

- 1, TITLE: Flexible Representative Democracy: An Introduction with Binary Issues
<https://www.ijcai.org/proceedings/2019/1>
AUTHORS: Ben Abramowitz, Nicholas Mattei
HIGHLIGHT: We introduce Flexible Representative Democracy (FRD), a novel hybrid of Representative Democracy (RD) and Direct Democracy (DD), in which voters can alter the issue-dependent weights of a set of elected representatives.
- 2, TITLE: Portioning Using Ordinal Preferences: Fairness and Efficiency
<https://www.ijcai.org/proceedings/2019/2>
AUTHORS: Stéphane Airiau, Haris Aziz, Ioannis Caragiannis, Justin Kruger, Jérôme Lang, Dominik Peters
HIGHLIGHT: We introduce a family of rules for portioning, inspired by positional scoring rules.
- 3, TITLE: An Efficient Algorithm for Skeptical Preferred Acceptance in Dynamic Argumentation Frameworks
<https://www.ijcai.org/proceedings/2019/3>
AUTHORS: Gianvincenzo Alfano, Sergio Greco, Francesco Parisi
HIGHLIGHT: In this paper we devise an efficient algorithm for computing the skeptical preferred acceptance in dynamic AFs.
- 4, TITLE: Strategic Signaling for Selling Information Goods
<https://www.ijcai.org/proceedings/2019/4>
AUTHORS: Shani Alkoby, David Sarne, Igal Milchtaich
HIGHLIGHT: This paper studies the benefit in using signaling by an information seller holding information that can completely disambiguate some uncertainty concerning the state of the world for the information buyer.
- 5, TITLE: Probabilistic Strategy Logic
<https://www.ijcai.org/proceedings/2019/5>
AUTHORS: Benjamin Aminof, Marta Kwiatkowska, Bastien Maubert, Aniello Murano, Sasha Rubin
HIGHLIGHT: We introduce Probabilistic Strategy Logic, an extension of Strategy Logic for stochastic systems.
- 6, TITLE: Multi-Agent Pathfinding with Continuous Time
<https://www.ijcai.org/proceedings/2019/6>
AUTHORS: Anton Andreychuk, Konstantin Yakovlev, Dor Atzmon, Roni Stern
HIGHLIGHT: In this work, we propose a MAPF algorithm that do not assume any of these assumptions, is complete, and provides provably optimal solutions.
- 7, TITLE: Weighted Maxmin Fair Share Allocation of Indivisible Chores
<https://www.ijcai.org/proceedings/2019/7>
AUTHORS: Haris Aziz, Hau Chan, Bo Li
HIGHLIGHT: We initiate the study of indivisible chore allocation for agents with asymmetric shares.
- 8, TITLE: Fair Allocation of Indivisible Goods and Chores
<https://www.ijcai.org/proceedings/2019/8>
AUTHORS: Haris Aziz, Ioannis Caragiannis, Ayumi Igarashi, Toby Walsh
HIGHLIGHT: In this paper, we consider a more general scenario where an agent may have negative or positive utility for each item.
- 9, TITLE: Strategyproof and Approximately Maxmin Fair Share Allocation of Chores
<https://www.ijcai.org/proceedings/2019/9>
AUTHORS: Haris Aziz, Bo Li, Xiaowei Wu
HIGHLIGHT: The fairness concept we consider in this paper is maxmin share (MMS) fairness.
- 10, TITLE: Stable and Envy-free Partitions in Hedonic Games
<https://www.ijcai.org/proceedings/2019/10>
AUTHORS: Nathanaël Barrot, Makoto Yokoo
HIGHLIGHT: In this paper, we study coalition formation in hedonic games through the fairness criterion of envy-freeness.
- 11, TITLE: How Hard Is the Manipulative Design of Scoring Systems?
<https://www.ijcai.org/proceedings/2019/11>
AUTHORS: Dorothea Baumeister, Tobias Högge
HIGHLIGHT: We study the computational complexity of two related decision problems.

- 12, TITLE: The Price of Fairness for Indivisible Goods
<https://www.ijcai.org/proceedings/2019/12>
AUTHORS: Xiaohui Bei, Xinhang Lu, Pasin Manurangsi, Warut Suksompong
HIGHLIGHT: In this paper, we focus instead on notions with guaranteed existence, including envy-freeness up to one good (EF1), balancedness, maximum Nash welfare (MNW), and leximin.
- 13, TITLE: Strategy Logic with Simple Goals: Tractable Reasoning about Strategies
<https://www.ijcai.org/proceedings/2019/13>
AUTHORS: Francesco Belardinelli, Wojciech Jamroga, Damian Kurpiewski, Vadim Malvone, Aniello Murano
HIGHLIGHT: In this paper we introduce Strategy Logic with simple goals (SL[SG]), a fragment of Strategy Logic that strictly extends the well-known Alternating-time Temporal Logic ATL by introducing arbitrary quantification over the agents' strategies.
- 14, TITLE: Fairness Towards Groups of Agents in the Allocation of Indivisible Items
<https://www.ijcai.org/proceedings/2019/14>
AUTHORS: Nawal Benabbou, Mithun Chakraborty, Edith Elkind, Yair Zick
HIGHLIGHT: In this paper, we study the problem of matching a set of items to a set of agents partitioned into types so as to balance fairness towards the types against overall utility/efficiency.
- 15, TITLE: Optimality and Nash Stability in Additive Separable Generalized Group Activity Selection Problems
<https://www.ijcai.org/proceedings/2019/15>
AUTHORS: Vittorio Bilò, Angelo Fanelli, Michele Flammini, Gianpiero Monaco, Luca Moscardelli
HIGHLIGHT: We consider additively separable GGASPs, where every agent has a separate valuation for each activity as well as for any other agent, and her overall utility is given by the sum of the valuations she has for the selected activity and its participants.
- 16, TITLE: An Experimental View on Committees Providing Justified Representation
<https://www.ijcai.org/proceedings/2019/16>
AUTHORS: Robert Brederbeck, Piotr Faliszewski, Andrzej Kaczmarczyk, Rolf Niedermeier
HIGHLIGHT: We provide an experimental study of committees that achieve (proportional/extended) justified representation (JR/PJR/EJR).
- 17, TITLE: A Contribution to the Critique of Liquid Democracy
<https://www.ijcai.org/proceedings/2019/17>
AUTHORS: Ioannis Caragiannis, Evi Micha
HIGHLIGHT: We revisit a recent model by Kahng et al. [2018] and conclude with three negative results, criticizing an important assumption of their modeling, as well as liquid democracy more generally.
- 18, TITLE: Be a Leader or Become a Follower: The Strategy to Commit to with Multiple Leaders
<https://www.ijcai.org/proceedings/2019/18>
AUTHORS: Matteo Castiglioni, Alberto Marchesi, Nicola Gatti
HIGHLIGHT: We study the problem of computing correlated strategies to commit to in games with multiple leaders and followers.
- 19, TITLE: On the Problem of Assigning PhD Grants
<https://www.ijcai.org/proceedings/2019/19>
AUTHORS: Katarína Cechlárová, Laurent Gourvès, Julien Lesca
HIGHLIGHT: In this paper, we study the problem of assigning PhD grants.
- 20, TITLE: Maximin-Aware Allocations of Indivisible Goods
<https://www.ijcai.org/proceedings/2019/20>
AUTHORS: Hau Chan, Jing Chen, Bo Li, Xiaowei Wu
HIGHLIGHT: In particular, we propose the maximin aware (MMA) fairness measure, which guarantees that every agent, given the bundle allocated to her, is aware that she does not envy at least one other agent, even if she does not know how the other goods are distributed among other agents.
- 21, TITLE: Reachability and Coverage Planning for Connected Agents
<https://www.ijcai.org/proceedings/2019/21>
AUTHORS: Tristan Charrier, Arthur Queffelec, Ocan Sankur, François Schwarzenrüber
HIGHLIGHT: We establish the complexity of these problems on known classes, and introduce a new class called sight-moveable graphs which admit efficient algorithms.

- 22, TITLE: Approximately Maximizing the Broker's Profit in a Two-sided Market
<https://www.ijcai.org/proceedings/2019/22>
AUTHORS: Jing Chen, Bo Li, Yingkai Li
HIGHLIGHT: We study how to maximize the broker's (expected) profit in a two-sided market, where she buys items from a set of sellers and resells them to a set of buyers.
- 23, TITLE: Election with Bribe-Effect Uncertainty: A Dichotomy Result
<https://www.ijcai.org/proceedings/2019/23>
AUTHORS: Lin Chen, Lei Xu, Shouhuai Xu, Zhimin Gao, Weidong Shi
HIGHLIGHT: In this paper, we initiate the study of a more realistic model where each voter is associated with a willingness function, rather than a fixed threshold value.
- 24, TITLE: Dispatching Through Pricing: Modeling Ride-Sharing and Designing Dynamic Prices
<https://www.ijcai.org/proceedings/2019/24>
AUTHORS: Mengjing Chen, Weiran Shen, Pingzhong Tang, Song Zuo
HIGHLIGHT: In this paper, we aim to tackle this problem via an economic approach.
- 25, TITLE: AT SIS: Achieving the Ad hoc Teamwork by Sub-task Inference and Selection
<https://www.ijcai.org/proceedings/2019/25>
AUTHORS: Shuo Chen, Ewa Andrejczuk, Athirai A. Irissappane, Jie Zhang
HIGHLIGHT: For this reason, we present Ad Hoc Teamwork by Sub-task Inference and Selection (AT SIS) algorithm that uses a sub-task inference without relying on teammates' models.
- 26, TITLE: Network Formation under Random Attack and Probabilistic Spread
<https://www.ijcai.org/proceedings/2019/26>
AUTHORS: Yu Chen, Shahin Jabbari, Michael Kearns, Sanjeev Khanna, Jamie Morgenstern
HIGHLIGHT: Our goal is to understand the properties of the equilibrium networks formed in this game.
- 27, TITLE: Cap-and-Trade Emissions Regulation: A Strategic Analysis
<https://www.ijcai.org/proceedings/2019/27>
AUTHORS: Frank Cheng, Yagil Engel, Michael P. Wellman
HIGHLIGHT: We find that while cap-and-trade results improves efficiency overall, consumers bear a disproportionate share of regulation cost, as firms use credit trading to segment the vehicle market.
- 28, TITLE: A Value-based Trust Assessment Model for Multi-agent Systems
<https://www.ijcai.org/proceedings/2019/28>
AUTHORS: Kinzang Chhogyal, Abhaya Nayak, Aditya Ghose, Hoa K. Dam
HIGHLIGHT: In this paper, based on the premise that the more values two agents share, the more they should trust one another, we propose a simple approach to trust assessment between agents based on values, taking into account if agents trust cautiously or boldly, and if they depend on others in carrying out a task.
- 29, TITLE: Exploiting Social Influence to Control Elections Based on Scoring Rules
<https://www.ijcai.org/proceedings/2019/29>
AUTHORS: Federico Corò, Emilio Cruciani, Gianlorenzo D'Angelo, Stefano Ponziani
HIGHLIGHT: We introduce Linear Threshold Ranking, a natural extension of Linear Threshold Model, which models the change of opinions taking into account the amount of exercised influence.
- 30, TITLE: Civic Crowdfunding for Agents with Negative Valuations and Agents with Asymmetric Beliefs
<https://www.ijcai.org/proceedings/2019/30>
AUTHORS: Sankarshan Damle, Moin Hussain Moti, Praphul Chandra, Sujit Gujar
HIGHLIGHT: In this work, we present novel mechanisms which break these two barriers, i.e., mechanisms which incorporate negative valuation and asymmetric belief, independently.
- 31, TITLE: Anytime Heuristic for Weighted Matching Through Altruism-Inspired Behavior
<https://www.ijcai.org/proceedings/2019/31>
AUTHORS: Panayiotis Danassis, Aris Filos-Ratsikas, Boi Faltings
HIGHLIGHT: We present a novel anytime heuristic (ALMA), inspired by the human principle of altruism, for solving the assignment problem.
- 32, TITLE: AsymDPOP: Complete Inference for Asymmetric Distributed Constraint Optimization Problems

<https://www.ijcai.org/proceedings/2019/32>

AUTHORS: Yanchen Deng, Ziyu Chen, Dingding Chen, Wenxin Zhang, Xingqiong Jiang
HIGHLIGHT: Rather than disclosing private functions explicitly to facilitate local eliminations, we solve the problem by enforcing delayed eliminations and propose AsymDPOP, the first inference-based complete algorithm for ADCOPs.

33, TITLE: Preferred Deals in General Environments

<https://www.ijcai.org/proceedings/2019/33>

AUTHORS: Yuan Deng, Sébastien Lahaie, Vahab Mirrokni
HIGHLIGHT: We consider the problem of designing preferred deals (inventory, price, quantity) in the presence of general convex constraints, including budget constraints, and propose an approximation algorithm to maximize the revenue obtained from the deals.

34, TITLE: A Parameterized Perspective on Protecting Elections

<https://www.ijcai.org/proceedings/2019/34>

AUTHORS: Palash Dey, Neeldhara Misra, Swaprava Nath, Garima Shakya
HIGHLIGHT: We propose two greedy algorithms for the OPTIMAL DEFENSE problem and empirically show that they perform effectively on reasonable voting profiles.

35, TITLE: Spotting Collective Behaviour of Online Frauds in Customer Reviews

<https://www.ijcai.org/proceedings/2019/35>

AUTHORS: Sarthika Dhawan, Siva Charan Reddy Gangireddy, Shiv Kumar, Tanmoy Chakraborty
HIGHLIGHT: Here, we propose DeFrauder, an unsupervised method to detect online fraud reviewer groups.

36, TITLE: Equilibrium Characterization for Data Acquisition Games

<https://www.ijcai.org/proceedings/2019/36>

AUTHORS: Jinchuo Dong, Hadi Elzayn, Shahin Jabbari, Michael Kearns, Zachary Schutzman
HIGHLIGHT: We study a game between two firms which each provide a service based on machine learning.

37, TITLE: Protecting Elections by Recounting Ballots

<https://www.ijcai.org/proceedings/2019/37>

AUTHORS: Edith Elkind, Jiarui Gan, Svetlana Obraztsova, Zinovi Rabinovich, Alexandros A. Voudouris
HIGHLIGHT: In this work, we consider a two-stage voting manipulation scenario.

38, TITLE: Schelling Games on Graphs

<https://www.ijcai.org/proceedings/2019/38>

AUTHORS: Edith Elkind, Jiarui Gan, Ayumi Igarashi, Warut Suksompong, Alexandros A. Voudouris
HIGHLIGHT: We consider strategic games that are inspired by Schelling's model of residential segregation.

39, TITLE: Reallocating Multiple Facilities on the Line

<https://www.ijcai.org/proceedings/2019/39>

AUTHORS: Dimitris Fotakis, Loukas Kavouras, Panagiotis Kostopanagiotis, Philip Lazos, Stratis Skoulakis, Nikos Zarifis
HIGHLIGHT: Using an LP-based approach, we present a polynomial time algorithm that computes the optimal solution for any number of facilities.

40, TITLE: Equitable Allocations of Indivisible Goods

<https://www.ijcai.org/proceedings/2019/40>

AUTHORS: Rupert Freeman, Sujoy Sikdar, Rohit Vaish, Lirong Xia
HIGHLIGHT: In this work, we study equitable allocations of indivisible goods among agents with additive valuations.

41, TITLE: Average-case Analysis of the Assignment Problem with Independent Preferences

<https://www.ijcai.org/proceedings/2019/41>

AUTHORS: Yansong Gao, Jie Zhang
HIGHLIGHT: In this paper, we offer an affirmative answer to this question by showing that the ratio is bounded by $\frac{1}{\mu}$ when the preference values are independent and identically distributed random variables, where μ is the expectation of the value distribution.

42, TITLE: Improving Nash Social Welfare Approximations

<https://www.ijcai.org/proceedings/2019/42>

AUTHORS: Jugal Garg, Peter McGlaughlin

HIGHLIGHT: We present novel definitions of fairness concepts in terms of market prices, and design a new scheme to round a market equilibrium into an integral allocation that provides most of the fairness properties of an integral max NSW allocation.

43, **TITLE:** On the Efficiency and Equilibria of Rich Ads

<https://www.ijcai.org/proceedings/2019/43>

AUTHORS: MohammadAmin Ghiasi, MohammadTaghi Hajiaghayi, Sébastien Lahaie, Hadi Yami

HIGHLIGHT: In this paper, we consider a model where several slots are available on the search results page, as in the classic generalized second-price auction (GSP), but now a bidder can be allocated several consecutive slots, which are interpreted as a rich ad.

44, **TITLE:** Identifying vulnerabilities in trust and reputation systems

<https://www.ijcai.org/proceedings/2019/44>

AUTHORS: Taha D. Güne?, Long Tran-Thanh, Timothy J. Norman

HIGHLIGHT: We present a novel method for automatically identifying vulnerabilities in such systems by formulating the problem as a derivative-free optimisation problem and applying efficient sampling methods.

45, **TITLE:** An Asymptotically Optimal VCG Redistribution Mechanism for the Public Project Problem

<https://www.ijcai.org/proceedings/2019/45>

AUTHORS: Mingyu Guo

HIGHLIGHT: We propose an asymptotically optimal mechanism, which achieves a worst-case efficiency ratio of 1, under a minor technical assumption: we assume the agents' valuations are rational numbers with bounded denominators.

46, **TITLE:** On Succinct Encodings for the Tournament Fixing Problem

<https://www.ijcai.org/proceedings/2019/46>

AUTHORS: Sushmita Gupta, Saket Saurabh, Ramanujan Sridharan, Meirav Zehavi

HIGHLIGHT: In this paper, we present the first polynomial kernelization for TFP parameterized by the feedback arc set number of the input tournament.

47, **TITLE:** On Computational Tractability for Rational Verification

<https://www.ijcai.org/proceedings/2019/47>

AUTHORS: Julian Gutierrez, Muhammad Najib, Giuseppe Perelli, Michael Wooldridge

HIGHLIGHT: In this paper we show that the complexity of rational verification can be greatly reduced by restricting specifications to GR(1), a fragment of LTL that can represent most response properties of reactive systems.

48, **TITLE:** Swarm Engineering Through Quantitative Measurement of Swarm Robotic Principles in a 10,000 Robot Swarm

<https://www.ijcai.org/proceedings/2019/48>

AUTHORS: John Harwell, Maria Gini

HIGHLIGHT: We propose a set of quantitative metrics for scalability, flexibility, and emergence which are capable of addressing these needs during the system design process.

49, **TITLE:** Achieving a Fairer Future by Changing the Past

<https://www.ijcai.org/proceedings/2019/49>

AUTHORS: Jiafan He, Ariel D. Procaccia, Alexandros Psomas, David Zeng

HIGHLIGHT: We study the problem of allocating T indivisible items that arrive online to agents with additive valuations.

50, **TITLE:** Compact Representation of Value Function in Partially Observable Stochastic Games

<https://www.ijcai.org/proceedings/2019/50>

AUTHORS: Karel Horák, Branislav Bošanský, Christopher Kiekintveld, Charles Kamhoua

HIGHLIGHT: We propose an abstraction technique that addresses this curse of dimensionality by projecting the high-dimensional beliefs onto characteristic vectors of significantly lower dimension (e.g., marginal probabilities).

51, **TITLE:** Explicitly Coordinated Policy Iteration

<https://www.ijcai.org/proceedings/2019/51>

AUTHORS: Yujing Hu, Yingfeng Chen, Changjie Fan, Jianye Hao

HIGHLIGHT: Based on the necessary conditions of an optimal policy, we propose the explicitly coordinated policy iteration (EXCEL) algorithm which always forces agents to coordinate by comparing the agents' separated optimistic and average value functions.

52, **TITLE:** Robustness against Agent Failure in Hedonic Games

<https://www.ijcai.org/proceedings/2019/52>

AUTHORS: Ayumi Igarashi, Kazunori Ota, Yuko Sakurai, Makoto Yokoo
HIGHLIGHT: In this paper we propose a novel criterion that reshapes stability form robustness aspect.

53, TITLE: The Interplay of Emotions and Norms in Multiagent Systems
<https://www.ijcai.org/proceedings/2019/53>
AUTHORS: Anup K. Kalia, Nirav Ajmeri, Kevin S. Chan, Jin-Hee Cho, Sibel Adal?, Munindar P. Singh
HIGHLIGHT: We study how emotions influence norm outcomes in decision-making contexts.

54, TITLE: An Ordinal Banzhaf Index for Social Ranking
<https://www.ijcai.org/proceedings/2019/54>
AUTHORS: Hossein Khani, Stefano Moretti, Meltem Öztürk
HIGHLIGHT: We introduce a new method to rank single elements given an order over their sets.

55, TITLE: Multigoal Committee Selection
<https://www.ijcai.org/proceedings/2019/55>
AUTHORS: Maciej Kocot, Anna Kolonko, Edith Elkind, Piotr Faliszewski, Nimrod Talmon
HIGHLIGHT: We study the problem of computing committees that perform well according to several different criteria, which are expressed as committee scoring rules.

56, TITLE: Neural Networks for Predicting Human Interactions in Repeated Games
<https://www.ijcai.org/proceedings/2019/56>
AUTHORS: Yoav Kolumbus, Gali Noti
HIGHLIGHT: We consider the problem of predicting human players' actions in repeated strategic interactions.

57, TITLE: Almost Envy-Freeness in Group Resource Allocation
<https://www.ijcai.org/proceedings/2019/57>
AUTHORS: Maria Kyropoulou, Warut Suksompong, Alexandros A. Voudouris
HIGHLIGHT: We study the problem of fairly allocating indivisible goods between groups of agents using the recently introduced relaxations of envy-freeness.

58, TITLE: A Quantitative Analysis of Multi-Winner Rules
<https://www.ijcai.org/proceedings/2019/58>
AUTHORS: Martin Lackner, Piotr Skowron
HIGHLIGHT: We provide a quantitative analysis using methods from the theory of approximation algorithms and estimate how well multi-winner rules approximate two extreme objectives: diversity as captured by the Approval Chamberlin--Courant rule and individual excellence as captured by Multi-winner Approval Voting.

59, TITLE: Correlating Preferences and Attributes: Nearly Single-Crossing Profiles
<https://www.ijcai.org/proceedings/2019/59>
AUTHORS: Foram Lakhani, Dominik Peters, Edith Elkind
HIGHLIGHT: The goal of this paper is to evaluate the computational feasibility of this approach.

60, TITLE: Automated Negotiation with Gaussian Process-based Utility Models
<https://www.ijcai.org/proceedings/2019/60>
AUTHORS: Haralambie Leahu, Michael Kaisers, Tim Baarslag
HIGHLIGHT: We introduce a stochastic, inverse-ranking utility model compatible with the Gaussian Process preference learning framework and integrate it into a (belief) Markov Decision Process paradigm which formalizes automated negotiation processes with incomplete information.

61, TITLE: Temporal Information Design in Contests
<https://www.ijcai.org/proceedings/2019/61>
AUTHORS: Priel Levy, David Sarne, Yonatan Aumann
HIGHLIGHT: We study temporal information design in contests, wherein the organizer may, possibly incrementally, disclose information about the participation and performance of some contestants to other (later) contestants.

62, TITLE: Diffusion and Auction on Graphs
<https://www.ijcai.org/proceedings/2019/62>
AUTHORS: Bin Li, Dong Hao, Dengji Zhao, Makoto Yokoo
HIGHLIGHT: For the first time, we expand the domain of the classic auction to a social graph and formally identify a new class of auction mechanisms on graphs.

- 63, TITLE: Improved Heuristics for Multi-Agent Path Finding with Conflict-Based Search
<https://www.ijcai.org/proceedings/2019/63>
AUTHORS: Jiaoyang Li, Ariel Felner, Eli Boyarski, Hang Ma, Sven Koenig
HIGHLIGHT: In this work, we prove the limitation of this heuristic, as it is based on cardinal conflicts only.
- 64, TITLE: Integrating Decision Sharing with Prediction in Decentralized Planning for Multi-Agent Coordination under Uncertainty
<https://www.ijcai.org/proceedings/2019/64>
AUTHORS: Minglong Li, Wenjing Yang, Zhongxuan Cai, Shaowu Yang, Ji Wang
HIGHLIGHT: In this paper, we propose an approach for improving the sharing utilization by integrating information sharing with prediction in decentralized planning.
- 65, TITLE: Value Function Transfer for Deep Multi-Agent Reinforcement Learning Based on N-Step Returns
<https://www.ijcai.org/proceedings/2019/65>
AUTHORS: Yong Liu, Yujing Hu, Yang Gao, Yingfeng Chen, Changjie Fan
HIGHLIGHT: In this work, we propose more scalable transfer learning methods based on a novel MDP similarity concept.
- 66, TITLE: Computing Approximate Equilibria in Sequential Adversarial Games by Exploitability Descent
<https://www.ijcai.org/proceedings/2019/66>
AUTHORS: Edward Lockhart, Marc Lanctot, Julien Pérolat, Jean-Baptiste Lespiau, Dustin Morrill, Finbarr Timbers, Karl Tuyls
HIGHLIGHT: In this paper, we present exploitability descent, a new algorithm to compute approximate equilibria in two-player zero-sum extensive-form games with imperfect information, by direct policy optimization against worst-case opponents.
- 67, TITLE: Computational Aspects of Equilibria in Discrete Preference Games
<https://www.ijcai.org/proceedings/2019/67>
AUTHORS: Phani Raj Lolakapuri, Umang Bhaskar, Ramasuri Narayanam, Gyana R Parija, Pankaj S Dayama
HIGHLIGHT: We study the complexity of equilibrium computation in discrete preference games.
- 68, TITLE: Multi-Robot Planning Under Uncertain Travel Times and Safety Constraints
<https://www.ijcai.org/proceedings/2019/68>
AUTHORS: Masoumeh Mansouri, Bruno Lacerda, Nick Hawes, Federico Pecora
HIGHLIGHT: We present a novel modelling and planning approach for multi-robot systems under uncertain travel times.
- 69, TITLE: Leadership in Congestion Games: Multiple User Classes and Non-Singleton Actions
<https://www.ijcai.org/proceedings/2019/69>
AUTHORS: Alberto Marchesi, Matteo Castiglioni, Nicola Gatti
HIGHLIGHT: In this paper, we extend the state of the art along two main directions.
- 70, TITLE: Graphical One-Sided Markets
<https://www.ijcai.org/proceedings/2019/70>
AUTHORS: Sagar Massand, Sunil Simon
HIGHLIGHT: We study the problem of allocating indivisible objects to a set of rational agents where each agent's final utility depends on the intrinsic valuation of the allocated item as well as the allocation within the agent's local neighbourhood.
- 71, TITLE: Reachability Games in Dynamic Epistemic Logic
<https://www.ijcai.org/proceedings/2019/71>
AUTHORS: Bastien Maubert, Sophie Pinchinat, François Schwarzentruber
HIGHLIGHT: We study the problem of existence of a strategy for the controller, which generalises the classic epistemic planning problem, and we solve it for several types of actions such as public announcements and public actions.
- 72, TITLE: FaRM: Fair Reward Mechanism for Information Aggregation in Spontaneous Localized Settings
<https://www.ijcai.org/proceedings/2019/72>
AUTHORS: Moin Hussain Moti, Dimitris Chatzopoulos, Pan Hui, Sujit Gujar
HIGHLIGHT: In this work, we introduce selective and cumulative fairness.
- 73, TITLE: Learning Swarm Behaviors using Grammatical Evolution and Behavior Trees
<https://www.ijcai.org/proceedings/2019/73>

AUTHORS: Aadesh Neupane, Michael Goodrich
HIGHLIGHT: This paper introduces an algorithm that evolves problem-specific swarm behaviors by combining multi-agent grammatical evolution and Behavior Trees (BTs).

74, TITLE: A Probabilistic Logic for Resource-Bounded Multi-Agent Systems
<https://www.ijcai.org/proceedings/2019/74>
AUTHORS: Hoang Nga Nguyen, Abdur Rakib
HIGHLIGHT: In this paper, we propose a logic for reasoning about coalitional power under resource constraints in the probabilistic setting.

75, TITLE: Imitative Attacker Deception in Stackelberg Security Games
<https://www.ijcai.org/proceedings/2019/75>
AUTHORS: Thanh Nguyen, Haifeng Xu
HIGHLIGHT: We provide a clean characterization about the game equilibrium as well as optimal algorithms to compute the equilibrium.

76, TITLE: Priority Inheritance with Backtracking for Iterative Multi-agent Path Finding
<https://www.ijcai.org/proceedings/2019/76>
AUTHORS: Keisuke Okumura, Manao Machida, Xavier Défago, Yasumasa Tamura
HIGHLIGHT: We present here a novel approach to iterative MAPF, that we call Priority Inheritance with Backtracking (PIBT).

77, TITLE: Approval-Based Elections and Distortion of Voting Rules
<https://www.ijcai.org/proceedings/2019/77>
AUTHORS: Grzegorz Piereczyński, Piotr Skowron
HIGHLIGHT: We consider elections where both voters and candidates can be associated with points in a metric space and voters prefer candidates that are closer to those that are farther away.

78, TITLE: Ad Hoc Teamwork With Behavior Switching Agents
<https://www.ijcai.org/proceedings/2019/78>
AUTHORS: Manish Ravula, Shani Alkoby, Peter Stone
HIGHLIGHT: In this work, we relax this assumption and investigate settings in which teammates can change their types during the course of the task.

79, TITLE: Ridesharing with Driver Location Preferences
<https://www.ijcai.org/proceedings/2019/79>
AUTHORS: Duncan Rheingans-Yoo, Scott Duke Kominers, Hongyao Ma, David C. Parkes
HIGHLIGHT: We study revenue-optimal pricing and driver compensation in ridesharing platforms when drivers have heterogeneous preferences over locations.

80, TITLE: Multi-Population Congestion Games With Incomplete Information
<https://www.ijcai.org/proceedings/2019/80>
AUTHORS: Charlotte Roman, Paolo Turrini
HIGHLIGHT: Here we study traffic networks with multiple origin-destination pairs, relaxing the simplifying assumption of agents having complete knowledge of the network structure.

81, TITLE: Sybil-Resilient Reality-Aware Social Choice
<https://www.ijcai.org/proceedings/2019/81>
AUTHORS: Gal Shahaf, Ehud Shapiro, Nimrod Talmon
HIGHLIGHT: Thus, our goal here is to enhance social choice theory with effective group decision mechanisms for communities with bounded sybil penetration.

82, TITLE: Preferences Single-Peaked on a Tree: Sampling and Tree Recognition
<https://www.ijcai.org/proceedings/2019/82>
AUTHORS: Jakub Sliwinski, Edith Elkind
HIGHLIGHT: We consider the setting where voters' preferences are independently sampled from rankings that are single-peaked on a given tree, and study the problem of reliably identifying the tree that generated the observed votes.

83, TITLE: Model-Free Model Reconciliation
<https://www.ijcai.org/proceedings/2019/83>

AUTHORS: Sarath Sreedharan, Alberto Olmo Hernandez, Aditya Prasad Mishra, Subbarao Kambhampati
HIGHLIGHT: Our goal in this paper is to adapt the model reconciliation approach to a more general planning paradigm and discuss how such methods could be used when user models are no longer explicitly available.

84, TITLE: Aggregating Incomplete Pairwise Preferences by Weight
<https://www.ijcai.org/proceedings/2019/84>
AUTHORS: Zoi Terzopoulou, Ulle Endriss
HIGHLIGHT: We develop a model for the aggregation of preferences that do not need to be either complete or transitive.

85, TITLE: A Regularized Opponent Model with Maximum Entropy Objective
<https://www.ijcai.org/proceedings/2019/85>
AUTHORS: Zheng Tian, Ying Wen, Zhichen Gong, Faiz Punakkath, Shihao Zou, Jun Wang
HIGHLIGHT: In this paper, we redefine the binary random variable o in multi-agent setting and formalize multi-agent reinforcement learning (MARL) as probabilistic inference.

86, TITLE: Exploring the Task Cooperation in Multi-goal Visual Navigation
<https://www.ijcai.org/proceedings/2019/86>
AUTHORS: Yuechen Wu, Zhenhuan Rao, Wei Zhang, Shijian Lu, Weizhi Lu, Zheng-Jun Zha
HIGHLIGHT: In this work, we present a model-embedded actor-critic architecture for the multi-goal visual navigation task.

87, TITLE: On Strategyproof Conference Peer Review
<https://www.ijcai.org/proceedings/2019/87>
AUTHORS: Yichong Xu, Han Zhao, Xiaofei Shi, Nihar B. Shah
HIGHLIGHT: In this work, we address this problem through the lens of social choice, and present a theoretical framework for strategyproof and efficient peer review.

88, TITLE: Towards Efficient Detection and Optimal Response against Sophisticated Opponents
<https://www.ijcai.org/proceedings/2019/88>
AUTHORS: Tianpei Yang, Jianye Hao, Zhaopeng Meng, Chongjie Zhang, Yan Zheng, Ze Zheng
HIGHLIGHT: This paper proposes a novel approach called Bayes-ToMoP which can efficiently detect the strategy of opponents using either stationary or higher-level reasoning strategies.

89, TITLE: Large-Scale Home Energy Management Using Entropy-Based Collective Multiagent Deep Reinforcement Learning Framework
<https://www.ijcai.org/proceedings/2019/89>
AUTHORS: Yaodong Yang, Jianye Hao, Yan Zheng, Chao Yu
HIGHLIGHT: In this paper, we focus on a microgrid scenario in which modern homes interact together under a large-scale setting to better optimize their electricity cost.

90, TITLE: Complexity of Manipulating and Controlling Approval-Based Multiwinner Voting
<https://www.ijcai.org/proceedings/2019/90>
AUTHORS: Yongjie Yang
HIGHLIGHT: We study the complexity of several manipulation and control problems for six prevalent approval based multiwinner voting rules.

91, TITLE: On the Tree Representations of Dichotomous Preferences
<https://www.ijcai.org/proceedings/2019/91>
AUTHORS: Yongjie Yang
HIGHLIGHT: We study numerous restricted domains of dichotomous preferences with respect to some tree structures.

92, TITLE: The Price of Governance: A Middle Ground Solution to Coordination in Organizational Control
<https://www.ijcai.org/proceedings/2019/92>
AUTHORS: Chao Yu, Guozhen Tan
HIGHLIGHT: This paper investigates a middle ground solution between decentralized interactions and centralized administrations for coordinating agents beyond inefficient behavior.

93, TITLE: Decentralized Optimization with Edge Sampling
<https://www.ijcai.org/proceedings/2019/93>
AUTHORS: Chi Zhang, Qianxiao Li, Peilin Zhao

HIGHLIGHT: In this paper, we propose a decentralized distributed algorithm with stochastic communication among nodes, building on a sampling method called "edge sampling".

94, TITLE: Explore Truthful Incentives for Tasks with Heterogenous Levels of Difficulty in the Sharing Economy
<https://www.ijcai.org/proceedings/2019/94>

AUTHORS: Pengzhan Zhou, Xin Wei, Cong Wang, Yuanyuan Yang

HIGHLIGHT: In this paper, we investigate this general problem by considering a system with k levels of difficulty.