-making process, where the fairness metric we consider is equalized odds.

417, TITLE: Predicting Traffic Congestion Evolution: A Deep Meta Learning Approach

<https://www.ijcai.org/proceedings/2021/417>

AUTHORS: Yidan Sun, Guiyuan Jiang, Siew Kei Lam, Peilan He
HIGHLIGHT: In this paper, we propose a representation learning framework to characterize and predict congestion evolution between any pair of road segments (connected via single or multiple paths).

418, TITLE: Hyperspectral Band Selection via Spatial-Spectral Weighted Region-wise Multiple Graph Fusion-Based Spectral Clustering

<https://www.ijcai.org/proceedings/2021/418>

AUTHORS: Chang Tang, Xinwang Liu, En Zhu, Lizhe Wang, Albert Zomaya
HIGHLIGHT: In this paper, we propose a hyperspectral band selection method via spatial-spectral weighted region-wise multiple graph fusion-based spectral clustering, referred to as RMGF briefly.

419, TITLE: Self-supervised Network Evolution for Few-shot Classification

<https://www.ijcai.org/proceedings/2021/419>

AUTHORS: Xuwen Tang, Zhu Teng, Baopeng Zhang, Jianping Fan
HIGHLIGHT: To alleviate this problem, we propose to evolve the network (for the base set) via label propagation and self-supervision to shrink the distribution difference between the base set and the novel set.

420, TITLE: Dual Active Learning for Both Model and Data Selection

<https://www.ijcai.org/proceedings/2021/420>

AUTHORS: Ying-Peng Tang, Sheng-Jun Huang
HIGHLIGHT: To tackle with this practical challenge, this paper proposes a novel framework of dual active learning (DUAL) to simultaneously perform model search and data selection.

421, TITLE: Compositional Neural Logic Programming
<https://www.ijcai.org/proceedings/2021/421>
AUTHORS: Son N. Tran
HIGHLIGHT: This paper introduces Compositional Neural Logic Programming (CNLP), a framework that integrates neural networks and logic programming for symbolic and sub-symbolic reasoning.

422, TITLE: Sensitivity Direction Learning with Neural Networks Using Domain Knowledge as Soft Shape Constraints
<https://www.ijcai.org/proceedings/2021/422>
AUTHORS: Kazuyuki Wakasugi
HIGHLIGHT: We propose Sensitivity Direction Learning (SDL) for learning about the neural network model with user-specified relationships (e.g., monotonicity, convexity) between each input feature and the output of the model by imposing soft shape constraints which represent domain knowledge.

423, TITLE: Learning from Complementary Labels via Partial-Output Consistency Regularization
<https://www.ijcai.org/proceedings/2021/423>
AUTHORS: Deng-Bao Wang, Lei Feng, Min-Ling Zhang
HIGHLIGHT: In this paper, we give the first attempt to leverage regularization techniques for CLL.

424, TITLE: Probabilistic Sufficient Explanations
<https://www.ijcai.org/proceedings/2021/424>
AUTHORS: Eric Wang, Pasha Khosravi, Guy Van den Broeck
HIGHLIGHT: In this paper, we introduce probabilistic sufficient explanations, which formulate explaining an instance of classification as choosing the “simplest” subset of features such that only observing those features is “sufficient” to explain the classification.

425, TITLE: Multi-hop Attention Graph Neural Networks
<https://www.ijcai.org/proceedings/2021/425>
AUTHORS: Guangtao Wang, Rex Ying, Jing Huang, Jure Leskovec
HIGHLIGHT: Here we propose Multi-hop Attention Graph Neural Network (MAGNA), a principled way to incorporate multi-hop context information into every layer of attention computation.

426, TITLE: Learn the Highest Label and Rest Label Description Degrees
<https://www.ijcai.org/proceedings/2021/426>
AUTHORS: Jing Wang, Xin Geng
HIGHLIGHT: To improve classification performance and solve the objective mismatch, we propose a new LDL algorithm called LDL-HR.

427, TITLE: Stability and Generalization for Randomized Coordinate Descent
<https://www.ijcai.org/proceedings/2021/427>
AUTHORS: Puyu Wang, Liang Wu, Yunwen Lei
HIGHLIGHT: In this paper, we initialize the generalization analysis of RCD by leveraging the powerful tool of algorithmic stability.

428, TITLE: Discrete Multiple Kernel k-means
<https://www.ijcai.org/proceedings/2021/428>
AUTHORS: Rong Wang, Jitao Lu, Yihang Lu, Feiping Nie, Xuelong Li
HIGHLIGHT: To address this problem, we elaborate a novel Discrete Multiple Kernel k-means (DMKMM) model solved by an optimization algorithm that directly obtains the cluster indicator matrix without subsequent discretization procedures.

429, TITLE: Mean Field Equilibrium in Multi-Armed Bandit Game with Continuous Reward
<https://www.ijcai.org/proceedings/2021/429>
AUTHORS: Xiong Wang, Riheng Jia
HIGHLIGHT: In this paper, we study the mean field bandit game with a continuous reward function.

430, TITLE: Demiguise Attack: Crafting Invisible Semantic Adversarial Perturbations with Perceptual Similarity
<https://www.ijcai.org/proceedings/2021/430>

AUTHORS: Yajie Wang, Shangbo Wu, Wenyi Jiang, Shengang Hao, Yu-an Tan, Quanxin Zhang
HIGHLIGHT: To solve these problems, we propose Demiguise Attack, crafting "unrestricted" perturbations with Perceptual Similarity.

431, TITLE: Self-Supervised Adversarial Distribution Regularization for Medication Recommendation
<https://www.ijcai.org/proceedings/2021/431>
AUTHORS: Yanda Wang, Weitong Chen, Dechang PI, Lin Yue, Sen Wang, Miao Xu
HIGHLIGHT: In pursuit of a valuable model for a safe recommendation, we propose the Self-Supervised Adversarial Regularization Model for Medication Recommendation (SARMR).

432, TITLE: Against Membership Inference Attack: Pruning is All You Need
<https://www.ijcai.org/proceedings/2021/432>
AUTHORS: Yijue Wang, Chenghong Wang, Zigeng Wang, Shanglin Zhou, Hang Liu, Jinbo Bi, Caiwen Ding, Sanguthevar Rajasekaran
HIGHLIGHT: In this work, we propose a pruning algorithm, and we show that the proposed algorithm can find a subnetwork that can prevent privacy leakage from MIA and achieves competitive accuracy with the original DNNs.

433, TITLE: Layer-Assisted Neural Topic Modeling over Document Networks
<https://www.ijcai.org/proceedings/2021/433>
AUTHORS: Yiming Wang, Ximing Li, Jihong Ouyang
HIGHLIGHT: To resolve this kind of data, we develop a novel neural topic model , namely Layer-Assisted Neural Topic Model (LANTM), which can be interpreted from the perspective of variational auto-encoders.

434, TITLE: Robust Adversarial Imitation Learning via Adaptively-Selected Demonstrations
<https://www.ijcai.org/proceedings/2021/434>
AUTHORS: Yunke Wang, Chang Xu, Bo Du
HIGHLIGHT: In this paper, we propose a robust method within the framework of Generative Adversarial Imitation Learning (GAIL) to address imperfect demonstration issue, in which good demonstrations can be adaptively selected for training while bad demonstrations are abandoned.

435, TITLE: Reinforcement Learning Based Sparse Black-box Adversarial Attack on Video Recognition Models
<https://www.ijcai.org/proceedings/2021/435>
AUTHORS: Zeyuan Wang, Chaofeng Sha, Su Yang
HIGHLIGHT: In order to speed up the attack process, we propose a reinforcement learning based frame selection strategy.

436, TITLE: Reward-Constrained Behavior Cloning
<https://www.ijcai.org/proceedings/2021/436>
AUTHORS: Zhaorong Wang, Meng Wang, Jingqi Zhang, Yingfeng Chen, Chongjie Zhang
HIGHLIGHT: To overcome this problem, we present a novel method named Reward-Constrained Behavior Cloning (RCBC) which synthesizes imitation learning and constrained reinforcement learning.

437, TITLE: Closing the BIG-LID: An Effective Local Intrinsic Dimensionality Defense for Nonlinear Regression Poisoning
<https://www.ijcai.org/proceedings/2021/437>
AUTHORS: Sandamal Weerasinghe, Tamas Abraham, Tansu Alpcan, Sarah M. Erfani, Christopher Leckie, Benjamin I. P. Rubinstein
HIGHLIGHT: This paper presents a new analysis of local intrinsic dimensionality (LID) of nonlinear regression under such poisoning attacks within a Stackelberg game, leading to a practical defense.

438, TITLE: GSPL: A Succinct Kernel Model for Group-Sparse Projections Learning of Multiview Data
<https://www.ijcai.org/proceedings/2021/438>
AUTHORS: Danyang Wu, Jin Xu, Xia Dong, Meng Liao, Rong Wang, Feiping Nie, Xuelong Li
HIGHLIGHT: To solve the optimization problem involved in GSPL, a novel iterative algorithm is proposed with rigorously theoretical guarantees.

439, TITLE: Deep Reinforcement Learning Boosted Partial Domain Adaptation
<https://www.ijcai.org/proceedings/2021/439>
AUTHORS: Keyu Wu, Min Wu, Jianfei Yang, Zhenghua Chen, Zhengguo Li, Xiaoli Li
HIGHLIGHT: In this paper, we propose a deep reinforcement learning based source data selector for PDA, which is capable of eliminating less relevant source samples automatically to boost existing adaptation methods.

- 440, TITLE: Learning Deeper Non-Monotonic Networks by Softly Transferring Solution Space
<https://www.ijcai.org/proceedings/2021/440>
AUTHORS: Zheng-Fan Wu, Hui Xue, Weimin Bai
HIGHLIGHT: To alleviate the optimization dilemma, in this paper, we propose a non-trivial soft transfer approach.
- 441, TITLE: Exploiting Spiking Dynamics with Spatial-temporal Feature Normalization in Graph Learning
<https://www.ijcai.org/proceedings/2021/441>
AUTHORS: Mingkun Xu, Yujie Wu, Lei Deng, Faqiang Liu, Guoqi Li, Jing Pei
HIGHLIGHT: Here we present a general spike-based modeling framework that enables the direct training of SNNs for graph learning.
- 442, TITLE: k-Nearest Neighbors by Means of Sequence to Sequence Deep Neural Networks and Memory Networks
<https://www.ijcai.org/proceedings/2021/442>
AUTHORS: Yiming Xu, Diego Klabjan
HIGHLIGHT: In this paper, we propose two families of models built on a sequence to sequence model and a memory network model to mimic the k-Nearest Neighbors model, which generate a sequence of labels, a sequence of out-of-sample feature vectors and a final label for classification, and thus they could also function as oversamplers.
- 443, TITLE: Evolutionary Gradient Descent for Non-convex Optimization
<https://www.ijcai.org/proceedings/2021/443>
AUTHORS: Ke Xue, Chao Qian, Ling Xu, Xudong Fei
HIGHLIGHT: In this paper, we propose an evolutionary GD (EGD) algorithm by combining typical components, i.e., population and mutation, of EAs with GD.
- 444, TITLE: KDExplainer: A Task-oriented Attention Model for Explaining Knowledge Distillation
<https://www.ijcai.org/proceedings/2021/444>
AUTHORS: Mengqi Xue, Jie Song, Xinchao Wang, Ying Chen, Xingen Wang, Mingli Song
HIGHLIGHT: In this paper, we introduce a novel task-oriented attention model, termed as KDExplainer, to shed light on the working mechanism underlying the vanilla KD.
- 445, TITLE: Clustering-Induced Adaptive Structure Enhancing Network for Incomplete Multi-View Data
<https://www.ijcai.org/proceedings/2021/445>
AUTHORS: Zhe Xue, Junping Du, Changwei Zheng, Jie Song, Wenqi Ren, Meiyu Liang
HIGHLIGHT: This paper proposes a Clustering-induced Adaptive Structure Enhancing Network (CASEN) for incomplete multi-view clustering, which is an end-to-end trainable framework that jointly conducts multi-view structure enhancing and data clustering.
- 446, TITLE: Differentially Private Pairwise Learning Revisited
<https://www.ijcai.org/proceedings/2021/446>
AUTHORS: Zhiyu Xue, Shaoyang Yang, Mengdi Huai, Di Wang
HIGHLIGHT: To address the sub-optimal utility issue, in this paper, we proposed new pure or approximate DP algorithms for pairwise learning.
- 447, TITLE: Decomposable-Net: Scalable Low-Rank Compression for Neural Networks
<https://www.ijcai.org/proceedings/2021/447>
AUTHORS: Atsushi Yaguchi, Taiji Suzuki, Shuhei Nitta, Yukinobu Sakata, Akiyuki Tanizawa
HIGHLIGHT: In this paper, we propose Decomposable-Net (the network decomposable in any size), which allows flexible changes to model size without retraining.
- 448, TITLE: A Clustering-based framework for Classifying Data Streams
<https://www.ijcai.org/proceedings/2021/448>
AUTHORS: Xuyang Yan, Abdollah Homaifar, Mrinmoy Sarkar, Abenezer Girma, Edward Tunstel
HIGHLIGHT: In this paper, we proposed a clustering-based data stream classification framework to handle non-stationary data streams without utilizing an initial label set.
- 449, TITLE: Multi-level Generative Models for Partial Label Learning with Non-random Label Noise
<https://www.ijcai.org/proceedings/2021/449>
AUTHORS: Yan Yan, Yuhong Guo
HIGHLIGHT: In this paper, we propose a novel multi-level generative model for partial label learning (MGPLL), which tackles the PL problem by learning both a label level adversarial generator and a feature level adversarial generator under a bi-directional mapping framework between the label vectors and the data samples.

- 450, TITLE: Secure Deep Graph Generation with Link Differential Privacy
<https://www.ijcai.org/proceedings/2021/450>
AUTHORS: Carl Yang, Haonan Wang, Ke Zhang, Liang Chen, Lichao Sun
HIGHLIGHT: In this paper, we leverage the differential privacy (DP) framework to formulate and enforce rigorous privacy constraints on deep graph generation models, with a focus on edge-DP to guarantee individual link privacy.
- 451, TITLE: Progressive Open-Domain Response Generation with Multiple Controllable Attributes
<https://www.ijcai.org/proceedings/2021/451>
AUTHORS: Haiqin Yang, Xiaoyuan Yao, Yiqun Duan, Jianping Shen, Jie Zhong, Kun Zhang
HIGHLIGHT: In this paper, we propose a Progressively trained Hierarchical Encoder-Decoder (PHED) to tackle this task.
- 452, TITLE: Unsupervised Path Representation Learning with Curriculum Negative Sampling
<https://www.ijcai.org/proceedings/2021/452>
AUTHORS: Sean Bin Yang, Chenjuan Guo, Jilin Hu, Jian Tang, Bin Yang
HIGHLIGHT: We propose an unsupervised learning framework Path InfoMax (PIM) to learn generic path representations that work for different downstream tasks.
- 453, TITLE: BESA: BERT-based Simulated Annealing for Adversarial Text Attacks
<https://www.ijcai.org/proceedings/2021/453>
AUTHORS: Xinghao Yang, Weifeng Liu, Dacheng Tao, Wei Liu
HIGHLIGHT: In this research, we propose BESA, a BERT-based Simulated Annealing algorithm, to address these two problems.
- 454, TITLE: Rethinking Label-Wise Cross-Modal Retrieval from A Semantic Sharing Perspective
<https://www.ijcai.org/proceedings/2021/454>
AUTHORS: Yang Yang, Chubing Zhang, Yi-Chu Xu, Dianhai Yu, De-Chuan Zhan, Jian Yang
HIGHLIGHT: Therefore, in this paper, we argue that what really needed for supervised cross-modal retrieval is a good shared classification model.
- 455, TITLE: Blocking-based Neighbor Sampling for Large-scale Graph Neural Networks
<https://www.ijcai.org/proceedings/2021/455>
AUTHORS: Kai-Lang Yao, Wu-Jun Li
HIGHLIGHT: In this paper, we propose a novel neighbor sampling strategy, dubbed blocking-based neighbor sampling (BNS), for efficient training of GNNs on large-scale graphs.
- 456, TITLE: Understanding the Effect of Bias in Deep Anomaly Detection
<https://www.ijcai.org/proceedings/2021/456>
AUTHORS: Ziyu Ye, Yuxin Chen, Haitao Zheng
HIGHLIGHT: In this paper, we aim to understand the effect of a biased anomaly set on anomaly detection. Our study demonstrates scenarios in which the biased anomaly set can be useful or problematic, and provides a solid benchmark for future research.
- 457, TITLE: Improving Sequential Recommendation Consistency with Self-Supervised Imitation
<https://www.ijcai.org/proceedings/2021/457>
AUTHORS: Xu Yuan, Hongshen Chen, Yonghao Song, Xiaofang Zhao, Zhuoye Ding
HIGHLIGHT: In this paper, we propose a model, SSI, to improve sequential recommendation consistency with Self-Supervised Imitation.
- 458, TITLE: Graph Universal Adversarial Attacks: A Few Bad Actors Ruin Graph Learning Models
<https://www.ijcai.org/proceedings/2021/458>
AUTHORS: Xiao Zang, Yi Xie, Jie Chen, Bo Yuan
HIGHLIGHT: Worse, the bad actors found for one graph model severely compromise other models as well. We call the bad actors "anchor nodes" and propose an algorithm, named GUA, to identify them.
- 459, TITLE: Hindsight Trust Region Policy Optimization
<https://www.ijcai.org/proceedings/2021/459>
AUTHORS: Hanbo Zhang, Site Bai, Xuguang Lan, David Hsu, Nanning Zheng
HIGHLIGHT: We propose Hindsight Trust Region Policy Optimization (HTRPO), a new RL algorithm that extends the highly successful TRPO algorithm with hindsight to tackle the challenge of sparse rewards.

- 460, TITLE: Deep Descriptive Clustering
<https://www.ijcai.org/proceedings/2021/460>
AUTHORS: Hongjing Zhang, Ian Davidson
HIGHLIGHT: We propose deep descriptive clustering that performs sub-symbolic representation learning on complex data while generating explanations based on symbolic data.
- 461, TITLE: Independence-aware Advantage Estimation
<https://www.ijcai.org/proceedings/2021/461>
AUTHORS: Pushi Zhang, Li Zhao, Guoqing Liu, Jiang Bian, Minlie Huang, Tao Qin, Tie-Yan Liu
HIGHLIGHT: To address this challenge, we propose to identify the independence property between current action and future states in environments, which can be further leveraged to effectively reduce the variance of the advantage estimation.
- 462, TITLE: UNBERT: User-News Matching BERT for News Recommendation
<https://www.ijcai.org/proceedings/2021/462>
AUTHORS: Qi Zhang, Jingjie Li, Qinglin Jia, Chuyuan Wang, Jieming Zhu, Zhaowei Wang, Xiuqiang He
HIGHLIGHT: In this paper, we explore the use of the successful BERT pre-training technique in NLP for news recommendation and propose a BERT-based user-news matching model, called UNBERT.
- 463, TITLE: Correlation-Guided Representation for Multi-Label Text Classification
<https://www.ijcai.org/proceedings/2021/463>
AUTHORS: Qian-Wen Zhang, Ximing Zhang, Zhao Yan, Ruifang Liu, Yunbo Cao, Min-Ling Zhang
HIGHLIGHT: In this paper, we view the task as a correlation-guided text representation problem: an attention-based two-step framework is proposed to integrate text information and label semantics by jointly learning words and labels in the same space.
- 464, TITLE: Private Stochastic Non-convex Optimization with Improved Utility Rates
<https://www.ijcai.org/proceedings/2021/464>
AUTHORS: Qiuchen Zhang, Jing Ma, Jian Lou, Li Xiong
HIGHLIGHT: In this paper, we progress towards an affirmative answer to this open problem: DP nonconvex optimization is indeed capable of achieving the same excess population risk as to the nonprivate algorithm in most common parameter regimes, under certain conditions (i.e., well-conditioned nonconvexity).
- 465, TITLE: Non-I.I.D. Multi-Instance Learning for Predicting Instance and Bag Labels with Variational Auto-Encoder
<https://www.ijcai.org/proceedings/2021/465>
AUTHORS: Weijia Zhang
HIGHLIGHT: In this work, we propose the Multi-Instance Variational Autoencoder (MIVAE) algorithm which explicitly models the dependencies among the instances for predicting both bag labels and instance labels.
- 466, TITLE: Model-based Multi-agent Policy Optimization with Adaptive Opponent-wise Rollouts
<https://www.ijcai.org/proceedings/2021/466>
AUTHORS: Weinan Zhang, Xihuai Wang, Jian Shen, Ming Zhou
HIGHLIGHT: To reduce the upper bound with the intention of low sample complexity during the whole learning process, we propose a novel decentralized model-based MARL method, named Adaptive Opponent-wise Rollout Policy Optimization (AORPO).
- 467, TITLE: Rethink the Connections among Generalization, Memorization, and the Spectral Bias of DNNs
<https://www.ijcai.org/proceedings/2021/467>
AUTHORS: Xiao Zhang, Haoyi Xiong, Dongrui Wu
HIGHLIGHT: However, we show that the monotonicity of the learning bias does not always hold: under the experimental setup of deep double descent, the high-frequency components of DNNs diminish in the late stage of training, leading to the second descent of the test error.
- 468, TITLE: User Retention: A Causal Approach with Triple Task Modeling
<https://www.ijcai.org/proceedings/2021/468>
AUTHORS: Yang Zhang, Dong Wang, Qiang Li, Yue Shen, Ziqi Liu, Xiaodong Zeng, Zhiqiang Zhang, Jinjie Gu, Derek F. Wong
HIGHLIGHT: To address the above challenges, we propose a novel method named UR-IPW (User Retention Modeling with Inverse Propensity Weighting), which 1) makes full use of both explicit and implicit interactions in the observed data.
- 469, TITLE: Neural Relation Inference for Multi-dimensional Temporal Point Processes via Message Passing Graph
<https://www.ijcai.org/proceedings/2021/469>

- AUTHORS: Yunhao Zhang, Junchi Yan
HIGHLIGHT: In this paper, we propose a neural relation inference model namely TPP-NRI.
- 470, TITLE: Combining Tree Search and Action Prediction for State-of-the-Art Performance in DouDiZhu
<https://www.ijcai.org/proceedings/2021/470>
AUTHORS: Yunsheng Zhang, Dong Yan, Bei Shi, Haobo Fu, Qiang Fu, Hang Su, Jun Zhu, Ning Chen
HIGHLIGHT: In this paper, we extend AlphaZero to multiplayer IIGs by developing a new MCTS method, Action-Prediction MCTS (AP-MCTS).
- 471, TITLE: Uncertainty-Aware Few-Shot Image Classification
<https://www.ijcai.org/proceedings/2021/471>
AUTHORS: Zhizheng Zhang, Cuiling Lan, Wenjun Zeng, Zhibo Chen, Shih-Fu Chang
HIGHLIGHT: In this work, we propose Uncertainty-Aware Few-Shot framework for image classification by modeling uncertainty of the similarities of query-support pairs and performing uncertainty-aware optimization.
- 472, TITLE: Automatic Mixed-Precision Quantization Search of BERT
<https://www.ijcai.org/proceedings/2021/472>
AUTHORS: Changsheng Zhao, Ting Hua, Yilin Shen, Qian Lou, Hongxia Jin
HIGHLIGHT: In this paper, we proposed an automatic mixed-precision quantization framework designed for BERT that can conduct quantization and pruning simultaneously.
- 473, TITLE: Graph Debaised Contrastive Learning with Joint Representation Clustering
<https://www.ijcai.org/proceedings/2021/473>
AUTHORS: Han Zhao, Xu Yang, Zhenru Wang, Erkun Yang, Cheng Deng
HIGHLIGHT: To this end, we propose a graph debaised contrastive learning framework, which can jointly perform representation learning and clustering.
- 474, TITLE: Uncertainty-aware Binary Neural Networks
<https://www.ijcai.org/proceedings/2021/474>
AUTHORS: Junhe Zhao, Linlin Yang, Baochang Zhang, Guodong Guo, David Doermann
HIGHLIGHT: In this work, we investigate the intrinsic uncertainty of vanishing near-zero weights, making the training vulnerable to instability.
- 475, TITLE: Few-Shot Partial-Label Learning
<https://www.ijcai.org/proceedings/2021/475>
AUTHORS: Yunfeng Zhao, Guoxian Yu, Lei Liu, Zhongmin Yan, Lizhen Cui, Carlotta Domeniconi
HIGHLIGHT: In this paper, we introduce an approach called FsPLL (Few-shot PLL).
- 476, TITLE: Non-decreasing Quantile Function Network with Efficient Exploration for Distributional Reinforcement Learning
<https://www.ijcai.org/proceedings/2021/476>
AUTHORS: Fan Zhou, Zhoufan Zhu, Qi Kuang, Liwen Zhang
HIGHLIGHT: This paper attempts to provide some new perspectives to encourage the future in-depth studies in these two fields.
- 477, TITLE: Multi-Target Invisibly Trojaned Networks for Visual Recognition and Detection
<https://www.ijcai.org/proceedings/2021/477>
AUTHORS: Xinzhe Zhou, Wenhao Jiang, Sheng Qi, Yadong Mu
HIGHLIGHT: In this work, we take image recognition and detection as the demonstration tasks, building trojaned networks that are significantly less human-perceptible and can simultaneously attack multiple targets in an image.
- 478, TITLE: AutoReCon: Neural Architecture Search-based Reconstruction for Data-free Compression
<https://www.ijcai.org/proceedings/2021/478>
AUTHORS: Baozhou Zhu, Peter Hofstee, Johan Peltenburg, Jinho Lee, Zaid Alars
HIGHLIGHT: Specifically, we propose the AutoReCon method, which is a neural architecture search-based reconstruction method.
- 479, TITLE: You Get What You Sow: High Fidelity Image Synthesis with a Single Pretrained Network
<https://www.ijcai.org/proceedings/2021/479>
AUTHORS: Kefeng Zhu, Peilin Tong, Hongwei Kan, Rengang Li

- HIGHLIGHT:** In this paper, we introduce a novel strategy for high fidelity image synthesis with a single pretrained classification network.
- 480, **TITLE:** MapGo: Model-Assisted Policy Optimization for Goal-Oriented Tasks
<https://www.ijcai.org/proceedings/2021/480>
AUTHORS: Menghui Zhu, Minghuan Liu, Jian Shen, Zhicheng Zhang, Sheng Chen, Weinan Zhang, Deheng Ye, Yong Yu, Qiang Fu, Wei Yang
HIGHLIGHT: In this paper, to enhance the diversity of relabeled goals, we develop FGI (Foresight Goal Inference), a new relabeling strategy that relabels the goals by looking into the future with a learned dynamics model.
- 481, **TITLE:** Toward Optimal Solution for the Context-Attentive Bandit Problem
<https://www.ijcai.org/proceedings/2021/481>
AUTHORS: Djallel Bouneffouf, Raphael Feraud, Sohini Upadhyay, Irina Rish, Yasaman Khazaeni
HIGHLIGHT: In this paper, we analyze and extend an online learning framework known as Context-Attentive Bandit, We derive a novel algorithm, called Context-Attentive Thompson Sampling (CATS), which builds upon the Linear Thompson Sampling approach, adapting it to Context-Attentive Bandit setting.
- 482, **TITLE:** Sample Efficient Decentralized Stochastic Frank-Wolfe Methods for Continuous DR-Submodular Maximization
<https://www.ijcai.org/proceedings/2021/482>
AUTHORS: Hongchang Gao, Hanzi Xu, Slobodan Vucetic
HIGHLIGHT: In this paper, we propose two novel sample efficient decentralized Frank-Wolfe methods to address this challenge.
- 483, **TITLE:** Self-Guided Community Detection on Networks with Missing Edges
<https://www.ijcai.org/proceedings/2021/483>
AUTHORS: Dongxiao He, Shuai Li, Di Jin, Pengfei Jiao, Yuxiao Huang
HIGHLIGHT: In this paper, we propose a community self-guided generative model which jointly completes the edges-missing network and identifies communities.
- 484, **TITLE:** Two-Sided Wasserstein Procrustes Analysis
<https://www.ijcai.org/proceedings/2021/484>
AUTHORS: Kun Jin, Chaoyue Liu, Cathy Xia
HIGHLIGHT: To address these challenges, we propose a new method to jointly learn the optimal coupling between twosets, and the optimal transformations (e.g. rotation, projection and scaling) of each set based on a two-sided Wassertein Procrustes analysis (TWP).
- 485, **TITLE:** Solving Math Word Problems with Teacher Supervision
<https://www.ijcai.org/proceedings/2021/485>
AUTHORS: Zhenwen Liang, Xiangliang Zhang
HIGHLIGHT: We thus designed a teacher module to make the MWP encoding vector match the correct solution and disaccord from the wrong solutions, which are manipulated from the correct solution.
- 486, **TITLE:** Collaborative Graph Learning with Auxiliary Text for Temporal Event Prediction in Healthcare
<https://www.ijcai.org/proceedings/2021/486>
AUTHORS: Chang Lu, Chandan K Reddy, Prithwish Chakraborty, Samantha Kleinberg, Yue Ning
HIGHLIGHT: To address these issues, we propose a collaborative graph learning model to explore patient-disease interactions and medical domain knowledge.
- 487, **TITLE:** MDNN: A Multimodal Deep Neural Network for Predicting Drug-Drug Interaction Events
<https://www.ijcai.org/proceedings/2021/487>
AUTHORS: Tengfei Lyu, Jianliang Gao, Ling Tian, Zhao Li, Peng Zhang, Ji Zhang
HIGHLIGHT: To address this problem, we propose a Multimodal Deep Neural Network (MDNN) for DDI events prediction.
- 488, **TITLE:** SPADE: A Semi-supervised Probabilistic Approach for Detecting Errors in Tables
<https://www.ijcai.org/proceedings/2021/488>
AUTHORS: Minh Pham, Craig A. Knoblock, Muhao Chen, Binh Vu, Jay Pujara
HIGHLIGHT: In this paper, we present SPADE, a novel semi-supervised probabilistic approach for error detection.
- 489, **TITLE:** TEC: A Time Evolving Contextual Graph Model for Speaker State Analysis in Political Debates

<https://www.ijcai.org/proceedings/2021/489>

AUTHORS: Ramit Sawhney, Shivam Agarwal, Arnav Wadhwa, Rajiv Shah
HIGHLIGHT: We propose TEC, a time evolving graph based model that jointly employs links between motions, speakers, and temporal politician states.

490, TITLE: Adaptive Residue-wise Profile Fusion for Low Homologous Protein Secondary Structure Prediction Using External Knowledge

<https://www.ijcai.org/proceedings/2021/490>

AUTHORS: Qin Wang, Jun Wei, Boyuan Wang, Zhen Li, Sheng Wang, Shuguang Cui
HIGHLIGHT: In this paper, we explicitly import external self-supervised knowledge for low homologous PSSP under the guidance of residue-wise (amino acid wise) profile fusion.

491, TITLE: Ordering-Based Causal Discovery with Reinforcement Learning

<https://www.ijcai.org/proceedings/2021/491>

AUTHORS: Xiaoqiang Wang, Yali Du, Shengyu Zhu, Liangjun Ke, Zhitang Chen, Jianye Hao, Jun Wang
HIGHLIGHT: In this work, we propose a novel RL-based approach for causal discovery, by incorporating RL into the ordering-based paradigm.

492, TITLE: Boosting Offline Reinforcement Learning with Residual Generative Modeling

<https://www.ijcai.org/proceedings/2021/492>

AUTHORS: Hua Wei, Deheng Ye, Zhao Liu, Hao Wu, Bo Yuan, Qiang Fu, Wei Yang, Zhenhui Li
HIGHLIGHT: We propose AQL (action-conditioned Q-learning), a residual generative model to reduce policy approximation error for offline RL.

493, TITLE: Multi-series Time-aware Sequence Partitioning for Disease Progression Modeling

<https://www.ijcai.org/proceedings/2021/493>

AUTHORS: Xi Yang, Yuan Zhang, Min Chi
HIGHLIGHT: Motivated by the recent success of a novel subsequence clustering approach: Toeplitz Inverse Covariance-based Clustering (TICC), we model the sepsis progression as a subsequence partitioning problem and propose a Multi-series Time-aware TICC (MT-TICC), which incorporates multi-series nature and irregular time intervals of EHRs.

494, TITLE: A Rule Mining-based Advanced Persistent Threats Detection System

<https://www.ijcai.org/proceedings/2021/494>

AUTHORS: Sidahmed Benabderrahmane, Ghita Berrada, James Cheney, Petko Valchev
HIGHLIGHT: We introduce an unsupervised method that exploits OS-independent features reflecting process activity to detect realistic APT-like attacks from provenance traces.

495, TITLE: Electrocardio Panorama: Synthesizing New ECG views with Self-supervision

<https://www.ijcai.org/proceedings/2021/495>

AUTHORS: Jintai Chen, Xiangshang Zheng, Hongyun Yu, Danny Z. Chen, Jian Wu
HIGHLIGHT: For the first time, we propose a new concept, Electrocardio Panorama, which allows visualizing ECG signals from any queried viewpoints.

496, TITLE: A Novel Sequence-to-Subgraph Framework for Diagnosis Classification

<https://www.ijcai.org/proceedings/2021/496>

AUTHORS: Jun Chen, Quan Yuan, Chao Lu, Haifeng Huang
HIGHLIGHT: In this paper, a novel sequence-to-subgraph framework is introduced to process clinical texts for classification, which changes the paradigm of managing texts.

497, TITLE: Parallel Subtrajectory Alignment over Massive-Scale Trajectory Data

<https://www.ijcai.org/proceedings/2021/497>

AUTHORS: Lisi Chen, Shuo Shang, Shanshan Feng, Panos Kalnis
HIGHLIGHT: To enable efficient and effective subtrajectory alignment computation, we propose a novel search algorithm and filtering techniques that enable the use of the parallel processing capabilities of modern processors.

498, TITLE: TrafficStream: A Streaming Traffic Flow Forecasting Framework Based on Graph Neural Networks and Continual Learning

<https://www.ijcai.org/proceedings/2021/498>

AUTHORS: Xu Chen, Junshan Wang, Kunqing Xie
HIGHLIGHT: To tackle this problem, we propose a Streaming Traffic Flow Forecasting Framework, TrafficStream, based on Graph Neural Networks (GNNs) and Continual Learning (CL), achieving accurate predictions and high efficiency.

- 499, TITLE: Predictive Job Scheduling under Uncertain Constraints in Cloud Computing
<https://www.ijcai.org/proceedings/2021/499>
AUTHORS: Hang Dong, Boshi Wang, Bo Qiao, Wenqian Xing, Chuan Luo, Si Qin, Qingwei Lin, Dongmei Zhang, Gurpreet Virdi, Thomas Moscibroda
HIGHLIGHT: In this work, we formulate the scheduling problem for these pre-collected job requests under uncertain available capacity as a Prediction + Optimization problem with uncertainty in constraints, and propose an effective algorithm called Controlling under Uncertain Constraints (CUC), where the predicted capacity guides the optimization of job scheduling and job scheduling results are leveraged to improve the prediction of capacity through Bayesian optimization.
- 500, TITLE: Fine-tuning Is Not Enough: A Simple yet Effective Watermark Removal Attack for DNN Models
<https://www.ijcai.org/proceedings/2021/500>
AUTHORS: Shangwei Guo, Tianwei Zhang, Han Qiu, Yi Zeng, Tao Xiang, Yang Liu
HIGHLIGHT: In this paper, we propose a novel watermark removal attack from a different perspective.
- 501, TITLE: Dynamic Lane Traffic Signal Control with Group Attention and Multi-Timescale Reinforcement Learning
<https://www.ijcai.org/proceedings/2021/501>
AUTHORS: Qize Jiang, Jingze Li, Weiwei Sun, Baihua Zheng
HIGHLIGHT: Motivated by the ineffectiveness of existing approaches when controlling the traffic signal and dynamic lanes simultaneously, we propose a new method, namely MT-GAD, in this paper.
- 502, TITLE: Differentially Private Correlation Alignment for Domain Adaptation
<https://www.ijcai.org/proceedings/2021/502>
AUTHORS: Kaizhong Jin, Xiang Cheng, Jiayi Yang, Kaiyuan Shen
HIGHLIGHT: In this paper, for the first time, we propose a differentially private correlation alignment approach for domain adaptation called PRIMA, which can provide privacy guarantees for both the source and target data.
- 503, TITLE: Traffic Congestion Alleviation over Dynamic Road Networks: Continuous Optimal Route Combination for Trip Query Streams
<https://www.ijcai.org/proceedings/2021/503>
AUTHORS: Ke Li, Lisi Chen, Shuo Shang, Panos Kalnis, Bin Yao
HIGHLIGHT: In this paper, we study a continuous optimal route combination problem: Given a dynamic road network and a stream of trip queries, we continuously find an optimal route combination for each new query batch over the query stream such that the total travel time for all routes is minimized.
- 504, TITLE: CFR-MIX: Solving Imperfect Information Extensive-Form Games with Combinatorial Action Space
<https://www.ijcai.org/proceedings/2021/504>
AUTHORS: Shuxin Li, Youzhi Zhang, Xinrun Wang, Wanqi Xue, Bo An
HIGHLIGHT: The challenge of solving this type of game is that the team's joint action space grows exponentially with the number of agents, which results in the inefficiency of the existing algorithms, e.g., Counterfactual Regret Minimization (CFR). To address this problem, we propose a new framework of CFR: CFR-MIX.
- 505, TITLE: Online Credit Payment Fraud Detection via Structure-Aware Hierarchical Recurrent Neural Network
<https://www.ijcai.org/proceedings/2021/505>
AUTHORS: Wangli Lin, Li Sun, Qiwei Zhong, Can Liu, Jinghua Feng, Xiang Ao, Hao Yang
HIGHLIGHT: In this paper, we adopt multi-scale behavior sequence generated from different granularities of web page structures and propose a model named SAH-RNN to consume the multi-scale behavior sequence for online payment fraud detection.
- 506, TITLE: Learning Unknown from Correlations: Graph Neural Network for Inter-novel-protein Interaction Prediction
<https://www.ijcai.org/proceedings/2021/506>
AUTHORS: Guofeng Lv, Zhiqiang Hu, Yanguang Bi, Shaoting Zhang
HIGHLIGHT: In this paper, we investigate the problem and find that it is mainly attributed to the poor performance for inter-novel-protein interaction prediction.
- 507, TITLE: Adapting Meta Knowledge with Heterogeneous Information Network for COVID-19 Themed Malicious Repository Detection
<https://www.ijcai.org/proceedings/2021/507>
AUTHORS: Yiyue Qian, Yiming Zhang, Yanfang Ye, Chuxu Zhang
HIGHLIGHT: To address these challenges, we develop Meta-AHIN, a novel model for COVID-19 themed malicious repository detection in GitHub.

- 508, TITLE: Hierarchical Adaptive Temporal-Relational Modeling for Stock Trend Prediction
<https://www.ijcai.org/proceedings/2021/508>
AUTHORS: Heyuan Wang, Shun Li, Tengjiao Wang, Jiayi Zheng
HIGHLIGHT: In this paper, we propose a novel Hierarchical Adaptive Temporal-Relational Network (HATR) to characterize and predict stock evolutions.
- 509, TITLE: BACKDOORL: Backdoor Attack against Competitive Reinforcement Learning
<https://www.ijcai.org/proceedings/2021/509>
AUTHORS: Lun Wang, Zaynah Javed, Xian Wu, Wenbo Guo, Xinyu Xing, Dawn Song
HIGHLIGHT: In this paper, we migrate backdoor attacks to more complex RL systems involving multiple agents and explore the possibility of triggering the backdoor without directly manipulating the agent's observation.
- 510, TITLE: Hiding Numerical Vectors in Local Private and Shuffled Messages
<https://www.ijcai.org/proceedings/2021/510>
AUTHORS: Shaowei Wang, Jin Li, Yuqiu Qian, Jiachun Du, Wenqing Lin, Wei Yang
HIGHLIGHT: Within the framework of local differential privacy, this work gives tight minimax error bounds of $O(d s/(n \epsilon^2))$, where d is the dimension of the numerical vector and s is the number of non-zero entries.
- 511, TITLE: Solving Large-Scale Extensive-Form Network Security Games via Neural Fictitious Self-Play
<https://www.ijcai.org/proceedings/2021/511>
AUTHORS: Wanqi Xue, Youzhi Zhang, Shuxin Li, Xinrun Wang, Bo An, Chai Kiat Yeo
HIGHLIGHT: In this paper, we propose a novel learning paradigm, NSG-NFSP, to solve large-scale extensive-form NSGs based on Neural Fictitious Self-Play (NFSP).
- 512, TITLE: Towards Generating Summaries for Lexically Confusing Code through Code Erosion
<https://www.ijcai.org/proceedings/2021/512>
AUTHORS: Fan Yan, Ming Li
HIGHLIGHT: To tackle this problem, we propose a novel summarization framework named VECOS.
- 513, TITLE: Change Matters: Medication Change Prediction with Recurrent Residual Networks
<https://www.ijcai.org/proceedings/2021/513>
AUTHORS: Chaoqi Yang, Cao Xiao, Lucas Glass, Jimeng Sun
HIGHLIGHT: In this paper, we propose a new recurrent residual networks, named MICRON, for medication change prediction.
- 514, TITLE: SafeDrug: Dual Molecular Graph Encoders for Recommending Effective and Safe Drug Combinations
<https://www.ijcai.org/proceedings/2021/514>
AUTHORS: Chaoqi Yang, Cao Xiao, Fenglong Ma, Lucas Glass, Jimeng Sun
HIGHLIGHT: To address these limitations, we propose a DDI-controllable drug recommendation model named SafeDrug to leverage drugs' molecule structures and model DDIs explicitly.
- 515, TITLE: Real-Time Pricing Optimization for Ride-Hailing Quality of Service
<https://www.ijcai.org/proceedings/2021/515>
AUTHORS: Enpeng Yuan, Pascal Van Hentenryck
HIGHLIGHT: This paper proposes a spatio-temporal pricing framework (AP-RTRS) to alleviate this challenge and shows how it naturally complements state-of-the-art dispatching and routing algorithms.
- 516, TITLE: GraphMI: Extracting Private Graph Data from Graph Neural Networks
<https://www.ijcai.org/proceedings/2021/516>
AUTHORS: Zaixi Zhang, Qi Liu, Zhenya Huang, Hao Wang, Chengqiang Lu, Chuanren Liu, Enhong Chen
HIGHLIGHT: To bridge this gap, we present Graph Model Inversion attack, which aims to infer edges of the training graph by inverting Graph Neural Networks, one of the most popular graph analysis tools.
- 517, TITLE: CSGNN: Contrastive Self-Supervised Graph Neural Network for Molecular Interaction Prediction
<https://www.ijcai.org/proceedings/2021/517>
AUTHORS: Chengshuai Zhao, Shuai Liu, Feng Huang, Shichao Liu, Wen Zhang
HIGHLIGHT: In this paper, we propose a contrastive self-supervised graph neural network (CSGNN) to predict molecular interactions.

518, TITLE: Long-term, Short-term and Sudden Event: Trading Volume Movement Prediction with Graph-based Multi-view Modeling

<https://www.ijcai.org/proceedings/2021/518>

AUTHORS: Liang Zhao, Wei Li, Ruihan Bao, Keiko Harimoto, Yunfang Wu, Xu Sun

HIGHLIGHT: To handle this issue, we propose a graph-based approach that can incorporate multi-view information, i.e., long-term stock trend, short-term fluctuation and sudden events information jointly into a temporal heterogeneous graph.

519, TITLE: Objective-aware Traffic Simulation via Inverse Reinforcement Learning

<https://www.ijcai.org/proceedings/2021/519>

AUTHORS: Guanjie Zheng, Hanyang Liu, Kai Xu, Zhenhui Li

HIGHLIGHT: In this paper, we formulate traffic simulation as an inverse reinforcement learning problem, and propose a parameter sharing adversarial inverse reinforcement learning model for dynamics-robust simulation learning.

520, TITLE: Exemplification Modeling: Can You Give Me an Example, Please?

<https://www.ijcai.org/proceedings/2021/520>

AUTHORS: Edoardo Barba, Luigi Procopio, Caterina Lacerra, Tommaso Pasini, Roberto Navigli

HIGHLIGHT: In this work, we introduce the novel task of Exemplification Modeling (ExMod), along with a sequence-to-sequence architecture and a training procedure for it.

521, TITLE: Generating Senses and RoLes: An End-to-End Model for Dependency- and Span-based Semantic Role Labeling

<https://www.ijcai.org/proceedings/2021/521>

AUTHORS: Rexhina Blloshmi, Simone Conia, Rocco Tripodi, Roberto Navigli

HIGHLIGHT: In this paper we go against the flow and propose GSRL (Generating Senses and RoLes), the first sequence-to-sequence model for end-to-end SRL.

522, TITLE: Improving Context-Aware Neural Machine Translation with Source-side Monolingual Documents

<https://www.ijcai.org/proceedings/2021/522>

AUTHORS: Linqing Chen, Junhui Li, Zhengxian Gong, Xiangyu Duan, Boxing Chen, Weihua Luo, Min Zhang, Guodong Zhou

HIGHLIGHT: To make full use of source-side monolingual documents for context-aware NMT, we propose a Pre-training approach with Global Context (PGC).

523, TITLE: Focus on Interaction: A Novel Dynamic Graph Model for Joint Multiple Intent Detection and Slot Filling

<https://www.ijcai.org/proceedings/2021/523>

AUTHORS: Zeyuan Ding, Zhihao Yang, Hongfei Lin, Jian Wang

HIGHLIGHT: In this paper, we propose a Dynamic Graph Model (DGM) for joint multiple intent detection and slot filling, in which we adopt a sentence-level intent-slot interactive graph to model the correlation between the intents and slot.

524, TITLE: Dialogue Discourse-Aware Graph Model and Data Augmentation for Meeting Summarization

<https://www.ijcai.org/proceedings/2021/524>

AUTHORS: Xiachong Feng, Xiaocheng Feng, Bing Qin, Xinwei Geng

HIGHLIGHT: First, we present a Dialogue Discourse-Aware Meeting Summarizer (DDAMS) to explicitly model the interaction between utterances in a meeting by modeling different discourse relations.

525, TITLE: Automatically Paraphrasing via Sentence Reconstruction and Round-trip Translation

<https://www.ijcai.org/proceedings/2021/525>

AUTHORS: Zilu Guo, Zhongqiang Huang, Kenny Q. Zhu, Guandan Chen, Kaibo Zhang, Boxing Chen, Fei Huang

HIGHLIGHT: In this paper, we propose a novel framework for paraphrase generation.

526, TITLE: Dialogue Disentanglement in Software Engineering: How Far are We?

<https://www.ijcai.org/proceedings/2021/526>

AUTHORS: Ziyou Jiang, Lin Shi, Celia Chen, Jun Hu, Qing Wang

HIGHLIGHT: Therefore, in this paper, we introduce and evaluate a novel measure, named DLD.

527, TITLE: FedSpeech: Federated Text-to-Speech with Continual Learning

<https://www.ijcai.org/proceedings/2021/527>

AUTHORS: Ziyue Jiang, Yi Ren, Ming Lei, Zhou Zhao

HIGHLIGHT: In this paper, we propose a novel federated learning architecture based on continual learning approaches to overcome the difficulties above.

- 528, TITLE: ALaSca: an Automated approach for Large-Scale Lexical Substitution
<https://www.ijcai.org/proceedings/2021/528>
AUTHORS: Caterina Lacerra, Tommaso Pasini, Rocco Tripodi, Roberto Navigli
HIGHLIGHT: In this paper, we mitigate this issue by proposing ALaSca, a novel approach to automatically creating large-scale datasets for English lexical substitution.
- 529, TITLE: Enhancing Label Representations with Relational Inductive Bias Constraint for Fine-Grained Entity Typing
<https://www.ijcai.org/proceedings/2021/529>
AUTHORS: Jinqing Li, Xiaojun Chen, Dakui Wang, Yuwei Li
HIGHLIGHT: Therefore, we propose a novel method based on a two-phase graph network for the FGET task to enhance the label representations, via imposing the relational inductive biases of instance-to-label and label-to-label.
- 530, TITLE: Modelling General Properties of Nouns by Selectively Averaging Contextualised Embeddings
<https://www.ijcai.org/proceedings/2021/530>
AUTHORS: Na Li, Zied Bouraoui, Jose Camacho-Collados, Luis Espinosa-Anke, Qing Gu, Steven Schockaert
HIGHLIGHT: In this paper, we explore how the contextualised embeddings predicted by BERT can be used to produce high-quality word vectors for such domains, in particular related to knowledge base completion, where our focus is on capturing the semantic properties of nouns.
- 531, TITLE: Asynchronous Multi-grained Graph Network For Interpretable Multi-hop Reading Comprehension
<https://www.ijcai.org/proceedings/2021/531>
AUTHORS: Ronghan Li, Lifang Wang, Shengli Wang, Zejun Jiang
HIGHLIGHT: In this paper, we introduce an Asynchronous Multi-grained Graph Network (AMGN) for multi-hop MRC.
- 532, TITLE: Keep the Structure: A Latent Shift-Reduce Parser for Semantic Parsing
<https://www.ijcai.org/proceedings/2021/532>
AUTHORS: Yuntao Li, Bei Chen, Qian Liu, Yan Gao, Jian-Guang Lou, Yan Zhang, Dongmei Zhang
HIGHLIGHT: In this paper, we propose a latent shift-reduce parser, called LASP, which decomposes both natural language queries and logical form expressions according to their hierarchical structures and finds local alignment between them to enhance semantic parsing.
- 533, TITLE: Discourse-Level Event Temporal Ordering with Uncertainty-Guided Graph Completion
<https://www.ijcai.org/proceedings/2021/533>
AUTHORS: Jian Liu, Jinan Xu, Yufeng Chen, Yujie Zhang
HIGHLIGHT: In this paper, we propose a new graph perspective on the task, which does not require complex feature engineering but can assimilate global features and learn inter-dependencies effectively.
- 534, TITLE: Improving Text Generation with Dynamic Masking and Recovering
<https://www.ijcai.org/proceedings/2021/534>
AUTHORS: Zhidong Liu, Junhui Li, Muhua Zhu
HIGHLIGHT: Alternatively, in this paper we present a universal approach to enhance the language representation for text generation on the base of generic encoder-decoder frameworks.
- 535, TITLE: Consistent Inference for Dialogue Relation Extraction
<https://www.ijcai.org/proceedings/2021/535>
AUTHORS: Xinwei Long, Shuzi Niu, Yucheng Li
HIGHLIGHT: In this paper, we propose a consistent learning and inference method to minimize possible contradictions from those distinctions.
- 536, TITLE: Multi-Hop Fact Checking of Political Claims
<https://www.ijcai.org/proceedings/2021/536>
AUTHORS: Wojciech Ostrowski, Arnab Arora, Pepa Atanasova, Isabelle Augenstein
HIGHLIGHT: We: 1) construct a small annotated dataset, PolitiHop, of evidence sentences for claim verification; 2) compare it to existing multi-hop datasets; and 3) study how to transfer knowledge from more extensive in- and out-of-domain resources to PolitiHop.
- 537, TITLE: Laughing Heads: Can Transformers Detect What Makes a Sentence Funny?
<https://www.ijcai.org/proceedings/2021/537>
AUTHORS: Maxime Peyrard, Beatriz Borges, Kristina Gligori?, Robert West
HIGHLIGHT: We make progress in both respects by training and analyzing transformer-based humor recognition models on a recently introduced dataset consisting of minimal pairs of aligned sentences, one serious, the other humorous.

- 538, TITLE: A Streaming End-to-End Framework For Spoken Language Understanding
<https://www.ijcai.org/proceedings/2021/538>
AUTHORS: Nihal Potdar, Anderson Raymundo Avila, Chao Xing, Dong Wang, Yiran Cao, Xiao Chen
HIGHLIGHT: In this paper, we propose a streaming end-to-end framework that can process multiple intentions in an online and incremental way.
- 539, TITLE: MultiMirror: Neural Cross-lingual Word Alignment for Multilingual Word Sense Disambiguation
<https://www.ijcai.org/proceedings/2021/539>
AUTHORS: Luigi Procopio, Edoardo Barba, Federico Martelli, Roberto Navigli
HIGHLIGHT: To address this issue, we put forward MultiMirror, a sense projection approach for multilingual WSD based on a novel neural discriminative model for word alignment: given as input a pair of parallel sentences, our model -- trained with a low number of instances -- is capable of jointly aligning, at the same time, all source and target tokens with each other, surpassing its competitors across several language combinations.
- 540, TITLE: Learning Class-Transductive Intent Representations for Zero-shot Intent Detection
<https://www.ijcai.org/proceedings/2021/540>
AUTHORS: Qingyi Si, Yuanxin Liu, Peng Fu, Zheng Lin, Jiangnan Li, Weiping Wang
HIGHLIGHT: To address this problem, we propose a novel framework that utilizes unseen class labels to learn Class-Transductive Intent Representations (CTIR).
- 541, TITLE: MEDA: Meta-Learning with Data Augmentation for Few-Shot Text Classification
<https://www.ijcai.org/proceedings/2021/541>
AUTHORS: Pengfei Sun, Yawen Ouyang, Wenming Zhang, Xin-yu Dai
HIGHLIGHT: In this paper, we introduce a novel framework for few-shot text classification, which is named as MEta-learning with Data Augmentation (MEDA).
- 542, TITLE: A Sequence-to-Set Network for Nested Named Entity Recognition
<https://www.ijcai.org/proceedings/2021/542>
AUTHORS: Zeqi Tan, Yongliang Shen, Shuai Zhang, Weiming Lu, Yueting Zhuang
HIGHLIGHT: To address these issues, we propose a novel sequence-to-set neural network for nested NER. Instead of specifying candidate spans in advance, we provide a fixed set of learnable vectors to learn the patterns of the valuable spans.
- 543, TITLE: A Structure Self-Aware Model for Discourse Parsing on Multi-Party Dialogues
<https://www.ijcai.org/proceedings/2021/543>
AUTHORS: Ante Wang, Linfeng Song, Hui Jiang, Shaopeng Lai, Junfeng Yao, Min Zhang, Jinsong Su
HIGHLIGHT: To alleviate error propagation, we propose a Structure Self-Aware (SSA) model, which adopts a novel edge-centric Graph Neural Network (GNN) to update the information between each Elementary Discourse Unit (EDU) pair layer by layer, so that expressive representations can be learned without historical predictions.
- 544, TITLE: Hierarchical Modeling of Label Dependency and Label Noise in Fine-grained Entity Typing
<https://www.ijcai.org/proceedings/2021/544>
AUTHORS: Junshuang Wu, Richong Zhang, Yongyi Mao, Masoumeh Soflaei Shahrababak, Jinpeng Huai
HIGHLIGHT: In this paper, we directly tackle the structured noisy labels by combining a forward tree module and a backward tree module.
- 545, TITLE: Learn from Syntax: Improving Pair-wise Aspect and Opinion Terms Extraction with Rich Syntactic Knowledge
<https://www.ijcai.org/proceedings/2021/545>
AUTHORS: Shengqiong Wu, Hao Fei, Yafeng Ren, Donghong Ji, Jingye Li
HIGHLIGHT: In this paper, we propose to enhance the pair-wise aspect and opinion terms extraction (PAOTE) task by incorporating rich syntactic knowledge.
- 546, TITLE: Knowledge-Aware Dialogue Generation via Hierarchical Infobox Accessing and Infobox-Dialogue Interaction Graph Network
<https://www.ijcai.org/proceedings/2021/546>
AUTHORS: Sixing Wu, Minghui Wang, Dawei Zhang, Yang Zhou, Ying Li, Zhonghai Wu
HIGHLIGHT: To alleviate this issue, this paper proposes a novel infobox knowledge-aware dialogue generation approach, HITA-Graph, with three unique features.

- 547, TITLE: Improving Stylized Neural Machine Translation with Iterative Dual Knowledge Transfer
<https://www.ijcai.org/proceedings/2021/547>
AUTHORS: Xuanxuan Wu, Jian Liu, Xinjie Li, Jinan Xu, Yufeng Chen, Yujie Zhang, Hui Huang
HIGHLIGHT: To address this problem, we propose an iterative dual knowledge transfer framework that utilizes informal training data of machine translation and formality style transfer data to create large-scale stylized paired data, for the training of stylized machine translation model.
- 548, TITLE: UniMF: A Unified Framework to Incorporate Multimodal Knowledge Bases into End-to-End Task-Oriented Dialogue Systems
<https://www.ijcai.org/proceedings/2021/548>
AUTHORS: Shiquan Yang, Rui Zhang, Sarah M. Erfani, Jey Han Lau
HIGHLIGHT: In this paper, we focus on task-oriented dialogue systems and address this limitation by proposing a novel model that integrates external multimodal KB reasoning with pre-trained language models.
- 549, TITLE: MRD-Net: Multi-Modal Residual Knowledge Distillation for Spoken Question Answering
<https://www.ijcai.org/proceedings/2021/549>
AUTHORS: Chenyu You, Nuo Chen, Yuexian Zou
HIGHLIGHT: To alleviate this problem, this work proposes a novel multi-modal residual knowledge distillation method (MRD-Net), which further distills knowledge at the acoustic level from the audio-assistant (Audio-A).
- 550, TITLE: Cross-Domain Slot Filling as Machine Reading Comprehension
<https://www.ijcai.org/proceedings/2021/550>
AUTHORS: Mengshi Yu, Jian Liu, Yufeng Chen, Jinan Xu, Yujie Zhang
HIGHLIGHT: In this paper, we take a new perspective on cross-domain slot filling by framing it as a machine reading comprehension (MRC) problem.
- 551, TITLE: Document-level Relation Extraction as Semantic Segmentation
<https://www.ijcai.org/proceedings/2021/551>
AUTHORS: Ningyu Zhang, Xiang Chen, Xin Xie, Shumin Deng, Chuanqi Tan, Mosha Chen, Fei Huang, Luo Si, Huajun Chen
HIGHLIGHT: Herein, we propose a Document U-shaped Network for document-level relation extraction.
- 552, TITLE: Drop Redundant, Shrink Irrelevant: Selective Knowledge Injection for Language Pretraining
<https://www.ijcai.org/proceedings/2021/552>
AUTHORS: Ningyu Zhang, Shumin Deng, Xu Cheng, Xi Chen, Yichi Zhang, Wei Zhang, Huajun Chen
HIGHLIGHT: In this study, we launched an in-depth empirical investigation into downstream tasks and found that knowledge-enhanced approaches do not always exhibit satisfactory improvements.
- 553, TITLE: Relational Gating for "What If" Reasoning
<https://www.ijcai.org/proceedings/2021/553>
AUTHORS: Chen Zheng, Parisa Kordjamshidi
HIGHLIGHT: We propose a novel relational gating network that learns to filter the key entities and relationships and learns contextual and cross representations of both procedure and question for finding the answer.
- 554, TITLE: Efficient Black-Box Planning Using Macro-Actions with Focused Effects
<https://www.ijcai.org/proceedings/2021/554>
AUTHORS: Cameron Allen, Michael Katz, Tim Klinger, George Konidaris, Matthew Riemer, Gerald Tesaro
HIGHLIGHT: In this work, we show how to overcome this limitation by discovering macro-actions that make the goal-count heuristic more accurate.
- 555, TITLE: ME-MCTS: Online Generalization by Combining Multiple Value Estimators
<https://www.ijcai.org/proceedings/2021/555>
AUTHORS: Hendrik Baier, Michael Kaisers
HIGHLIGHT: This paper addresses the challenge of online generalization in tree search.
- 556, TITLE: Learn to Intervene: An Adaptive Learning Policy for Restless Bandits in Application to Preventive Healthcare
<https://www.ijcai.org/proceedings/2021/556>
AUTHORS: Arpita Biswas, Gaurav Aggarwal, Pradeep Varakantham, Milind Tambe
HIGHLIGHT: Such interventions are often expensive and can be provided to only a small fraction of the beneficiaries. We model this scenario as a restless multi-armed bandit (RMAB) problem, where each beneficiary is assumed to transition from one state to another depending on the intervention.

- 557, TITLE: Type-WA*: Using Exploration in Bounded Suboptimal Planning
<https://www.ijcai.org/proceedings/2021/557>
AUTHORS: Eldan Cohen, Richard Valenzano, Sheila McIlraith
HIGHLIGHT: In this work, we present Type-WA*, a novel bounded suboptimal planning algorithm that augments WA* with type-based exploration while still satisfying WA*'s theoretical solution-quality guarantee.
- 558, TITLE: Custom-Design of FDR Encodings: The Case of Red-Black Planning
<https://www.ijcai.org/proceedings/2021/558>
AUTHORS: Daniel Fišer, Daniel Gnad, Michael Katz, Jörg Hoffmann
HIGHLIGHT: Here we go one step further by proposing to custom-design FDR encodings, optimizing the encoding to suit particular planning techniques.
- 559, TITLE: Active Goal Recognition Design
<https://www.ijcai.org/proceedings/2021/559>
AUTHORS: Kevin C. Gall, Wheeler Ruml, Sarah Keren
HIGHLIGHT: In this paper, we generalize GRD to the online setting in which time passes and the observer's actions are interleaved with those of the subject.
- 560, TITLE: Stochastic Probing with Increasing Precision
<https://www.ijcai.org/proceedings/2021/560>
AUTHORS: Martin Hoefer, Kevin Schewior, Daniel Schmand
HIGHLIGHT: There is a limited number of possible tests, and our goal is to design near-optimal testing strategies that allow to maximize the expected value of the chosen item.
- 561, TITLE: Incorporating Queueing Dynamics into Schedule-Driven Traffic Control
<https://www.ijcai.org/proceedings/2021/561>
AUTHORS: Hsu-Chieh Hu, Allen M. Hawkes, Stephen F. Smith
HIGHLIGHT: In this paper, we propose an alternative arrival time model that incorporates queueing dynamics into this forward search process for a signal timing schedule, to more accurately capture how the intersection's queues vary over time.
- 562, TITLE: Symbolic Dynamic Programming for Continuous State MDPs with Linear Program Transitions
<https://www.ijcai.org/proceedings/2021/562>
AUTHORS: Jihwan Jeong, Parth Jaggi, Scott Sanner
HIGHLIGHT: In this paper, we present a novel SDP solution method for MDPs with LP transitions and continuous piecewise linear dynamics by introducing a novel, fully symbolic argmax operator.
- 563, TITLE: Interference-free Walks in Time: Temporally Disjoint Paths
<https://www.ijcai.org/proceedings/2021/563>
AUTHORS: Nina Klobas, George B. Mertzios, Hendrik Molter, Rolf Niedermeier, Philipp Zschoche
HIGHLIGHT: We investigate the computational complexity of finding temporally disjoint paths or walks in temporal graphs.
- 564, TITLE: Counterfactual Explanations for Optimization-Based Decisions in the Context of the GDPR
<https://www.ijcai.org/proceedings/2021/564>
AUTHORS: Anton Korikov, Alexander Shleyfman, J. Christopher Beck
HIGHLIGHT: We adopt the approach of counterfactual explanations and apply it to decisions made by declarative optimization models.
- 565, TITLE: LTL-Constrained Steady-State Policy Synthesis
<https://www.ijcai.org/proceedings/2021/565>
AUTHORS: Jan Křetílký
HIGHLIGHT: In this paper, we study Markov decision processes (MDP) with the specification combining all these three types.
- 566, TITLE: Online Learning of Action Models for PDDL Planning
<https://www.ijcai.org/proceedings/2021/566>
AUTHORS: Leonardo Lamanna, Alessandro Saetti, Luciano Serafini, Alfonso Gerevini, Paolo Traverso
HIGHLIGHT: In this paper, we propose an algorithm for learning action models online, incrementally during the execution of plans.

- 567, TITLE: Polynomial-Time in PDDL Input Size: Making the Delete Relaxation Feasible for Lifted Planning
<https://www.ijcai.org/proceedings/2021/567>
AUTHORS: Pascal Lauer, Alvaro Torralba, Daniel Fišer, Daniel Höller, Julia Wichlacz, Jörg Hoffmann
HIGHLIGHT: Here we take a more radical approach, applying an additional relaxation to obtain a heuristic function that runs in time polynomial in the size of the PDDL input.
- 568, TITLE: Anytime Multi-Agent Path Finding via Large Neighborhood Search
<https://www.ijcai.org/proceedings/2021/568>
AUTHORS: Jiaoyang Li, Zhe Chen, Daniel Harabor, Peter J. Stuckey, Sven Koenig
HIGHLIGHT: In this paper, we consider a third approach that combines the best of both worlds: anytime algorithms that quickly find an initial solution using efficient MAPF algorithms from the literature, even for large problems, and that subsequently improve the solution quality to near-optimal as time progresses by replanning subgroups of agents using Large Neighborhood Search.
- 569, TITLE: Dynamic Rebalancing Dockless Bike-Sharing System based on Station Community Discovery
<https://www.ijcai.org/proceedings/2021/569>
AUTHORS: Jingjing Li, Qiang Wang, Wenqi Zhang, Donghai Shi, Zhiwei Qin
HIGHLIGHT: In this paper, we propose the Spatio-Temporal Mixed Integer Program (STMIP) with Flow-graphed Community Discovery (FCD) approach to rebalancing the system.
- 570, TITLE: Synthesizing Good-Enough Strategies for LTLf Specifications
<https://www.ijcai.org/proceedings/2021/570>
AUTHORS: Yong Li, Andrea Turrini, Moshe Y. Vardi, Lijun Zhang
HIGHLIGHT: We consider the problem of synthesizing good-enough (GE)-strategies for linear temporal logic (LTL) over finite traces or LTLf for short.
- 571, TITLE: Change the World - How Hard Can that Be? On the Computational Complexity of Fixing Planning Models
<https://www.ijcai.org/proceedings/2021/571>
AUTHORS: Songtuan Lin, Pascal Bercher
HIGHLIGHT: As a foundation for integrating user requests, we study the computational complexity of determining the existence of changes to an existing model, such that the resulting model allows for specific user-provided solutions.
- 572, TITLE: Learning Temporal Plan Preferences from Examples: An Empirical Study
<https://www.ijcai.org/proceedings/2021/572>
AUTHORS: Valentin Seimetz, Rebecca Eifler, Jörg Hoffmann
HIGHLIGHT: Here we explore the possibility to learn preferences from example plans.
- 573, TITLE: On Weak Stubborn Sets in Classical Planning
<https://www.ijcai.org/proceedings/2021/573>
AUTHORS: Silvan Sievers, Martin Wehrle
HIGHLIGHT: In this paper, we show that weak stubborn sets introduced in recent work in planning are actually not weak stubborn sets in Valmari's original sense.
- 574, TITLE: Learning Generalized Unsolvability Heuristics for Classical Planning
<https://www.ijcai.org/proceedings/2021/574>
AUTHORS: Simon Edelkamp, Guillem Francès, Jendrik Seipp
HIGHLIGHT: We approach the problem from a generalized planning perspective and learn first-order-like formulas that characterize unsolvability for entire planning domains.
- 575, TITLE: Solving Partially Observable Stochastic Shortest-Path Games
<https://www.ijcai.org/proceedings/2021/575>
AUTHORS: Petr Šek, Karel Horáček, Aditya Aradhye, Branislav Božanský, Krishnendu Chatterjee
HIGHLIGHT: We base our formalism on POSGs with one-sided observability (OS-POSGs) and give the following contributions: (1) we introduce a novel heuristic search value iteration algorithm that iteratively solves depth-limited variants of the game, (2) we derive the bound on the depth guaranteeing an arbitrary precision, (3) we propose a novel upper-bound estimation that allows early terminations, and (4) we experimentally evaluate the algorithm on a pursuit-evasion game.
- 576, TITLE: The Fewer the Merrier: Pruning Preferred Operators with Novelty
<https://www.ijcai.org/proceedings/2021/576>
AUTHORS: Alexander Tuisov, Michael Katz

HIGHLIGHT: Our work aims at bringing the light back to preferred operators research, with the introduction of preferred operators pruning technique, based on the concept of novelty.

577, **TITLE:** TANGO: Commonsense Generalization in Predicting Tool Interactions for Mobile Manipulators
<https://www.ijcai.org/proceedings/2021/577>
AUTHORS: Shreshth Tuli, Rajas Bansal, Rohan Paul, Mausam
HIGHLIGHT: We introduce TANGO, a novel neural model for predicting task-specific tool interactions.

578, **TITLE:** The Traveling Tournament Problem with Maximum Tour Length Two: A Practical Algorithm with An Improved Approximation Bound
<https://www.ijcai.org/proceedings/2021/578>
AUTHORS: Jingyang Zhao, Mingyu Xiao
HIGHLIGHT: In this paper, we study TTP-2, the traveling tournament problem where at most two consecutive home games or away games are allowed, and give an effective algorithm for $n/2$ being odd.

579, **TITLE:** Non-Parametric Stochastic Sequential Assignment With Random Arrival Times
<https://www.ijcai.org/proceedings/2021/579>
AUTHORS: Danial Dervovic, Parisa Hassanzadeh, Samuel Assefa, Prashant Reddy
HIGHLIGHT: We propose an algorithm, Non-Parametric Sequential Allocation (NPSA), for solving this problem.

580, **TITLE:** On the Parameterized Complexity of Polytree Learning
<https://www.ijcai.org/proceedings/2021/580>
AUTHORS: Niels Grötmeyer, Christian Komusiewicz, Nils Morawietz
HIGHLIGHT: In this work, we revisit the complexity of Polytree Learning.

581, **TITLE:** Handling Overlaps When Lifting Gaussian Bayesian Networks
<https://www.ijcai.org/proceedings/2021/581>
AUTHORS: Mattis Hartwig, Tanya Braun, Ralf Müller
HIGHLIGHT: This paper improves on an existing lifted representation of the joint distribution represented by a Gaussian Bayesian network (lifted joint), allowing overlaps between the logical variables.

582, **TITLE:** Deep Bucket Elimination
<https://www.ijcai.org/proceedings/2021/582>
AUTHORS: Yasaman Razeghi, Kalev Kask, Yadong Lu, Pierre Baldi, Sakshi Agarwal, Rina Dechter
HIGHLIGHT: In the spirit of exploiting Deep Learning for inference tasks, in this paper, we will use neural networks to approximate BE.

583, **TITLE:** BKT-POMDP: Fast Action Selection for User Skill Modelling over Tasks with Multiple Skills
<https://www.ijcai.org/proceedings/2021/583>
AUTHORS: Nicole Salomons, Emir Akdere, Brian Scassellati
HIGHLIGHT: In this paper, we present a system that estimates user skill models for multiple skills by selecting tasks which maximize the information gain across the entire skill model.

584, **TITLE:** Improved Acyclicity Reasoning for Bayesian Network Structure Learning with Constraint Programming
<https://www.ijcai.org/proceedings/2021/584>
AUTHORS: Fulya Trötschel, Simon de Givry, George Katsirelos
HIGHLIGHT: In this work, we propose a new polynomial time algorithm for discovering a subset of all possible cluster cuts, a greedy algorithm for approximately solving the resulting linear program, and a generalized arc consistency algorithm for the acyclicity constraint.

585, **TITLE:** Provable Guarantees on the Robustness of Decision Rules to Causal Interventions
<https://www.ijcai.org/proceedings/2021/585>
AUTHORS: Benjie Wang, Clare Lyle, Marta Kwiatkowska
HIGHLIGHT: We consider causal Bayesian networks and formally define the interventional robustness problem, a novel model-based notion of robustness for decision functions that measures worst-case performance with respect to a set of interventions that denote changes to parameters and/or causal influences.

586, **TITLE:** Fast Algorithms for Relational Marginal Polytopes
<https://www.ijcai.org/proceedings/2021/586>
AUTHORS: Yuanhong Wang, Timothy van Bremen, Juhua Pu, Yuyi Wang, Ondrej Kuzelka

HIGHLIGHT: In this paper, we propose an algorithm to construct RMPs using fewer oracle calls.

587, TITLE: Partition Function Estimation: A Quantitative Study

<https://www.ijcai.org/proceedings/2021/587>

AUTHORS: Durgesh Agrawal, Yash Pote, Kuldeep S. Meel

HIGHLIGHT: This paper seeks to present a survey of 18 techniques and a rigorous empirical study of their behavior across an extensive set of benchmarks.

588, TITLE: A Survey of Machine Learning-Based Physics Event Generation

<https://www.ijcai.org/proceedings/2021/588>

AUTHORS: Yasir Alanazi, Nobuo Sato, Pawel Ambrozewicz, Astrid Hiller-Blin, Wally Melnitchouk, Marco Battaglieri, Tianbo Liu, Yaohang Li

HIGHLIGHT: We review ML generative models used in ML-based event generators and their specific challenges, and discuss various approaches of incorporating physics into the ML model designs to overcome these challenges.

589, TITLE: Distortion in Social Choice Problems: The First 15 Years and Beyond

<https://www.ijcai.org/proceedings/2021/589>

AUTHORS: Elliot Anshelevich, Aris Filos-Ratsikas, Nisarg Shah, Alexandros A. Voudouris

HIGHLIGHT: We survey the most significant results of the literature on distortion from the past 15 years, and highlight important open problems and the most promising avenues of ongoing and future work.

590, TITLE: Building Affordance Relations for Robotic Agents - A Review

<https://www.ijcai.org/proceedings/2021/590>

AUTHORS: Paola Ardègnì, Eric Pairet, Katrin S. Lohan, Subramanian Ramamoorthy, Ron P. A. Petrick

HIGHLIGHT: In this survey, we review and find common ground amongst different strategies that use the concept of affordances within robotic tasks, and build on these methods to provide guidance for including affordances as a mechanism to improve autonomy.

591, TITLE: Recent Advances in Adversarial Training for Adversarial Robustness

<https://www.ijcai.org/proceedings/2021/591>

AUTHORS: Tao Bai, Jinqi Luo, Jun Zhao, Bihan Wen, Qian Wang

HIGHLIGHT: For the first time in this survey, we systematically review the recent progress on adversarial training for adversarial robustness with a novel taxonomy.

592, TITLE: Hardware-Aware Neural Architecture Search: Survey and Taxonomy

<https://www.ijcai.org/proceedings/2021/592>

AUTHORS: Hadjer Benmeziane, Kaoutar El Maghraoui, Hamza Ouarnoughi, Smail Niar, Martin Wistuba, Naigang Wang

HIGHLIGHT: In this survey on hardware-aware neural architecture search (HW-NAS), we present some of the existing answers proposed in the literature for the following questions: "Is it possible to build an efficient DL model that meets the latency and energy constraints of tiny edge devices?"

593, TITLE: Recent Trends in Word Sense Disambiguation: A Survey

<https://www.ijcai.org/proceedings/2021/593>

AUTHORS: Michele Bevilacqua, Tommaso Pasini, Alessandro Raganato, Roberto Navigli

HIGHLIGHT: In this survey, we provide an extensive overview of current advances in WSD, describing the state of the art in terms of i) resources for the task, i.e., sense inventories and reference datasets for training and testing, as well as ii) automatic disambiguation approaches, detailing their peculiarities, strengths and weaknesses.

594, TITLE: When Computational Representation Meets Neuroscience: A Survey on Brain Encoding and Decoding

<https://www.ijcai.org/proceedings/2021/594>

AUTHORS: Lu Cao, Dandan Huang, Yue Zhang

HIGHLIGHT: This article first briefly introduces the interdisciplinary research progress, then systematically discusses the task of brain decoding from the perspective of simple concepts and complete sentences, and also describes main limitations in this field and put forward with possible solutions.

595, TITLE: Combinatorial Optimization and Reasoning with Graph Neural Networks

<https://www.ijcai.org/proceedings/2021/595>

AUTHORS: Quentin Cappart, Didier Chételat, Elias B. Khalil, Andrea Lodi, Christopher Morris, Petar Veli'kovi'

HIGHLIGHT: This paper presents a conceptual review of recent key advancements in this emerging field, aiming at researchers in both optimization and machine learning.

- 596, TITLE: Mechanism Design for Facility Location Problems: A Survey
<https://www.ijcai.org/proceedings/2021/596>
AUTHORS: Hau Chan, Aris Filos-Ratsikas, Bo Li, Minming Li, Chenhao Wang
HIGHLIGHT: This paper presents a comprehensive survey of the significant progress that has been made since the introduction of the problem, highlighting all the different variants and methodologies, as well as the most interesting directions for future research.
- 597, TITLE: Knowledge-aware Zero-Shot Learning: Survey and Perspective
<https://www.ijcai.org/proceedings/2021/597>
AUTHORS: Jiaoyan Chen, Yuxia Geng, Zhuo Chen, Ian Horrocks, Jeff Z. Pan, Huajun Chen
HIGHLIGHT: In this paper we present a literature review towards ZSL in the perspective of external knowledge, where we categorize the external knowledge, review their methods and compare different external knowledge.
- 598, TITLE: Causal Learning for Socially Responsible AI
<https://www.ijcai.org/proceedings/2021/598>
AUTHORS: Lu Cheng, Ahmadreza Mosallanezhad, Paras Sheth, Huan Liu
HIGHLIGHT: The goal of this survey is to bring forefront the potentials and promises of CL for SRAI.
- 599, TITLE: Understanding the Relationship between Interactions and Outcomes in Human-in-the-Loop Machine Learning
<https://www.ijcai.org/proceedings/2021/599>
AUTHORS: Yuchen Cui, Pallavi Koppol, Henny Admoni, Scott Niekum, Reid Simmons, Aaron Steinfeld, Tesca Fitzgerald
HIGHLIGHT: In this survey, we propose an organizing principle for HIL-ML that provides a way to analyze the effects of interaction types on human performance and training data.
- 600, TITLE: Argumentative XAI: A Survey
<https://www.ijcai.org/proceedings/2021/600>
AUTHORS: Kristijonas ?yras, Antonio Rago, Emanuele Albini, Pietro Baroni, Francesca Toni
HIGHLIGHT: In this survey we overview XAI approaches built using methods from the field of computational argumentation, leveraging its wide array of reasoning abstractions and explanation delivery methods.
- 601, TITLE: Explanation in Constraint Satisfaction: A Survey
<https://www.ijcai.org/proceedings/2021/601>
AUTHORS: Sharmi Dev Gupta, Begum Genc, Barry O'Sullivan
HIGHLIGHT: In this paper we survey the major seminal papers on the explanation and constraints, as well as some more recent works.
- 602, TITLE: Bayesian Nonparametric Space Partitions: A Survey
<https://www.ijcai.org/proceedings/2021/602>
AUTHORS: Xuhui Fan, Bin Li, Ling Luo, Scott A. Sisson
HIGHLIGHT: This survey provides the first comprehensive review of this subject.
- 603, TITLE: Where Is Your Place, Visual Place Recognition?
<https://www.ijcai.org/proceedings/2021/603>
AUTHORS: Sourav Garg, Tobias Fischer, Michael Milford
HIGHLIGHT: In this paper, we observe that there are three "drivers" that impose requirements on spatially intelligent agents and thus VPR systems: 1) the particular agent including its sensors and computational resources, 2) the operating environment of this agent, and 3) the specific task that the artificial agent carries out.
- 604, TITLE: A Comprehensive Survey on Image Dehazing Based on Deep Learning
<https://www.ijcai.org/proceedings/2021/604>
AUTHORS: Jie Gui, Xiaofeng Cong, Yuan Cao, Wenqi Ren, Jun Zhang, Jing Zhang, Dacheng Tao
HIGHLIGHT: In this paper, we conduct a comprehensive survey on the recent proposed dehazing methods.
- 605, TITLE: Emerging Methods of Auction Design in Social Networks
<https://www.ijcai.org/proceedings/2021/605>
AUTHORS: Yuhang Guo, Dong Hao
HIGHLIGHT: This survey summarizes the current progress of diffusion auctions.
- 606, TITLE: Recent Advances in Heterogeneous Relation Learning for Recommendation

<https://www.ijcai.org/proceedings/2021/606>

AUTHORS: Chao Huang

HIGHLIGHT: In this survey, we review the development of recommendation frameworks with the focus on heterogeneous relational learning, which consists of different types of dependencies among users and items.

607, TITLE: Optimal Transport for Deep Generative Models: State of the Art and Research Challenges

<https://www.ijcai.org/proceedings/2021/607>

AUTHORS: Viet Huynh, Dinh Phung, He Zhao

HIGHLIGHT: In this paper, we provide a comprehensive overview of the literature in the field of deep generative models using optimal transport theory with an aim of providing a systematic review as well as outstanding problems and more importantly, open research opportunities to use the tools from the established optimal transport theory in the deep generative model domain.

608, TITLE: Reasoning-Based Learning of Interpretable ML Models

<https://www.ijcai.org/proceedings/2021/608>

AUTHORS: Alexey Ignatiev, Joao Marques-Silva, Nina Narodytska, Peter J. Stuckey

HIGHLIGHT: This paper overviews the recent advances of the reasoning and constraints based approaches to learning interpretable ML models and discusses their advantages and limitations.

609, TITLE: If Only We Had Better Counterfactual Explanations: Five Key Deficits to Rectify in the Evaluation of Counterfactual XAI Techniques

<https://www.ijcai.org/proceedings/2021/609>

AUTHORS: Mark T. Keane, Eoin M. Kenny, Eoin Delaney, Barry Smyth

HIGHLIGHT: We survey 100 distinct counterfactual explanation methods reported in the literature.

610, TITLE: End-to-End Constrained Optimization Learning: A Survey

<https://www.ijcai.org/proceedings/2021/610>

AUTHORS: James Kotary, Ferdinando Fioretto, Pascal Van Hentenryck, Bryan Wilder

HIGHLIGHT: This paper presents a conceptual review of the recent advancements in this emerging area.

611, TITLE: A Survey on Complex Knowledge Base Question Answering: Methods, Challenges and Solutions

<https://www.ijcai.org/proceedings/2021/611>

AUTHORS: Yunshi Lan, Gaole He, Jinhao Jiang, Jing Jiang, Wayne Xin Zhao, Ji-Rong Wen

HIGHLIGHT: In this paper, we elaborately summarize the typical challenges and solutions for complex KBQA.

612, TITLE: Pretrained Language Model for Text Generation: A Survey

<https://www.ijcai.org/proceedings/2021/612>

AUTHORS: Junyi Li, Tianyi Tang, Wayne Xin Zhao, Ji-Rong Wen

HIGHLIGHT: In this paper, we present an overview of the major advances achieved in the topic of PLMs for text generation.

613, TITLE: Person Search Challenges and Solutions: A Survey

<https://www.ijcai.org/proceedings/2021/613>

AUTHORS: Xiangtan Lin, Pengzhen Ren, Yun Xiao, Xiaojun Chang, Alex Hauptmann

HIGHLIGHT: This paper surveyed the recent works on image-based and text-based person search from the perspective of challenges and solutions.

614, TITLE: Policy Learning with Constraints in Model-free Reinforcement Learning: A Survey

<https://www.ijcai.org/proceedings/2021/614>

AUTHORS: Yongshuai Liu, Avishai Halev, Xin Liu

HIGHLIGHT: In this article, we overview existing approaches addressing constraints in model-free reinforcement learning. To evaluate policy performance under constraints, we introduce a set of standard benchmarks and metrics.

615, TITLE: What's the Context? Implicit and Explicit Assumptions in Model-Based Goal Recognition

<https://www.ijcai.org/proceedings/2021/615>

AUTHORS: Peta Masters, Mor Vered

HIGHLIGHT: In this paper, we examine not only these but the many other assumptions made in the context of model-based goal recognition.

616, TITLE: A Survey on Goal Recognition as Planning

<https://www.ijcai.org/proceedings/2021/616>

AUTHORS: Felipe Meneguzzi, Ramon Fraga Pereira

HIGHLIGHT: In this survey, we focus on the advances to goal recognition achieved in the last decade, categorizing the resulting techniques and identifying a number of opportunities for further breakthrough research.

617, **TITLE:** Hybrid Probabilistic Inference with Logical and Algebraic Constraints: a Survey
<https://www.ijcai.org/proceedings/2021/617>
AUTHORS: Paolo Morettin, Pedro Zuidberg Dos Martires, Samuel Kolb, Andrea Passerini
HIGHLIGHT: In this paper we provide a survey of existing techniques for hybrid probabilistic inference with logic and algebraic constraints.

618, **TITLE:** The Power of the Weisfeiler-Leman Algorithm for Machine Learning with Graphs
<https://www.ijcai.org/proceedings/2021/618>
AUTHORS: Christopher Morris, Matthias Fey, Nils Kriege
HIGHLIGHT: Here, we give a comprehensive overview of the algorithm's use in a machine learning setting.

619, **TITLE:** Automated Fact-Checking for Assisting Human Fact-Checkers
<https://www.ijcai.org/proceedings/2021/619>
AUTHORS: Preslav Nakov, David Corney, Maram Hasanain, Firoj Alam, Tamer Elsayed, Alberto Barracane, Cedeo, Paolo Papotti, Shaden Shaar, Giovanni Da San Martino
HIGHLIGHT: Here, we survey the available intelligent technologies that can support the human expert in the different steps of her fact-checking endeavor.

620, **TITLE:** Ten Years of BabelNet: A Survey
<https://www.ijcai.org/proceedings/2021/620>
AUTHORS: Roberto Navigli, Michele Bevilacqua, Simone Conia, Dario Montagnini, Francesco Cecconi
HIGHLIGHT: In this paper we survey BabelNet, a popular wide-coverage lexical-semantic knowledge resource obtained by merging heterogeneous sources into a unified semantic network that helps to scale tasks and applications to hundreds of languages.

621, **TITLE:** Analogical Proportions: Why They Are Useful in AI
<https://www.ijcai.org/proceedings/2021/621>
AUTHORS: Henri Prade, Gilles Richard
HIGHLIGHT: This paper presents a survey of researches in analogical reasoning whose building block are analogical proportions which are statements of the form "a is to b as c is to d".

622, **TITLE:** A Survey on Spoken Language Understanding: Recent Advances and New Frontiers
<https://www.ijcai.org/proceedings/2021/622>
AUTHORS: Libo Qin, Tianbao Xie, Wanxiang Che, Ting Liu
HIGHLIGHT: In this paper, we survey recent advances and new frontiers in SLU.

623, **TITLE:** Neural Temporal Point Processes: A Review
<https://www.ijcai.org/proceedings/2021/623>
AUTHORS: Oleksandr Shchur, Ali Caner Trkmen, Tim Januschowski, Stephan Glemnemann
HIGHLIGHT: In this review paper we aim to consolidate the existing body of knowledge on neural TPPs.

624, **TITLE:** Qualitative Spatial and Temporal Reasoning: Current Status and Future Challenges
<https://www.ijcai.org/proceedings/2021/624>
AUTHORS: Michael Sioutis, Diedrich Wolter
HIGHLIGHT: We survey the current status of QSTR from a viewpoint of reasoning approaches, and identify certain future challenges that we think that, once overcome, will allow the field to meet the demands of and adapt to real-world, dynamic, and time-critical applications of highly active areas such as machine learning and data mining.

625, **TITLE:** A Unifying Bayesian Formulation of Measures of Interpretability in Human-AI Interaction
<https://www.ijcai.org/proceedings/2021/625>
AUTHORS: Sarath Sreedharan, Anagha Kulkarni, David Smith, Subbarao Kambhampati
HIGHLIGHT: In this paper, we present a unifying Bayesian framework that models a human observer's evolving beliefs about an agent and thereby define the problem of Generalized Human-Aware Planning.

626, **TITLE:** Tournaments in Computational Social Choice: Recent Developments
<https://www.ijcai.org/proceedings/2021/626>
AUTHORS: Warut Suksompong

HIGHLIGHT: This survey discusses recent developments in two major lines of work—tournament solutions and single-elimination tournaments—with a focus on how computational social choice has brought new frameworks and perspectives into these decades-old studies.

627, **TITLE:** A Survey on Response Selection for Retrieval-based Dialogues
<https://www.ijcai.org/proceedings/2021/627>
AUTHORS: Chongyang Tao, Jiazhan Feng, Rui Yan, Wei Wu, Daxin Jiang
HIGHLIGHT: This paper presents a comprehensive survey of recent advances in response selection for retrieval-based dialogues.

628, **TITLE:** Generalizing to Unseen Domains: A Survey on Domain Generalization
<https://www.ijcai.org/proceedings/2021/628>
AUTHORS: Jindong Wang, Cuiling Lan, Chang Liu, Yidong Ouyang, Tao Qin
HIGHLIGHT: This paper presents the first review for recent advances in domain generalization. Third, we introduce the commonly used datasets and applications.

629, **TITLE:** A Survey on Low-Resource Neural Machine Translation
<https://www.ijcai.org/proceedings/2021/629>
AUTHORS: Rui Wang, Xu Tan, Renqian Luo, Tao Qin, Tie-Yan Liu
HIGHLIGHT: In this paper, we provide a survey for low-resource NMT and classify related works into three categories according to the auxiliary data they used: (1) exploiting monolingual data of source and/or target languages, (2) exploiting data from auxiliary languages, and (3) exploiting multi-modal data.

630, **TITLE:** Graph Learning based Recommender Systems: A Review
<https://www.ijcai.org/proceedings/2021/630>
AUTHORS: Shoujin Wang, Liang Hu, Yan Wang, Xiangnan He, Quan Z. Sheng, Mehmet A. Orgun, Longbing Cao, Francesco Ricci, Philip S. Yu
HIGHLIGHT: In this paper, we provide a systematic review of GLRS, by discussing how they extract knowledge from graphs to improve the accuracy, reliability and explainability of the recommendations.

631, **TITLE:** Time Series Data Augmentation for Deep Learning: A Survey
<https://www.ijcai.org/proceedings/2021/631>
AUTHORS: Qingsong Wen, Liang Sun, Fan Yang, Xiaomin Song, Jingkun Gao, Xue Wang, Huan Xu
HIGHLIGHT: In this paper, we systematically review different data augmentation methods for time series.

632, **TITLE:** Challenges and Opportunities of Building Fast GBDT Systems
<https://www.ijcai.org/proceedings/2021/632>
AUTHORS: Zeyi Wen, Qinbin Li, Bingsheng He, Bin Cui
HIGHLIGHT: In this survey paper, we review the recent GBDT systems with respect to accelerations with emerging hardware as well as cluster computing, and compare the advantages and disadvantages of the existing implementations.

633, **TITLE:** Information-Theoretic Methods in Deep Neural Networks: Recent Advances and Emerging Opportunities
<https://www.ijcai.org/proceedings/2021/633>
AUTHORS: Shujian Yu, Luis Sanchez Giraldo, Jose Principe
HIGHLIGHT: We present a review on the recent advances and emerging opportunities around the theme of analyzing deep neural networks (DNNs) with information-theoretic methods.

634, **TITLE:** A Comparative Survey: Benchmarking for Pool-based Active Learning
<https://www.ijcai.org/proceedings/2021/634>
AUTHORS: Xueying Zhan, Huan Liu, Qing Li, Antoni B. Chan
HIGHLIGHT: In this paper, we survey and compare various AL strategies used in both recently proposed and classic highly-cited methods.

635, **TITLE:** A Survey on Universal Adversarial Attack
<https://www.ijcai.org/proceedings/2021/635>
AUTHORS: Chaoning Zhang, Philipp Benz, Chenguo Lin, Adil Karjauv, Jing Wu, In So Kweon
HIGHLIGHT: With the focus on UAP against deep classifiers, this survey summarizes the recent progress on universal adversarial attacks, discussing the challenges from both the attack and defense sides, as well as the reason for the existence of UAP.

636, **TITLE:** Deep Learning for Click-Through Rate Estimation

<https://www.ijcai.org/proceedings/2021/636>

AUTHORS: Weinan Zhang, Jiarui Qin, Wei Guo, Ruiming Tang, Xiuqiang He

HIGHLIGHT: In this survey, we provide a comprehensive review of deep learning models for CTR estimation tasks.

637, TITLE: Automated Machine Learning on Graphs: A Survey

<https://www.ijcai.org/proceedings/2021/637>

AUTHORS: Ziwei Zhang, Xin Wang, Wenwu Zhu

HIGHLIGHT: Therefore, we comprehensively survey AutoML on graphs in this paper, primarily focusing on hyper-parameter optimization (HPO) and neural architecture search (NAS) for graph machine learning.

638, TITLE: Topic Modelling Meets Deep Neural Networks: A Survey

<https://www.ijcai.org/proceedings/2021/638>

AUTHORS: He Zhao, Dinh Phung, Viet Huynh, Yuan Jin, Lan Du, Wray Buntine

HIGHLIGHT: In this paper, we provide a focused yet comprehensive overview of neural topic models for interested researchers in the AI community, so as to facilitate them to navigate and innovate in this fast-growing research area.

639, TITLE: Cross-Domain Recommendation: Challenges, Progress, and Prospects

<https://www.ijcai.org/proceedings/2021/639>

AUTHORS: Feng Zhu, Yan Wang, Chaochao Chen, Jun Zhou, Longfei Li, Guanfeng Liu

HIGHLIGHT: To fill this gap, in this paper, we provide a comprehensive review of existing CDR approaches, including challenges, research progress, and prospects. We then present the definitions and challenges of these CDR approaches.

640, TITLE: Hierarchical Graph Traversal for Aggregate k Nearest Neighbors Search in Road Networks (Extended Abstract)

<https://www.ijcai.org/proceedings/2021/640>

AUTHORS: Tenindra Abeywickrama, Muhammad Aamir Cheema, Sabine Storandt

HIGHLIGHT: In this paper, we study a natural extension of the kNN query for multiple agents, namely, the Aggregate k Nearest Neighbors (AkNN) query.

641, TITLE: Defining the Semantics of Abstract Argumentation Frameworks through Logic Programs and Partial Stable Models (Extended Abstract)

<https://www.ijcai.org/proceedings/2021/641>

AUTHORS: Gianvincenzo Alfano, Sergio Greco, Francesco Parisi, Irina Trubitsyna

HIGHLIGHT: We show that a $\text{Rec-BAF } \Delta$ can be translated into a logic program P_Δ so that the extensions of Δ under different semantics coincide with subsets of the partial stable models of P_Δ .

642, TITLE: Comparing Weak Admissibility Semantics to their Dung-style Counterparts (Extended Abstract)

<https://www.ijcai.org/proceedings/2021/642>

AUTHORS: Ringo Baumann, Gerhard Brewka, Markus Ulbricht

HIGHLIGHT: In this paper we show that standard Dung semantics can be naturally reformulated using the reduct revealing that this concept is already implicit.

643, TITLE: Abstract Cores in Implicit Hitting Set MaxSat Solving (Extended Abstract)

<https://www.ijcai.org/proceedings/2021/643>

AUTHORS: Jeremias Berg, Fahiem Bacchus, Alex Poole

HIGHLIGHT: Motivated by the simplest of these problematic instances, we propose abstract cores, a compact representation for a potentially exponential number of regular cores.

644, TITLE: Robust Domain Adaptation: Representations, Weights and Inductive Bias (Extended Abstract)

<https://www.ijcai.org/proceedings/2021/644>

AUTHORS: Victor Bouvier, Philippe Very, Clément Chastagnol, Myriam Tami, Céline Hudelot

HIGHLIGHT: To this purpose, we present a bound of the target risk which incorporates both weights and invariant representations.

645, TITLE: Decentralized No-regret Learning Algorithms for Extensive-form Correlated Equilibria (Extended Abstract)

<https://www.ijcai.org/proceedings/2021/645>

AUTHORS: Andrea Celli, Alberto Marchesi, Gabriele Farina, Nicola Gatti

HIGHLIGHT: In this article, we settle that question by giving the first uncoupled no-regret dynamics which provably converge to the set of EFCEs in n-player general-sum extensive-form games with perfect recall.

- 646, TITLE: Weaving a Semantic Web of Credibility Reviews for Explainable Misinformation Detection (Extended Abstract)
Abstract)
<https://www.ijcai.org/proceedings/2021/646>
AUTHORS: Ronald Denaux, Martino Mensio, Jose Manuel Gomez-Perez, Harith Alani
HIGHLIGHT: We proposed a conceptual and computational model to describe a wide range of misinformation detection systems based around the concepts of credibility and reviews.
- 647, TITLE: Improved Guarantees and a Multiple-descent Curve for Column Subset Selection and the Nystrom Method (Extended Abstract)
(Extended Abstract)
<https://www.ijcai.org/proceedings/2021/647>
AUTHORS: Micha? Derezi?ski, Rajiv Khanna, Michael W. Mahoney
HIGHLIGHT: We develop techniques which exploit spectral properties of the data matrix to obtain improved approximation guarantees which go beyond the standard worst-case analysis.
- 648, TITLE: Mental Models of AI Agents in a Cooperative Game Setting (Extended Abstract)
(Extended Abstract)
<https://www.ijcai.org/proceedings/2021/648>
AUTHORS: Katy Ilonka Gero, Zahra Ashktorab, Casey Dugan, Qian Pan, James Johnson, Werner Geyer, Maria Ruiz, Sarah Miller, David R. Millen, Murray Campbell, Sadhana Kumaravel, Wei Zhang
HIGHLIGHT: In this work we study people's mental models of an AI agent in a cooperative word guessing game.
- 649, TITLE: Successor-Invariant First-Order Logic on Classes of Bounded Degree (Extended Abstract)
(Extended Abstract)
<https://www.ijcai.org/proceedings/2021/649>
AUTHORS: Julien Grange
HIGHLIGHT: We study the expressive power of successor-invariant first-order logic, which is an extension of first-order logic where the usage of a successor relation on the vertices of the graph is allowed, as long as the validity of formulas is independent on the choice of a particular successor.
- 650, TITLE: Deep Drone Acrobatics (Extended Abstract)
(Extended Abstract)
<https://www.ijcai.org/proceedings/2021/650>
AUTHORS: Elia Kaufmann, Antonio Loquercio, Rene Ranftl, Matthias Müller, Vladlen Koltun, Davide Scaramuzza
HIGHLIGHT: This short paper describes an approach to safely train acrobatic controllers in simulation and deploy them with no fine-tuning zero-shot transfer on physical quadrotors.
- 651, TITLE: On Sampled Metrics for Item Recommendation (Extended Abstract)
(Extended Abstract)
<https://www.ijcai.org/proceedings/2021/651>
AUTHORS: Walid Krichene, Steffen Rendle
HIGHLIGHT: This paper investigates such sampled metrics and shows that they are inconsistent with their exact counterpart, in the sense that they do not persist relative statements, e.g., recommender A is better than B, not even in expectation.
- 652, TITLE: Revisiting Wedge Sampling for Budgeted Maximum Inner Product Search (Extended Abstract)
(Extended Abstract)
<https://www.ijcai.org/proceedings/2021/652>
AUTHORS: Stephan S. Lorenzen, Ninh Pham
HIGHLIGHT: We study recent advanced sampling methods, including wedge and diamond sampling, to solve budgeted top-k MIPS.
- 653, TITLE: On Learning Sets of Symmetric Elements (Extended Abstract)
(Extended Abstract)
<https://www.ijcai.org/proceedings/2021/653>
AUTHORS: Haggai Maron, Or Litany, Gal Chechik, Ethan Fetaya
HIGHLIGHT: In this paper, we present a principled approach to learning sets of general symmetric elements.
- 654, TITLE: The Moodoo Library: Quantitative Metrics to Model How Teachers Make Use of the Classroom Space by Analysing Indoor Positioning Traces (Extended Abstract)
(Extended Abstract)
<https://www.ijcai.org/proceedings/2021/654>
AUTHORS: Roberto Martinez-Maldonado, Vanessa Echeverria, Katerina Mangaroska, Antonette Shibani, Gloria Fernandez-Nieto, Jurgen Schulte, Simon Buckingham Shum
HIGHLIGHT: This paper presents a library called 'Moodoo' that can serve to automatically model how teachers make use of the classroom space by analysing indoor positioning traces.
- 655, TITLE: Controlling Fairness and Bias in Dynamic Learning-to-Rank (Extended Abstract)
(Extended Abstract)
<https://www.ijcai.org/proceedings/2021/655>
AUTHORS: Marco Morik, Ashudeep Singh, Jessica Hong, Thorsten Joachims

HIGHLIGHT: We, therefore, present a learning-to-rank approach for explicitly enforcing merit-based fairness guarantees to groups of items (e.g. articles by the same publisher, tracks by the same artist).

656, **TITLE:** Unifying Online and Counterfactual Learning to Rank: A Novel Counterfactual Estimator that Effectively Utilizes Online Interventions (Extended Abstract)

<https://www.ijcai.org/proceedings/2021/656>

AUTHORS: Harrie Oosterhuis, Maarten de Rijke

HIGHLIGHT: We propose a novel intervention-aware estimator to bridge this online/counterfactual division.

657, **TITLE:** Finding the Hardest Formulas for Resolution (Extended Abstract)

<https://www.ijcai.org/proceedings/2021/657>

AUTHORS: Tom Peitl, Stefan Szeider

HIGHLIGHT: We introduce resolution hardness numbers; they give for $m=1,2,\dots$ the length of a shortest proof of a hardest formula on m clauses.

658, **TITLE:** Exploring the Effects of Goal Setting When Training for Complex Crowdsourcing Tasks (Extended Abstract)

<https://www.ijcai.org/proceedings/2021/658>

AUTHORS: Amy Rechkemmer, Ming Yin

HIGHLIGHT: Based on goal setting theory in psychology, we conduct a randomized experiment to study whether and how setting different goals—including performance goal, learning goal, and behavioral goal—when training workers for a complex crowdsourcing task affects workers' learning perception, learning gain, and post-training performance.

659, **TITLE:** Beyond Accuracy: Behavioral Testing of NLP Models with Checklist (Extended Abstract)

<https://www.ijcai.org/proceedings/2021/659>

AUTHORS: Marco Tulio Ribeiro, Tongshuang Wu, Carlos Guestrin, Sameer Singh

HIGHLIGHT: Inspired by principles of behavioral testing in software engineering, we introduce CheckList, a task-agnostic methodology for testing NLP models.

660, **TITLE:** Politeness for the Theory of Algebraic Datatypes (Extended Abstract)

<https://www.ijcai.org/proceedings/2021/660>

AUTHORS: Ying Sheng, Yoni Zohar, Christophe Ringeissen, Jane Lange, Pascal Fontaine, Clark Barrett

HIGHLIGHT: In this paper, we study this particular theory of datatypes and prove that it is strongly polite, showing also how it can be combined with other arbitrary disjoint theories using polite combination.

661, **TITLE:** Imprecise Oracles Impose Limits to Predictability in Supervised Learning (Extended Abstract)

<https://www.ijcai.org/proceedings/2021/661>

AUTHORS: Anjali Sifar, Nisheeth Srivastava

HIGHLIGHT: We present a method for quantifying labeling noise in a particular domain wherein people are seen to disagree with their own past selves on the appropriate label to assign to a record: choices under prospect uncertainty.

662, **TITLE:** RAFT: Recurrent All-Pairs Field Transforms for Optical Flow (Extended Abstract)

<https://www.ijcai.org/proceedings/2021/662>

AUTHORS: Zachary Teed, Jia Deng

HIGHLIGHT: We introduce Recurrent All-Pairs Field Transforms (RAFT), a new deep network architecture for optical flow.

663, **TITLE:** Open Intent Extraction from Natural Language Interactions (Extended Abstract)

<https://www.ijcai.org/proceedings/2021/663>

AUTHORS: Nikhita Vedula, Nedim Lipka, Pranav Maneriker, Srinivasan Parthasarathy

HIGHLIGHT: We propose a novel, domain-agnostic approach, OPINE, which formulates the problem as a sequence tagging task in an open-world setting.

664, **TITLE:** Speech Recognition Using RFID Tattoos (Extended Abstract)

<https://www.ijcai.org/proceedings/2021/664>

AUTHORS: Jingxian Wang, Chengfeng Pan, Haojian Jin, Vaibhav Singh, Yash Jain, Jason I. Hong, Carmel Majidi, Swarun Kumar

HIGHLIGHT: This paper presents a radio-frequency (RF) based assistive technology for voice impairments (i.e., dysphonia), which occurs in an estimated 1% of the global population.

665, **TITLE:** Unsupervised Learning of Probably Symmetric Deformable 3D Objects from Images in the Wild (Extended Abstract)

<https://www.ijcai.org/proceedings/2021/665>

AUTHORS: Shangzhe Wu, Christian Rupprecht, Andrea Vedaldi
HIGHLIGHT: We propose a method to learn 3D deformable object categories from raw single-view images, without external supervision.

666, TITLE: TAXOGAN: Hierarchical Network Representation Learning via Taxonomy Guided Generative Adversarial Networks (Extended Abstract)

<https://www.ijcai.org/proceedings/2021/666>

AUTHORS: Carl Yang, Jieyu Zhang, Jiawei Han
HIGHLIGHT: In this work, we aim to improve network embedding by modeling the conditional node proximity in networks indicated by node labels residing in real taxonomies.

667, TITLE: Semantic Linking Maps for Active Visual Object Search (Extended Abstract)

<https://www.ijcai.org/proceedings/2021/667>

AUTHORS: Zhen Zeng, Adrian Röfer, Odest Chadwicke Jenkins
HIGHLIGHT: In this paper, we propose an active visual object search strategy method through our introduction of the Semantic Linking Maps (SLiM) model.

668, TITLE: Deep Residual Reinforcement Learning (Extended Abstract)

<https://www.ijcai.org/proceedings/2021/668>

AUTHORS: Shangtong Zhang, Wendelin Boehmer, Shimon Whiteson
HIGHLIGHT: We propose the bidirectional target network technique to stabilize residual algorithms, yielding a residual version of DDPG that significantly outperforms vanilla DDPG in commonly used benchmarks.

669, TITLE: Greybox Algorithm Configuration

<https://www.ijcai.org/proceedings/2021/669>

AUTHORS: Marie Anastacio
HIGHLIGHT: We believe that there is untapped knowledge that can be gathered from the elements of the configuration problem, such as the default value in the configuration space, the source code of the algorithm, and the distribution of the problem instances at hand. We aim at utilising this knowledge to improve algorithm configurators.

670, TITLE: Bottleneck Identification to Semantic Segmentation of Industrial 3D Point Cloud Scene via Deep Learning

<https://www.ijcai.org/proceedings/2021/670>

AUTHORS: Romain Cazorla, Line Poinel, Panagiotis Papadakis, Cédric Buche
HIGHLIGHT: Towards this goal, we investigate the use of deep learning to semantically segment oil and gas industrial scenes.

671, TITLE: Multi-agent Approach to Resource Allocation in Autonomous Vehicle Fleets

<https://www.ijcai.org/proceedings/2021/671>

AUTHORS: Alaa Daoud
HIGHLIGHT: We propose to model the different aspects of decision and optimization problems related to this more general problem.

672, TITLE: Automatic Design of Heuristic Algorithms for Binary Optimization Problems

<https://www.ijcai.org/proceedings/2021/672>

AUTHORS: Marcelo de Souza
HIGHLIGHT: In this work we present AutoBQP, a heuristic solver for binary optimization problems.

673, TITLE: Distributional Metareasoning for Heuristic Search

<https://www.ijcai.org/proceedings/2021/673>

AUTHORS: Tianyi Gu
HIGHLIGHT: In this work, we will demonstrate that estimates of uncertainty, represented as belief distributions, can be used to drive search effectively.

674, TITLE: Automated Facilitation Support in Online Forum

<https://www.ijcai.org/proceedings/2021/674>

AUTHORS: Wen Gu
HIGHLIGHT: In this research, we aim to explore potential solutions for supporting the human facilitators to conduct facilitation in online forum.

675, TITLE: Safety Analysis of Deep Neural Networks

<https://www.ijcai.org/proceedings/2021/675>

AUTHORS: Dario Guidotti

HIGHLIGHT: Verification and repair emerged as promising solutions to address this issue. In the following, I will present some of my recent efforts in this area.

676, TITLE: Towards Robust Dynamic Network Embedding

<https://www.ijcai.org/proceedings/2021/676>

AUTHORS: Chengbin Hou, Ke Tang

HIGHLIGHT: Towards robust DNE, we suggest two important scenarios. One is to investigate the robustness w.r.t. different slicing settings that are used to generate different dynamic networks with different degree of changes, while another focuses more on the robustness w.r.t. different number of changed edges over timesteps.

677, TITLE: An Information-Theoretic Approach on Causal Structure Learning for Heterogeneous Data Characteristics of Real-World Scenarios

<https://www.ijcai.org/proceedings/2021/677>

AUTHORS: Johannes Huegle

HIGHLIGHT: In this dissertation project, we reduce the barriers for the transfer of CSL into practice with threefold contributions: (1) We derive an information-theoretic conditional independence test that, incorporated into methods for CSL, improves the accuracy for non-linear and mixed discrete-continuous causal relationships; (2) We develop a modular pipeline that covers the essential components required for a comprehensive benchmarking to support the transferability into practice; (3) We evaluate opportunities and challenges of CSL within different real-world scenarios from genetics and discrete manufacturing to demonstrate the accuracy of our approach in practice.

678, TITLE: Robot Manipulation Learning Using Generative Adversarial Imitation Learning

<https://www.ijcai.org/proceedings/2021/678>

AUTHORS: Mohamed Khalil Jabri

HIGHLIGHT: In this work, we advocate the use of this class of methods and investigate possible extensions by endowing them with global temporal consistency, in particular through a contrastive learning based approach.

679, TITLE: Planning and Reinforcement Learning for General-Purpose Service Robots

<https://www.ijcai.org/proceedings/2021/679>

AUTHORS: Yuqian Jiang

HIGHLIGHT: We will introduce task planning algorithms that adapt to the environment and other agents, as well as reinforcement learning methods that are practical for service robot systems.

680, TITLE: Nash Welfare in the Facility Location Problem

<https://www.ijcai.org/proceedings/2021/680>

AUTHORS: Alexander Lam

HIGHLIGHT: To find a solution that is both fair and efficient, we propose converting the agent costs to utilities and placing the facility/ies such that the product of utilities, also known as the Nash welfare, is maximized.

681, TITLE: Deep Reinforcement Learning with Hierarchical Structures

<https://www.ijcai.org/proceedings/2021/681>

AUTHORS: Siyuan Li

HIGHLIGHT: In this paper, we briefly introduce our work in bottom-up and top-down HRL and outline the directions for future work.

682, TITLE: AI for Planning Public Health Interventions

<https://www.ijcai.org/proceedings/2021/682>

AUTHORS: Aditya Mate

HIGHLIGHT: My dissertation casts this as a Restless Multi-Armed Bandit (RMAB) planning problem, identifying and addressing several new, fundamental questions in RMABs.

683, TITLE: Uncertain Time Series Classification

<https://www.ijcai.org/proceedings/2021/683>

AUTHORS: Michael Franklin Mbuopda

HIGHLIGHT: This project aims to build efficient, robust, and interpretable classification methods for uncertain time series.

684, TITLE: Combining Reinforcement Learning and Causal Models for Robotics Applications

<https://www.ijcai.org/proceedings/2021/684>

AUTHORS: Arqun Mendez-Molina

HIGHLIGHT: In this extended abstract of our Ph.D. research proposal, we present a way to combine both areas to improve their respective learning processes, especially in the context of our application area (service robotics).

685, **TITLE:** On the Learnability of Knowledge in Multi-Agent Logics

<https://www.ijcai.org/proceedings/2021/685>

AUTHORS: Ionela G Mocanu

HIGHLIGHT: We propose a model of implicit learning, or more generally, learning to reason, which bypasses the intractable step of producing an explicit representation of the learned knowledge.

686, **TITLE:** Towards an Explainer-agnostic Conversational XAI

<https://www.ijcai.org/proceedings/2021/686>

AUTHORS: Navid Nobani, Fabio Mercorio, Mario Mezzanica

HIGHLIGHT: Believing that the overall performance of an XAI system can be augmented by considering the end-user as a human being, we are studying the ways we can improve the explanations by making them more informative and easier to use from one hand, and interactive and customisable from the other hand.

687, **TITLE:** Hardware-friendly Deep Learning by Network Quantization and Binarization

<https://www.ijcai.org/proceedings/2021/687>

AUTHORS: Haotong Qin

HIGHLIGHT: Our studies focus mainly on applying quantization on various architectures and scenes and pushing the limit of quantization to extremely compress and accelerate networks.

688, **TITLE:** Modeling Institutions in Socio-Ecosystems

<https://www.ijcai.org/proceedings/2021/688>

AUTHORS: Sitraka Oliva Raharivelo, Jean-Pierre Miller

HIGHLIGHT: This research proposes an institutional MAS model capable of representing multiple institutions and norms in the socio-ecosystem, in order to account for the multiplicity of interactions through agents, resources, space and time.

689, **TITLE:** Inter-Task Similarity for Lifelong Reinforcement Learning in Heterogeneous Tasks

<https://www.ijcai.org/proceedings/2021/689>

AUTHORS: Sergio A. Serrano

HIGHLIGHT: Therefore, in this research we will address the problem of learning to solve a sequence of RL heterogeneous tasks (i.e., tasks that differ in their state-action space).

690, **TITLE:** A Human-AI Teaming Approach for Incremental Taxonomy Learning from Text

<https://www.ijcai.org/proceedings/2021/690>

AUTHORS: Andrea Seveso, Fabio Mercorio, Mario Mezzanica

HIGHLIGHT: I will be investigating possible ways to extend and enrich a taxonomy using corpora of unstructured text data.

691, **TITLE:** Continual Lifelong Learning for Intelligent Agents

<https://www.ijcai.org/proceedings/2021/691>

AUTHORS: Ghada Sokar

HIGHLIGHT: This Ph.D. research aims to propose efficient approaches that can develop intelligent agents capable of accumulating new knowledge and adapting to new environments without forgetting the previously learned ones.

692, **TITLE:** Learning from Multimedia Data with Incomplete Information

<https://www.ijcai.org/proceedings/2021/692>

AUTHORS: Renshuai Tao

HIGHLIGHT: The application of related tasks in real open scenarios is very important, so it is urgent to make full use of these incomplete information data accurately.

693, **TITLE:** Data Efficient Algorithms and Interpretability Requirements for Personalized Assessment of Taskable AI Systems

<https://www.ijcai.org/proceedings/2021/693>

AUTHORS: Pulkit Verma

HIGHLIGHT: The focus of my dissertation is to develop algorithms and requirements of interpretability that would enable a user to assess and understand the limits of an AI system's safe operability.

694, **TITLE:** Adversarial Examples in Physical World

<https://www.ijcai.org/proceedings/2021/694>

AUTHORS: Jiakai Wang
HIGHLIGHT: we are more interested in physical attacks due to their implementability in the real world.

695, TITLE: Learning and Planning Under Uncertainty for Green Security
<https://www.ijcai.org/proceedings/2021/695>
AUTHORS: Lily Xu
HIGHLIGHT: My research develops novel techniques in machine learning and game theory to enable the effective development and deployment of AI in these resource-constrained settings.

696, TITLE: An Automated Framework for Supporting Data-Governance Rule Compliance in Decentralized MIMO Contexts
<https://www.ijcai.org/proceedings/2021/696>
AUTHORS: Rui Zhao
HIGHLIGHT: We propose Dr.Aid, a logic-based AI framework for automated compliance checking of data governance rules over data-flow graphs.

697, TITLE: Anomaly Mining - Past, Present and Future
<https://www.ijcai.org/proceedings/2021/697>
AUTHORS: Leman Akoglu
HIGHLIGHT: In this article, I focus on two areas, (1) point-cloud and (2) graph-based anomaly mining.

698, TITLE: From Computational Social Choice to Digital Democracy
<https://www.ijcai.org/proceedings/2021/698>
AUTHORS: Markus Brill
HIGHLIGHT: I argue that tools and techniques from computational social choice should be employed to aid the design of online decision-making platforms and other digital democracy systems.

699, TITLE: Adaptive Experimental Design for Optimizing Combinatorial Structures
<https://www.ijcai.org/proceedings/2021/699>
AUTHORS: Janardhan Rao Doppa
HIGHLIGHT: In this paper, we first describe the key challenges in solving these problems in the framework of Bayesian optimization (BO) and our progress over the last five years in addressing these challenges.

700, TITLE: Intelligent and Learning Agents: Four Investigations
<https://www.ijcai.org/proceedings/2021/700>
AUTHORS: Shivaram Kalyanakrishnan
HIGHLIGHT: In this paper, I present four distinct investigations drawn from my recent work, which range from theoretical to applied, and which involve both analysis and design.

701, TITLE: Safe Weakly Supervised Learning
<https://www.ijcai.org/proceedings/2021/701>
AUTHORS: Yu-Feng Li
HIGHLIGHT: In this article, we share our understanding of the problem from in-distribution data to out-of-distribution data, and discuss possible ways to alleviate it, from the aspects of worst-case analysis, ensemble-learning, and bi-level optimization.

702, TITLE: Width-Based Algorithms for Common Problems in Control, Planning and Reinforcement Learning
<https://www.ijcai.org/proceedings/2021/702>
AUTHORS: Nir Lipovetzky
HIGHLIGHT: To facilitate synergies across research communities, this paper summarizes the area of width-based planning, and surveys current and future research directions.

703, TITLE: Towards a New Generation of Cognitive Diagnosis
<https://www.ijcai.org/proceedings/2021/703>
AUTHORS: Qi Liu
HIGHLIGHT: In this paper, I will share my personal understanding of cognitive diagnosis and review our recent developments of CDMs mostly from a machine learning perspective.

704, TITLE: Alleviating Road Traffic Congestion with Artificial Intelligence
<https://www.ijcai.org/proceedings/2021/704>
AUTHORS: Guni Sharon

HIGHLIGHT: The paper briefly presents the challenges affiliated with each of these applications along with an overview of state-of-the-art solutions.

705, **TITLE:** Towards Fair and Transparent Algorithmic Systems

<https://www.ijcai.org/proceedings/2021/705>

AUTHORS: Yair Zick

HIGHLIGHT: I often analyze scenarios where a variety of desirable trust-oriented goals must be simultaneously satisfied; for example, ensuring that an allocation mechanism is both fair and efficient, or that a model explanation framework is both effective and differentially private.

706, **TITLE:** A Neural Network Auction For Group Decision Making Over a Continuous Space

<https://www.ijcai.org/proceedings/2021/706>

AUTHORS: Yoram Bachrach, Ian Gemp, Marta Garnelo, Janos Kramar, Tom Eccles, Dan Rosenbaum, Thore Graepel

HIGHLIGHT: We propose a system for conducting an auction over locations in a continuous space.

707, **TITLE:** Web Interoperability for Ontology Development and Support with crowd 2.0

<https://www.ijcai.org/proceedings/2021/707>

AUTHORS: German Braun, Giuliano Marinelli, Emiliano Rios Gavagnin, Laura Cecchi, Pablo Fillottrani

HIGHLIGHT: In this work, we treat web interoperability in terms of interchanging ontologies (as knowledge models) within user-centred ontology engineering environments, involving visual and serialised representations of ontologies.

708, **TITLE:** Skills2Graph: Processing million Job Ads to face the Job Skill Mismatch Problem

<https://www.ijcai.org/proceedings/2021/708>

AUTHORS: Anna Giabelli, Lorenzo Malandri, Fabio Mercorio, Mario Mezzanzanica, Andrea Seveso

HIGHLIGHT: In this paper, we present Skills2Graph, a tool that, starting from a set of users' professional skills, identifies the most suitable jobs as they emerge from a large corpus of 2.5M+ Online Job Vacancies (OJVs) posted in three different countries (the United Kingdom, France, and Germany).

709, **TITLE:** HIVE: Hierarchical Information Visualization for Explainability

<https://www.ijcai.org/proceedings/2021/709>

AUTHORS: Yi-Ning Juan, Yi-Shyuan Chiang, Shang-Chuan Liu, Ming-Feng Tsai, Chuan-Ju Wang

HIGHLIGHT: In this demonstration, we develop an interactive tool, HIVE, to demonstrate the ability and versatility of an explainable risk ranking model with a special focus on financial use cases.

710, **TITLE:** ConvLogMiner: A Real-Time Conversational Lifelog Miner

<https://www.ijcai.org/proceedings/2021/710>

AUTHORS: Pei-Wei Kao, An-Zi Yen, Hen-Hsen Huang, Hsin-Hsi Chen

HIGHLIGHT: This paper presents a conversational lifelog mining system, ConvLogMiner, which detects personal life events from the human online conversation in real-time.

711, **TITLE:** InfoCF-Web: An Online Tool for Nonmonotonic Reasoning with Conditionals and Ranking Functions

<https://www.ijcai.org/proceedings/2021/711>

AUTHORS: Steven Kutsch, Christoph Beierle

HIGHLIGHT: InfoCF-Web provides implementations of system P and system Z inference, and of inference relations based on c-representation with respect to various inference modes and different classes of minimal models.

712, **TITLE:** A Compression-Compilation Framework for On-mobile Real-time BERT Applications

<https://www.ijcai.org/proceedings/2021/712>

AUTHORS: Wei Niu, Zhenglun Kong, Geng Yuan, Weiwen Jiang, Jiexiong Guan, Caiwen Ding, Pu Zhao, Sijia Liu, Bin Ren, Yanzhi Wang

HIGHLIGHT: In this paper, we propose a compression-compilation co-design framework that can guarantee the identified model meets both resource and real-time specifications of mobile devices.

713, **TITLE:** VisioRed: A Visualisation Tool for Interpretable Predictive Maintenance

<https://www.ijcai.org/proceedings/2021/713>

AUTHORS: Spyridon Paraschos, Ioannis Mollas, Nick Bassiliades, Grigorios Tsoumakas

HIGHLIGHT: This paper introduces a visualisation tool incorporating interpretations to display information derived from predictive maintenance models, trained on time-series data.

714, **TITLE:** Connect Multi-Agent Path Finding: Generation and Visualization

<https://www.ijcai.org/proceedings/2021/714>

AUTHORS: Arthur Queffelec, Ocean Sankur, Francois Schwarzenruber

HIGHLIGHT: We present a generic tool to visualize missions of the Connected Multi-Agent Path Finding (CMAPF) problem.

715, TITLE: Towards Fast and Accurate Multi-Person Pose Estimation on Mobile Devices

<https://www.ijcai.org/proceedings/2021/715>

AUTHORS: Xuan Shen, Geng Yuan, Wei Niu, Xiaolong Ma, Jiexiong Guan, Zhengang Li, Bin Ren, Yanzhi Wang

HIGHLIGHT: To solve this problem, we propose an architecture optimization and weight pruning framework to accelerate inference of multi-person pose estimation on mobile devices.

716, TITLE: Predictive Analytics for COVID-19 Social Distancing

<https://www.ijcai.org/proceedings/2021/716>

AUTHORS: Harold Ze Chie Teng, Hongchao Jiang, Xuan Rong Zane Ho, Wei Yang Bryan Lim, Jer Shyuan Ng, Han Yu, Zehui Xiong, Dusit Niyato, Chunyan Miao

HIGHLIGHT: Using Nanyang Technological University (NTU) as a testbed, we develop and deploy a platform that provides live and predicted crowd counts for key locations on campus to help users plan their trips in an informed manner, so as to mitigate the risk of community transmission.

717, TITLE: Graph-Augmented Code Summarization in Computational Notebooks

<https://www.ijcai.org/proceedings/2021/717>

AUTHORS: April Wang, Dakuo Wang, Xuye Liu, Lingfei Wu

HIGHLIGHT: In this work, we present a human-centered automation system, Themisto, that can support users to easily create documentation via three approaches: 1) We have developed and reported a GNN-augmented code documentation generation algorithm in a previous paper, which can generate documentation for a given source code; 2) Themisto also implements a query-based approach to retrieve the online API documentation as the summary for certain types of source code; 3) Lastly, Themisto also enables a user prompt approach to motivate users to write documentation for some use cases that automation does not work well.

718, TITLE: Interactive Video Acquisition and Learning System for Motor Assessment of Parkinson's Disease

<https://www.ijcai.org/proceedings/2021/718>

AUTHORS: Yunyue Wei, Bingquan Zhu, Chen Hou, Chen Zhang, Yanan Sui

HIGHLIGHT: To help patients with Parkinson's disease get better evaluation from in-home recorded movement videos, we developed an interactive video acquisition and learning system for clinical motor assessments.

719, TITLE: AutoBandit: A Meta Bandit Online Learning System

<https://www.ijcai.org/proceedings/2021/719>

AUTHORS: Miao Xie, Wotao Yin, Huan Xu

HIGHLIGHT: To alleviate this problem, this paper outlines an intelligent system called AutoBandit, equipped with many out-of-the-box MAB algorithms, for automatically and adaptively choosing the best with suitable hyper-parameters online.

720, TITLE: Communication-efficient and Scalable Decentralized Federated Edge Learning

<https://www.ijcai.org/proceedings/2021/720>

AUTHORS: Austine Zong Han Yapp, Hong Soo Nicholas Koh, Yan Ting Lai, Jiawen Kang, Xuandi Li, Jer Shyuan Ng, Hongchao Jiang, Wei Yang Bryan Lim, Zehui Xiong, Dusit Niyato

HIGHLIGHT: In this paper, we present a working prototype of blockchain-empowered and communication-efficient FEL framework, which enhances the security and scalability towards large-scale implementation of FEL.

721, TITLE: IIAS: An Intelligent Insurance Assessment System through Online Real-time Conversation Analysis

<https://www.ijcai.org/proceedings/2021/721>

AUTHORS: Mengdi Zhou, Shuang Peng, Minghui Yang, Nan Li, Hongbin Wang, Li Qiao, Haitao Mi, Zujie Wen, Teng Xu, Lei Liu

HIGHLIGHT: In order to alleviate assessors' cognitive workload, we propose an Intelligent Insurance Assessment System (IIAS) that helps effectively collect claimant information through online real-time conversation analysis.