# Table of Contents

## Volume 1

### Main Track

#### Agent-Based and Multi-Agent Systems

<table>
<thead>
<tr>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distance Polymatrix Coordination Games</td>
<td>3</td>
</tr>
<tr>
<td><em>Alessandro Aloisio, Michele Flammini, Bojana Kodric, Cosimo Vinci</em></td>
<td></td>
</tr>
<tr>
<td>Diversity in Kemeny Rank Aggregation: A Parameterized Approach</td>
<td>10</td>
</tr>
<tr>
<td><em>Emmanuel Arrighi, Henning Fernau, Daniel Lokshtanov, Mateus de Oliveira Oliveira, Petra Wolf</em></td>
<td></td>
</tr>
<tr>
<td>School Choice with Flexible Diversity Goals and Specialized Seats</td>
<td>17</td>
</tr>
<tr>
<td><em>Haris Aziz, Zhaohong Sun</em></td>
<td></td>
</tr>
<tr>
<td>PROPm Allocations of Indivisible Goods to Multiple Agents</td>
<td>24</td>
</tr>
<tr>
<td><em>Artem Baklanov, Pranav Garimidi, Vasilis Gkatzelis, Daniel Schoepflin</em></td>
<td></td>
</tr>
<tr>
<td>Learning Within an Instance for Designing High-Revenue Combinatorial Auctions</td>
<td>31</td>
</tr>
<tr>
<td><em>Maria-Florina Balcan, Siddharth Prasad, Tuomas Sandholm</em></td>
<td></td>
</tr>
<tr>
<td>Combining Fairness and Optimality when Selecting and Allocating Projects</td>
<td>38</td>
</tr>
<tr>
<td><em>Khaled Belahcène, Vincent Mousseau, Anaëlle Wilczynski</em></td>
<td></td>
</tr>
<tr>
<td>Two Influence Maximization Games on Graphs Made Temporal</td>
<td>45</td>
</tr>
<tr>
<td><em>Niclas Boehmer, Vincent Froese, Julia Henkel, Yvonne Lasars, Rolf Niedermeier, Malte Renken</em></td>
<td></td>
</tr>
<tr>
<td>Winner Robustness via Swap- and Shift-Bribery: Parameterized Counting Complexity and Experiments</td>
<td>52</td>
</tr>
<tr>
<td><em>Niclas Boehmer, Robert Bredereck, Piotr Faliszewski, Rolf Niedermeier</em></td>
<td></td>
</tr>
<tr>
<td>Putting a Compass on the Map of Elections</td>
<td>59</td>
</tr>
<tr>
<td><em>Niclas Boehmer, Robert Bredereck, Piotr Faliszewski, Rolf Niedermeier, Stanislaw Szufa</em></td>
<td></td>
</tr>
<tr>
<td>Loyalty in Cardinal Hedonic Games</td>
<td>66</td>
</tr>
<tr>
<td><em>Martin Bullinger, Stefan Kober</em></td>
<td></td>
</tr>
<tr>
<td>Approximating the Shapley Value Using Stratified Empirical Bernstein Sampling</td>
<td>73</td>
</tr>
<tr>
<td><em>Mark A. Burgess, Archie C. Chapman</em></td>
<td></td>
</tr>
<tr>
<td>Picking Sequences and Monotonicity in Weighted Fair Division</td>
<td>82</td>
</tr>
<tr>
<td><em>Mithun Chakraborty, Ulrike Schmidt-Kraepelin, Warut Suksompong</em></td>
<td></td>
</tr>
<tr>
<td>Fractional Matchings under Preferences: Stability and Optimality</td>
<td>89</td>
</tr>
<tr>
<td><em>Jiehua Chen, Sanjukta Roy, Manuel Sorge</em></td>
<td></td>
</tr>
<tr>
<td>Temporal Induced Self-Play for Stochastic Bayesian Games</td>
<td>96</td>
</tr>
<tr>
<td><em>Weizhe Chen, Zihan Zhou, Yi Wu, Fei Fang</em></td>
<td></td>
</tr>
</tbody>
</table>
Cooperation in Threshold Public Projects with Binary Actions .......................................................... 104
Yiling Chen, Biaoshuai Tao, Fang-Yi Yu

Learning in Markets: Greed Leads to Chaos but Following the Price is Right ........................................ 111
Yun Kuen Cheung, Stefanos Leonardos, Georgios Piliouras

Identifying Norms from Observation Using MCMC Sampling ................................................................. 118
Stephen Cranefield, Ashish Dhiman

Improving Multi-agent Coordination by Learning to Estimate Contention ............................................ 125
Panayiotis Danassis, Florian Wiedemair, Boi Faltings

Multi-Agent Intention Progression with Black-Box Agents ........................................................................ 132
Michael Dann, Yuan Yao, Brian Logan, John Thangarajah

The Parameterized Complexity of Connected Fair Division ...................................................................... 139
Argyrios Deligkas, Eduard Eiben, Robert Ganian, Thelka Hamm, Sebastian Ordyniak

Neural Regret-Matching for Distributed Constraint Optimization Problems ........................................... 146
Yanchen Deng, Runsheng Yu, Xinrun Wang, Bo An

Online Selection of Diverse Committees .................................................................................................. 154
Virginie Do, Jamal Atif, Jérôme Lang, Nicolas Usunier

Graphical Cake Cutting via Maximin Share .................................................................................................. 161
Edith Elkind, Erel Segal-Halevi, Warut Suksompong

Keep Your Distance: Land Division With Separation ............................................................................... 168
Edith Elkind, Erel Segal-Halevi, Warut Suksompong

On a Competitive Secretary Problem with Deferred Selections .............................................................. 175
Tomer Ezra, Michal Feldman, Ron Kupfer

Relaxed Core Stability in Fractional Hedonic Games .................................................................................. 182
Angelo Fanelli, Gianpiero Monaco, Luca Moscardelli

Reasoning over Argument-Incomplete AAFs in the Presence of Correlations ........................................ 189
Bettina Fazzinga, Sergio Flesca, Filippo Furfaro

Kemeny Consensus Complexity .................................................................................................................. 196
Zack Fitzsimmons, Edith Hemaspaandra

Two-Sided Matching Meets Fair Division .................................................................................................... 203
Rupert Freeman, Evi Micha, Nisarg Shah

Worst-case Bounds on Power vs. Proportion in Weighted Voting Games with Application to False-name Manipulation ................................................................................................................ 210
Yotam Gafni, Ron Lavi, Moshe Tennenholtz

Even More Effort Towards Improved Bounds and Fixed-Parameter Tractability for Multiwinner Rules .............................................................................................................................. 217
Sushmita Gupta, Pallavi Jain, Saket Saurabh, Nimrod Talmon

Fair and Efficient Resource Allocation with Partial Information ............................................................ 224
Daniel Halpern, Nisarg Shah
Accomplice Manipulation of the Deferred Acceptance Algorithm ........................................ 231
   Hadi Hosseini, Fatima Umar, Rohit Vaish

Guaranteeing Maximin Shares: Some Agents Left Behind ................................................. 238
   Hadi Hosseini, Andrew Searns

Surprisingly Popular Voting Recovers Rankings, Surprisingly! .......................................... 245
   Hadi Hosseini, Debmalya Mandal, Nisarg Shah, Kevin Shi

SURPRISE! and When to Schedule It .................................................................................... 252
   Zhizhuan Huang, Shengwei Xu, You Shan, Yuxuan Lu, Yuqing Kong, Tracy Xiao Liu, Grant
   Schoenebeck

Dynamic Proportional Rankings ............................................................................................ 261
   Jonas Israel, Markus Brill

A Polynomial-time, Truthful, Individually Rational and Budget Balanced Ridesharing Mechanism 268
   Tatsuya Iwase, Sebastian Stein, Enrico H. Gerding

Participatory Budgeting with Project Groups ........................................................................ 276
   Pallavi Jain, Krzysztof Sornat, Nimrod Talmon, Meirav Zehavi

Interaction Considerations in Learning from Humans ......................................................... 283
   Pallavi Koppol, Henny Admoni, Reid Simmons

Two-Stage Facility Location Games with Strategic Clients and Facilities ............................... 292
   Simon Krogmann, Pascal Lenzner, Louise Molitor, Alexander Skopalik

Fairness in Long-Term Participatory Budgeting ..................................................................... 299
   Martin Lackner, Jan Maly, Simon Rey

Strategyproof Randomized Social Choice for Restricted Sets of Utility Functions .................. 306
   Patrick Lederer

Budget-feasible Mechanisms for Representing Groups of Agents Proportionally ....................... 313
   Xiang Liu, Hau Chan, Minming Li, Weiwei Wu

Improving Welfare in One-Sided Matchings using Simple Threshold Queries ....................... 321
   Thomas Ma, Vijay Menon, Kate Larson

Generalized Kings and Single-Elimination Winners in Random Tournaments ......................... 328
   Pasin Manurangsi, Warut Suksompong

Almost Envy-Freeness for Groups: Improved Bounds via Discrepancy Theory ......................... 335
   Pasin Manurangsi, Warut Suksompong

Winner Determination and Strategic Control in Conditional Approval Voting ....................... 342
   Evangelos Markakis, Georgios Papasotiropoulos

Majority Vote in Social Networks: Make Random Friends or Be Stubborn to Overpower Elites 349
   Charlotte Out, Ahad N. Zehmakan

Mean Field Games Flock! The Reinforcement Learning Way ............................................. 356
   Sarah Perrin, Mathieu Laurière, Julien Pérolat, Matthieu Geist, Romuald Élie, Olivier
   Pietquin
<table>
<thead>
<tr>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data-Driven Methods for Balancing Fairness and Efficiency in Ride-Pooling</td>
<td>363</td>
</tr>
<tr>
<td>Naveen Raman, Sanket Shah, John Dickerson</td>
<td></td>
</tr>
<tr>
<td>Shortlisting Rules and Incentives in an End-to-End Model for Participatory Budgeting</td>
<td>370</td>
</tr>
<tr>
<td>Simon Rey, Ulle Endriss, Ronald de Haan</td>
<td></td>
</tr>
<tr>
<td>Matchings with Group Fairness Constraints: Online and Offline Algorithms</td>
<td>377</td>
</tr>
<tr>
<td>Govind S. Sankar, Anand Louis, Meghana Nasre, Prajakta Nimbhorkar</td>
<td></td>
</tr>
<tr>
<td>Stochastic Market Games</td>
<td>384</td>
</tr>
<tr>
<td>Kyrill Schmid, Lenz Belzner, Robert Müller, Johannes Tochtermann, Claudia Linnhoff-Popien</td>
<td></td>
</tr>
<tr>
<td>Tango: Declarative Semantics for Multiagent Communication Protocols</td>
<td>391</td>
</tr>
<tr>
<td>Munindar P. Singh, Samuel H. Christie V.</td>
<td></td>
</tr>
<tr>
<td>Vitality Indices are Equivalent to Induced Game-Theoretic Centralities</td>
<td>398</td>
</tr>
<tr>
<td>Oskar Skibski</td>
<td></td>
</tr>
<tr>
<td>Game-theoretic Analysis of Effort Allocation of Contributors to Public Projects</td>
<td>405</td>
</tr>
<tr>
<td>Jared Soundy, Chenhao Wang, Clay Stevens, Hau Chan</td>
<td></td>
</tr>
<tr>
<td>New Algorithms for Japanese Residency Matching</td>
<td>412</td>
</tr>
<tr>
<td>Zhaohong Sun, Taiki Todo, Makoto Yokoo</td>
<td></td>
</tr>
<tr>
<td>Fair Pairwise Exchange among Groups</td>
<td>419</td>
</tr>
<tr>
<td>Zhaohong Sun, Taiki Todo, Toby Walsh</td>
<td></td>
</tr>
<tr>
<td>Reducing Bus Bunching with Asynchronous Multi-Agent Reinforcement Learning</td>
<td>426</td>
</tr>
<tr>
<td>Jiawei Wang, Lijun Sun</td>
<td></td>
</tr>
<tr>
<td>Emergent Prosociality in Multi-Agent Games Through Gifting</td>
<td>434</td>
</tr>
<tr>
<td>Woodrow Z. Wang, Mark Beliaev, Erdem Buyik, Daniel A. Lazar, Ramtin Pedarsani, Dorsa Sadigh</td>
<td></td>
</tr>
<tr>
<td>An Axiom System for Feedback Centralalities</td>
<td>443</td>
</tr>
<tr>
<td>Tomasz Wgs, Oskar Skibski</td>
<td></td>
</tr>
<tr>
<td>Manipulation of k-Coalitional Games on Social Networks</td>
<td>450</td>
</tr>
<tr>
<td>Naftali Waxman, Sarit Kraus, Noam Hazon</td>
<td></td>
</tr>
<tr>
<td>State-Aware Value Function Approximation with Attention Mechanism for Restless Multi-armed Bandits</td>
<td>458</td>
</tr>
<tr>
<td>Shuang Wu, Jingyu Zhao, Guangjian Tian, Jun Wang</td>
<td></td>
</tr>
<tr>
<td>Budget-feasible Maximum Nash Social Welfare is Almost Envy-free</td>
<td>465</td>
</tr>
<tr>
<td>Xiaowei Wu, Bo Li, Jiarui Gan</td>
<td></td>
</tr>
<tr>
<td>Learning with Generated Teammates to Achieve Type-Free Ad-Hoc Teamwork</td>
<td>472</td>
</tr>
<tr>
<td>Dong Xing, Qianhui Liu, Qian Zheng, Gang Pan</td>
<td></td>
</tr>
<tr>
<td>H-FL: A Hierarchical Communication-Efficient and Privacy-Protected Architecture for Federated Learning</td>
<td>479</td>
</tr>
<tr>
<td>He Yang</td>
<td></td>
</tr>
<tr>
<td>Dominant Resource Fairness with Meta-Tyes</td>
<td>486</td>
</tr>
<tr>
<td>Steven Yin, Shatian Wang, Lingyi Zhang, Christian Kroer</td>
<td></td>
</tr>
</tbody>
</table>
Altruism Design in Networked Public Goods Games ................................................................. 493
Sixie Yu, David Kempe, Yevgeniy Vorobeychik

MFVFD: A Multi-Agent Q-Learning Approach to Cooperative and Non-Cooperative Tasks .................. 500
Tianhao Zhang, Qiwei Ye, Jiang Bian, Guangming Xie, Tie-Yan Liu

Data-Efficient Reinforcement Learning for Malaria Control .......................................................... 507
Lixin Zou

AI ETHICS, TRUST, FAIRNESS

Interacting with Explanations through Critiquing ............................................................................. 515
Diego Antognini, Claudiu Musat, Boi Faltings

On Smoother Attributions using Neural Stochastic Differential Equations ........................................ 522
Sumit Jha, Rickard Ewetz, Alvaro Velasquez, Susmit Jha

Location Predicts You: Location Prediction via Bi-direction Speculation and Dual-level Association .......................................................... 529
Xixi Li, Ruimin Hu, Zheng Wang, Toshikiko Yamasaki

Addressing the Long-term Impact of ML Decisions via Policy Regret .............................................. 537
David Lindner, Hoda Heidari, Andreas Krause

Multi-Objective Reinforcement Learning for Designing Ethical Environments .................................... 545
Manel Rodriguez-Soto, Maite Lopez-Sanchez, Juan A. Rodriguez Aguilar

Bias Silhouette Analysis: Towards Assessing the Quality of Bias Metrics for Word Embedding Models ........................................................................ 552
Maximilian Spliethöver, Henning Wachsmuth

Decision Making with Differential Privacy under a Fairness Lens ..................................................... 560
Cuong Tran, Ferdinando Fioretto, Pascal Van Hentenryck, Zhiyan Yao

An Examination of Fairness of AI Models for Deepfake Detection .................................................. 567
Loc Trinh, Yan Liu

Characteristic Examples: High-Robustness, Low-Transferability Fingerprinting of Neural Networks .......................................................... 575
Siyue Wang, Xiao Wang, Pin-Yu Chen, Pu Zhao, Xue Lin

COMPUTER VISION I

GASP: Gated Attention for Saliency Prediction ...................................................................................... 584
Fares Abawi, Tom Weber, Stefan Wermter

Explaining Self-Supervised Image Representations with Visual Probing ........................................... 592
Dominika Basaj, Witold Oleszkiewicz, Igor Sieradzki, Michal Górszczak, Barbara Rychalska, Tomasz Trzciński, Bartosz Zieliński

Themis: A Fair Evaluation Platform for Computer Vision Competitions .......................................... 599
Zinuo Cai, Jianyong Yuan, Yang Hua, Tao Song, Hao Wang, Zhengui Xue, Ningxin Hu, Jonathan Ding, Ruhui Ma, Mohammad Reza Haghighat, Haibing Guan
Novelty Detection via Contrastive Learning with Negative Data Augmentation................................. 606
  Chengwei Chen, Yuan Xie, Shaohui Lin, Ruizhi Qiao, Jian Zhou, Xin Tan, Yi Zhang, Lizhuang Ma

Zero-Shot Chinese Character Recognition with Stroke-Level Decomposition ........................................... 615
  Jingye Chen, Bin Li, Xiangyang Xue

Leveraging Human Attention in Novel Object Captioning .......................................................... 622
  Xianyu Chen, Ming Jiang, Qi Zhao

Boundary Knowledge Translation based Reference Semantic Segmentation ........................................... 629
  Lechao Cheng, Zunlei Feng, Xinchao Wang, Ya Jie Liu, Jie Lei, Mingli Song

Hierarchical Object-oriented Spatio-Temporal Reasoning for Video Question Answering ..................... 636
  Long Hoang Dang, Thao Minh Le, Vuong Le, Truyen Tran

Phonovisual Biases in Language: is the Lexicon Tied to the Visual World? ......................................... 643
  Andrea Gregor de Varda, Carlo Strapparava

Direction-aware Feature-level Frequency Decomposition for Single Image Deraining ......................... 650
  Sen Deng, Yidan Feng, Mingqiang Wei, Haoran Xie, Yipeng Chen, Jonathan Li, Xiao-Ping Zhang, Jing Qin

TCIC: Theme Concepts Learning Cross Language and Vision for Image Captioning ............................. 657
  Zhihao Fan, Zhongyu Wei, Siyuan Wang, Ruize Wang, Zejun Li, Haijun Shan, Xuanjing Huang

Chop Chop BERT: Visual Question Answering by Chopping VisualBERT’s Heads .......................... 664
  Chenyu Gao, Qi Zhu, Peng Wang, Qi Wu

Feature Space Targeted Attacks by Statistic Alignment .................................................................... 671
  Lianli Gao, Yaya Cheng, Qilong Zhang, Xing Xu, Jingkuan Song

Multi-view Feature Augmentation with Adaptive Class Activation Mapping .................................. 678
  Xiang Gao, Yingjie Tian, Zhiquan Qi

Learning Spectral Dictionary for Local Representation of Mesh ................................................... 685
  Zhongpai Gao, Junchi Yan, Guangtao Zhai, Xiaokang Yang

Self-Supervised Video Action Localization with Adversarial Temporal Transforms ...................... 693
  Guoqiang Gong, Liangfeng Zheng, Wenhao Jiang, Yadong Mu

EventDrop: Data Augmentation for Event-based Learning ............................................................ 700
  Fuqiang Gu, Weicong Sng, Xuke Hu, Fangwen Yu

AdaVQA: Overcoming Language Priors with Adapted Margin Cosine Loss ........................................ 708
  Yangyang Guo, Liqiang Nie, Zhiyong Cheng, Feng Ji, Ji Zhang, Alberto Del Bimbo

Disentangled Face Attribute Editing via Instance-Aware Latent Space Search .................................... 715
  Yuxuan Han, Jiaolong Yang, Ying Fu

VOLUME 2

DeepME: Deep Mixture Experts for Large-scale Image Classification ............................................. 722
  Ming He, Guangyi Lv, Weidong He, Jianping Fan, Guanghua Zeng
<table>
<thead>
<tr>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multi-Scale Selective Feedback Network with Dual Loss for Real Image Denoising</td>
<td>729</td>
</tr>
<tr>
<td>Xiaowan Hu, Yuanhao Cai, Zhihong Liu, Haoqian Wang, Yulun Zhang</td>
<td></td>
</tr>
<tr>
<td>Dynamic Inconsistency-aware DeepFake Video Detection</td>
<td>736</td>
</tr>
<tr>
<td>Ziheng Hu, Hongtao Xie, YuXin Wang, Jiahong Li, Zhongyuan Wang, Yongdong Zhang</td>
<td></td>
</tr>
<tr>
<td>AgeFlow: Conditional Age Progression and Regression with Normalizing Flows</td>
<td>743</td>
</tr>
<tr>
<td>Zhizhong Huang, Shouzhen Chen, Junping Zhang, Hongming Shan</td>
<td></td>
</tr>
<tr>
<td>Self-Supervised Video Representation Learning with Constrained Spatiotemporal Jigsaw</td>
<td>751</td>
</tr>
<tr>
<td>Yuqi Huo, Mingyu Ding, Haoyu Lu, Ziyuan Huang, Mingqian Tang, Zhiwu Lu, Tao Xiang</td>
<td></td>
</tr>
<tr>
<td>Perturb, Predict &amp; Paraphrase: Semi-Supervised Learning using Noisy Student for Image Captioning</td>
<td>758</td>
</tr>
<tr>
<td>Arjit Jain, Pranay Reddy Samala, Preethi Jyothi, Deepak Mittal, Maneesh Singh</td>
<td></td>
</tr>
<tr>
<td>Step-Wise Hierarchical Alignment Network for Image-Text Matching</td>
<td>765</td>
</tr>
<tr>
<td>Zhong Ji, Kexin Chen, Haoran Wang</td>
<td></td>
</tr>
<tr>
<td>Planning with Learned Dynamic Model for Unsupervised Point Cloud Registration</td>
<td>772</td>
</tr>
<tr>
<td>Haobo Jiang, Jianjun Qian, Jin Xie, Jian Yang</td>
<td></td>
</tr>
<tr>
<td>Information Bottleneck Approach to Spatial Attention Learning</td>
<td>779</td>
</tr>
<tr>
<td>Qixia Lai, Yu Li, Ailing Zeng, Minhao Liu, Hanqiu Sun, Qiang Xu</td>
<td></td>
</tr>
<tr>
<td>Noise Doesn't Lie: Towards Universal Detection of Deep Inpainting</td>
<td>786</td>
</tr>
<tr>
<td>Ang Li, Quihong Ke, Xingjun Ma, Hailin Wen, Zhiyuan Zong, Feng Xue, Rui Zhang</td>
<td></td>
</tr>
<tr>
<td>IMENet: Joint 3D Semantic Scene Completion and 2D Semantic Segmentation through Iterative Mutual Enhancement</td>
<td>793</td>
</tr>
<tr>
<td>Jie Li, Laiyan Ding, Rui Huang</td>
<td></td>
</tr>
<tr>
<td>Deep Automatic Natural Image Matting</td>
<td>800</td>
</tr>
<tr>
<td>Jizhizi Li, Jing Zhang, Dacheng Tao</td>
<td></td>
</tr>
<tr>
<td>Medical Image Segmentation using Squeeze-and-Expansion Transformers</td>
<td>807</td>
</tr>
<tr>
<td>Shaohua Li, Xuichao Sui, Xiangde Luo, XinXing Xu, Yong Liu, Rick Goh</td>
<td></td>
</tr>
<tr>
<td>PIANO: A Parametric Hand Bone Model from Magnetic Resonance Imaging</td>
<td>816</td>
</tr>
<tr>
<td>Yuwei Li, Minye Wu, Yuyao Zhang, Lan Xu, Jingyi Yu</td>
<td></td>
</tr>
<tr>
<td>Instance-Aware Coherent Video Style Transfer for Chinese Ink Wash Painting</td>
<td>823</td>
</tr>
<tr>
<td>Hao Liang, Shuai Yang, Wenjing Wang, Jiaying Liu</td>
<td></td>
</tr>
<tr>
<td>Noise2Grad: Extract Image Noise to Denoise</td>
<td>830</td>
</tr>
<tr>
<td>Huangxing Lin, Yihong Zhuang, Yue Huang, Xinghao Ding, Xiaoqing Liu, Yizhou Yu</td>
<td></td>
</tr>
<tr>
<td>Direct Measure Matching for Crowd Counting</td>
<td>837</td>
</tr>
<tr>
<td>Hui Lin, Xiaopeng Hong, Zhiheng Ma, Xing Wei, Yunfeng Qiu, Yaowei Wang, Yihong Gong</td>
<td></td>
</tr>
<tr>
<td>A Multi-Constraint Similarity Learning with Adaptive Weighting for Visible-Thermal Person Re-Identification</td>
<td>845</td>
</tr>
<tr>
<td>Yongguo Ling, Zhiming Luo, Yaojin Lin, Shaozi Li</td>
<td></td>
</tr>
<tr>
<td>Learning 3-D Human Pose Estimation from Catadioptric Videos</td>
<td>852</td>
</tr>
<tr>
<td>Chenchen Liu, Yongzhi Li, Kangqi Ma, Duo Zhang, Peijun Bao, Yadong Mu</td>
<td></td>
</tr>
</tbody>
</table>
Bipartite Matching for Crowd Counting with Point Supervision .................................................. Hao Liu, Qiang Zhao, Yike Ma, Feng Dai

Dual Reweighting Domain Generalization for Face Presentation Attack Detection ................................ Shubao Liu, Ke-Yue Zhang, Taiping Yao, Kekai Sheng, Shouhong Ding, Ying Tai, Jilin Li, Yuan Xie, Lizhuang Ma

Graph Consistency Based Mean-Teaching for Unsupervised Domain Adaptive Person Re-Identification ................................................................. Xiaobin Liu, Shiliang Zhang

Domain Generalization under Conditional and Label Shifts via Variational Bayesian Inference .................. Xiaofeng Liu, Bo Hu, Linghao Jin, Xu Han, Fangyu Xing, Jinsong Ouyang, Jun Lu, Georges El Fakhri, Jonghye Woo

Learn from Concepts: Towards the Purified Memory for Few-shot Learning ............................................ Xancheng Liu, Xudong Tian, Shaohui Lin, Yanyun Qu, Lizhuang Ma, Wang Yuan, Zhizhong Zhang, Yuan Xie

One-Shot Affordance Detection ............................................................................................................... Hongchen Luo, Wei Zhai, Jing Zhang, Yang Cao, Dacheng Tao

CLIMON: Towards High-quality Hash Codes ......................................................................................... 902 Xiao Luo, Daqing Wu, Zeyu Ma, Chong Chen, Minghua Deng, Jinwen Ma, Zhongming Jin, Jianqiang Huang, Xian-Sheng Hua

Point-based Acoustic Scattering for Interactive Sound Propagation via Surface Encoding ... Hsien-Yu Meng, Zhenyu Tang, Dinesh Manocha

Modality-aware Style Adaptation for RGB-Infrared Person Re-Identification ........................................ Ziling Miao, Hong Liu, Wei Shi, Wanlu Xu, Hanrong Ye

Look Wide and Interpret Twice: Improving Performance on Interactive Instruction-following Tasks ... Van-Quang Nguyen, Masanori Suganuma, Takayuki Okatani

Attention-based Pyramid Dilated Lattice Network for Blind Image Denoising ........................................ 931 Mohammad Nikzad, Yongsheng Gao, Jun Zhou

Few-shot Neural Human Performance Rendering from Sparse RGBD Videos ........................................ Anqi Pang, Xin Chen, Haimin Luo, Minye Wu, Jingyi Yu, Lan Xu

Self-boosting for Feature Distillation ..................................................................................................... Yulong Pei, Yanyun Qu, Junping Zhang

SiamRCR: Reciprocal Classification and Regression for Visual Object Tracking ...................................... 952 Jinlong Peng, Zhengkai Jiang, Yueyang Gu, Yang Wu, Yabiao Wang, Ying Tai, Chengjie Wang, Weiyou Lin

Unsupervised Hashing with Contrastive Information Bottleneck ........................................................... 959 Zexuan Qiu, Qinliang Su, Zijing Ou, Jianxing Yu, Changyou Chen

Adaptive Edge Attention for Graph Matching with Outliers ..................................................................... 966 Jingwei Qu, Haibin Ling, Chenrui Zhang, Xiaqing Lyu, Zhi Tang

Multi-Level Graph Encoding with Structural-Collaborative Relation Learning for Skeleton-Based Person Re-Identification ................................................................. 973 Haocong Rao, Shihao Xu, Xiping Hu, Jun Cheng, Bin Hu
Learning Visual Words for Weakly-Supervised Semantic Segmentation ................... 982
  Lixiang Ru, Bo Du, Chen Wu

Learning with Selective Forgetting ........................................................................ 989
  Takashi Shibata, Go Irie, Daiki Ikami, Yu Mitsuzumi

Structure Guided Lane Detection .......................................................................... 997
  Jinming Su, Chao Chen, Ke Zhang, Junfeng Luo, Xiaoming Wei, Xiaolin Wei

Towards Unsupervised Deformable-Instances Image-to-Image Translation ............ 1004
  Sitong Su, Jingkuan Song, Lianli Gao, Junchen Zhu

Enhance Image as You Like with Unpaired Learning ............................................. 1011
  Xiaopeng Sun, Muxingzi Li, Tianyu He, Lubin Fan

Speech2Talking-Face: Inferring and Driving a Face with Synchronized Audio-Visual
  Representation .................................................................................................... 1018
  Yasheng Sun, Hang Zhou, Ziwei Liu, Hideki Koike

Context-aware Cross-level Fusion Network for Camouflaged Object Detection .......... 1025
  Yujia Sun, Geng Chen, Tao Zhou, Yi Zhang, Nian Liu

Proposal-free One-stage Referring Expression via Grid-Word Cross-Attention .......... 1032
  Wei Suo, MengYang Sun, Peng Wang, Qi Wu

MatchVIE: Exploiting Match Relevancy between Entities for Visual Information Extraction .................................................. 1039
  Guozhi Tang, Lele Xie, Lianwen Jin, Jiapeng Wang, Jingdong Chen, Zhen Xu, Qianying Wang, Yaqiang Wu, Hui Li

AVA: Adversarial Vignetting Attack against Visual Recognition ............................ 1046
  Binyu Tian, Felix Juefei-Xu, Qing Guo, Xiaofei Xie, Xiaohong Li, Yang Liu

Towards Cross-View Consistency in Semantic Segmentation While Varying View Direction ................................................... 1054
  Xin Tong, Xianghua Ying, Yongjie Shi, He Zhao, Ruibin Wang

Learning Interpretable Concept Groups in CNNs ............................................... 1061
  Saurabh Varshneya, Antoine Ledent, Robert A. Vandermeulen, Yunwen Lei, Matthias Enders, Damian Borth, Marius Kloft

Text-based Person Search via Multi-Granularity Embedding Learning .................. 1068
  Chengji Wang, Zhiming Luo, Yaojin Lin, Shaozi Li

Cross-Domain Few-Shot Classification via Adversarial Task Augmentation .......... 1075
  Haoqing Wang, Zhi-Hong Deng

Tag, Copy or Predict: A Unified Weakly-Supervised Learning Framework for Visual Information Extraction using Sequences .................................................. 1082
  Jiapeng Wang, Tianwei Wang, Guozhi Tang, Lianwen Jin, Weihong Ma, Kai Ding, Yichao Huang

Spline Positional Encoding for Learning 3D Implicit Signed Distance Fields .............. 1091
  Peng-Shuai Wang, Yang Liu, Yu-Qi Yang, Xin Tong
Audio2Head: Audio-driven One-shot Talking-head Generation with Natural Head Motion .......................... 1098
Suzhen Wang, Lincheng Li, Yu Ding, Changjie Fan, Xin Yu

Norm-guided Adaptive Visual Embedding for Zero-Shot Sketch-Based Image Retrieval ............................ 1106
Wenjie Wang, Yufeng Shi, Shiming Chen, Qinmu Peng, Feng Zheng, Xinge You

Dig into Multi-modal Cues for Video Retrieval with Hierarchical Alignment ........................................... 1113
Wenzhe Wang, Mengdan Zhang, Runnan Chen, Guanyu Cai, Penghao Zhou, Pai Peng, Xiaowei Guo, Jian Wu, Xing Sun

Towards Compact Single Image Super-Resolution via Contrastive Self-distillation ................................. 1122
Yanbo Wang, Shaohui Lin, Yanyun Qu, Haiyan Wu, Zhizhong Zhang, Yuan Xie, Angela Yao

Deep Unified Cross-Modality Hashing by Pairwise Data Alignment ....................................................... 1129
Yimu Wang, Bo Xue, Quan Cheng, Yuhui Chen, Lijun Zhang

HifiFace: 3D Shape and Semantic Prior Guided High Fidelity Face Swapping ........................................... 1136
Yuhang Wang, Xu Chen, Junwei Zhu, Wenqing Chu, Ying Tai, Chengjie Wang, Jilin Li, Yongjian Wu, Feiyue Huang, Rongrong Ji

Domain-Smoothing Network for Zero-Shot Sketch-Based Image Retrieval .............................................. 1143
Zhipeng Wang, Hao Wang, Jie Xun Yan, Aming Wu, Cheng Deng

Local Representation is Not Enough: Soft Point-Wise Transformer for Descriptor and Detector of Local Features .......................................................... 1150
Zihao Wang, Xueyi Li, Zhen Li

Weakly Supervised Dense Video Captioning via Jointly Usage of Knowledge Distillation and Cross-modal Matching ........................................................................ 1157
Bofeng Wu, Guocheng Niu, Jun Yu, Xinyan Xiao, Jianting Zhang, Hua Wu

Tracklet Proposal Network for Multi-Object Tracking on Point Clouds ..................................................... 1165
Hai Wu, Qing Li, Chenglu Wen, Xin Li, Xiaoliang Fan, Cheng Wang

Weakly-Supervised Spatio-Temporal Anomaly Detection in Surveillance Video ........................................ 1172
Jie Wu, Wei Zhang, Guanbin Li, Wenhai Wu, Xiao Tan, Yingying Li, Errui Ding, Liang Lin

GM-MLIC: Graph Matching based Multi-Label Image Classification ...................................................... 1179
Yanan Wu, He Liu, Songhe Feng, Yi Jin, Gengyu Lyu, Zizhang Wu

Micro-Expression Recognition Enhanced by Macro-Expression from Spatial-Temporal Domain ................ 1186
Bin Xia, Shangfei Wang

Segmenting Transparent Objects in the Wild with Transformer .................................................................... 1194
Enze Xie, Wenjia Wang, Wenhai Wang, Peize Sun, Hang Xu, Ding Liang, Ping Luo

Adversarial Feature Disentanglement for Long-Term Person Re-identification ....................................... 1201
Wanlu Xu, Hong Liu, Wei Shi, Ziling Miao, Zhisheng Lu, Feihu Chen

Tool- and Domain-Agnostic Parameterization of Style Transfer Effects Leveraging Pretrained Perceptual Metrics .............................................................................. 1208
Hiromu Yakura, Yuki Koyama, Masataka Goto

Hierarchical Self-supervised Augmented Knowledge Distillation .......................................................... 1217
Chuanguang Yang, Zhulin An, Lihang Cai, Yongjun Xu
RR-Net: Injecting Interactive Semantics in Human-Object Interaction Detection

Dongming Yang, Yuexian Zou, Can Zhang, Meng Cao, Jie Chen

Non-contact Pain Recognition from Video Sequences with Remote Physiological Measurements Prediction

Ruijing Yang, Ziyu Guan, Zitong Yu, Xiaoyi Feng, Jinye Peng, Guoying Zhao

Coupling Intent and Action for Pedestrian Crossing Behavior Prediction

Yu Yao, Ella Atkins, Matthew Johnson-Roberson, Ram Vasudevan, Xiaoxiao Du

Object Detection in Densely Packed Scenes via Semi-Supervised Learning with Dual Consistency

Chao Ye, Huaidong Zhang, Xuemiao Xu, Weimei Cai, Jing Qin, Kup-Sze Choi

Adv-MakeUp: A New Imperceptible and Transferable Attack on Face Recognition

Bangjie Yin, Wenxuan Wang, Taiping Yao, Junfeng Guo, Zelun Kong, Shouhong Ding, Jilin Li, Cong Liu

Multimodal Transformer Networks for Pedestrian Trajectory Prediction

Zi Yi Yin, Ruijin Liu, Zhiliang Xiong, Zejian Yuan

EmbedMask: Embedding Coupling for Instance Segmentation

Hui Ying, Zhaojin Huang, Shu Liu, Tianjia Shao, Kun Zhou

CogTree: Cognition Tree Loss for Unbiased Scene Graph Generation

Jing Yu, Yuan Chai, Yujing Wang, Yue Hu, Qi Wu

Dual-Cross Central Difference Network for Face Anti-Spoofing

Zitong Yu, Yunxiao Qin, Hengshuang Zhao, Xiaobai Li, Guoying Zhao

Detecting Deepfake Videos with Temporal Dropout 3DCNN

Daichi Zhang, Chenyu Li, Fanzhao Lin, Dan Zeng, Shiming Ge

Low Resolution Information Also Matters: Learning Multi-Resolution Representations for Person Re-Identification

Guoqing Zhang, Yuhao Chen, Weisi Lin, Arun Chandran, Xuan Jing

Removing Foreground Occlusions in Light Field using Micro-lens Dynamic Filter

Shuo Zhang, Zeqi Shen, Youfang Lin

Learning Implicit Temporal Alignment for Few-shot Video Classification

Songyang Zhang, Jiale Zhou, Xuming He

What If We Could Not See? Counterfactual Analysis for Egocentric Action Anticipation

Tianyu Zhang, Weiqing Min, Jiahao Yang, Tao Liu, Shuqiang Jiang, Yong Rui

Context-Aware Image Inpainting with Learned Semantic Priors

Wendong Zhang, Junwei Zhu, Ying Tai, Yunbo Wang, Wenqing Chu, Bingbing Ni, Chengjie Wang, Xiaokang Yang

Sequential 3D Human Pose Estimation Using Adaptive Point Cloud Sampling Strategy

Zihao Zhang, Lei Hu, Xiaoming Deng, Shihong Xia

Rescuing Deep Hashing from Dead Bits Problem

Shu Zhao, Dayan Wu, Yucan Zhou, Bo Li, Weiping Wang
PointLIE: Locally Invertible Embedding for Point Cloud Sampling and Recovery

Weibing Zhao, Xu Yan, Jiantao Gao, Ruimao Zhang, Jiayan Zhang, Zhen Li, Song Wu, Shuguang Cui

A Sketch-Transformer Network for Face Photo-Sketch Synthesis

Mingrui Zhu, Changcheng Liang, Nannan Wang, Xiaoyu Wang, Zhifeng Li, Xinbo Gao

PoseGTAC: Graph Transformer Encoder-Decoder with Atrous Convolution for 3D Human Pose Estimation

Yiran Zhu, Xing Xu, Fumin Shen, Yanli Ji, Lianli Gao, Heng Tao Shen

CONSTRAINTS AND SAT

Reducing SAT to Max2SAT

Carlos Ansétégui, Jordi Levy

Improved CP-Based Lagrangian Relaxation Approach with an Application to the TSP

Raphaël Boudreault, Claude-Guy Quimper

Efficiently Explaining CSPs with Unsatisfiable Subset Optimization

Emilio Gamba, Bart Bogaerts, Tias Guns

Decomposition Strategies to Count Integer Solutions over Linear Constraints

Cunjing Ge, Armin Biere

Solving Graph Homomorphism and Subgraph Isomorphism Problems Faster Through Clique Neighbourhood Constraints

Sonja Kraiczy, Ciaran McCreesh

Backdoor DNFs

Sebastian Ordyniak, Andre Schidler, Stefan Szeider

Learning Implicitly with Noisy Data in Linear Arithmetic

Alexander Rader, Ionela G Mocanu, Vaishak Belle, Brendan Juba

Computing Optimal Hypertree Decompositions with SAT

Andre Schidler, Stefan Szeider

DATA MINING

Exploring Periodicity and Interactivity in Multi-Interest Framework for Sequential Recommendation

Gaode Chen, Xinghua Zhang, Yanyan Zhao, Cong Xue, Ji Xiang

Masked Contrastive Learning for Anomaly Detection

Hyunsoo Cho, Jinseok Seol, Sang-goo Lee

VOLUME 3

Multi-Channel Pooling Graph Neural Networks

Jinlong Du, Senzhang Wang, Hao Miao, Jiaqiang Zhang
Does Every Data Instance Matter? Enhancing Sequential Recommendation by Eliminating Unreliable Data

Yatong Sun, Bin Wang, Zhu Sun, Xiaochun Yang ................................................................. 1579

Cooperative Joint Attentive Network for Patient Outcome Prediction on Irregular Multi-Rate Multivariate Health Data ................................................................................................. 1586

Qingxiong Tan, Mang Ye, Grace Lai-Hung Wong, PongChi Yuen

Pattern-enhanced Contrastive Policy Learning Network for Sequential Recommendation ............................................ 1593

Xiaohai Tong, Pengfei Wang, Chenliang Li, Long Xia, Shaozhang Niu

Heuristic Search for Approximating One Matrix in Terms of Another Matrix ........................................................... 1600

Guihong Wan, Haim Schweitzer

Preference-Adaptive Meta-Learning for Cold-Start Recommendation ........................................................................ 1607

Li Wang, Binbin Jin, Zhenya Huang, Hongke Zhao, Defu Lian, Qi Liu, Enhong Chen

Federated Learning with Fair Averaging ................................................................................................. 1615

Zheng Wang, Xiaoliang Fan, Jianzhong Qi, Chenglu Wen, Cheng Wang, Rongshan Yu

User-as-Graph: User Modeling with Heterogeneous Graph Pooling for News Recommendation .................................. 1624

Chuhan Wu, Fangzhao Wu, Yongfeng Huang, Xing Xie

Spatial-Temporal Sequential Hypergraph Network for Crime Prediction with Dynamic Multiplex Relation Learning .................................................................................................................. 1631

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

Heterogeneous Graph Information Bottleneck .......................................................................................... 1638

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

Graph Deformer Network ................................................................................................................... 1646

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

Knowledge-based Residual Learning ................................................................................................. 1653

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

HEURISTIC SEARCH AND GAME PLAYING

Faster Guarantees of Evolutionary Algorithms for Maximization of Monotone Submodular Functions .............................................................................................................................. 1661

Victoria G. Crawford

DACBench: A Benchmark Library for Dynamic Algorithm Configuration .......................................................... 1668

Theresa Eimer, André Biedenkapp, Maximilian Reimer, Steven Adriansen, Frank Hutter, Marius Lindauer

Bounded-cost Search Using Estimates of Uncertainty ........................................................................ 1675

Maximilian Fickert, Tianyi Gu, Wheeler Ruml

A Runtime Analysis of Typical Decomposition Approaches in MOEA/D Framework for Many-objective Optimization Problems .................................................................................. 1682

Zhengxin Huang, Yuren Zhou, Chuan Luo, Qingwei Lin

A New Upper Bound Based on Vertex Partitioning for the Maximum K-plex Problem .................................. 1689

Hua Jiang, Dongming Zhu, Zhichao Xie, Shaowen Yao, Zhang-Hua Fu
Choosing the Right Algorithm With Hints From Complexity Theory .................................................. 1697
Shouda Wang, Weijie Zheng, Benjamin Doerr

HUMANS AND AI

UIBert: Learning Generic Multimodal Representations for UI Understanding .................................... 1705
Chongyang Bai, Xiaoxue Zang, Ying Xu, Srinivas Sunkara, Abhinav Rastogi, Jindong Chen,
Blaise Agüera y Arcas

Pruning of Deep Spiking Neural Networks through Gradient Rewiring .............................................. 1713
Yanqi Chen, Zhaofei Yu, Wei Fang, Tiejun Huang, Yonghong Tian

Human-AI Collaboration with Bandit Feedback ...................................................................................... 1722
Ruijiang Gao, Maytal Saar-Tsechansky, Maria De-Arteaga, Ligong Han, Min Kyung Lee,
Matthew Lease

Accounting for Confirmation Bias in Crowdsourced Label Aggregation .............................................. 1729
Meric Altug Gemalmaz, Ming Yin

An Entanglement-driven Fusion Neural Network for Video Sentiment Analysis ................................. 1736
Dimitris Gkoumas, Qiuchi Li, Yijun Yu, Dawei Song

Event-based Action Recognition Using Motion Information and Spiking Neural Networks ............... 1743
Qianhui Liu, Dong Xing, Huajin Tang, De Ma, Gang Pan

Item Response Ranking for Cognitive Diagnosis .................................................................................... 1750
Shiwei Tong, Qi Liu, Runlong Yu, Wei Huang, Zhenya Huang, Zachary A. Pardos, Weijie Jiang

Type Anywhere You Want: An Introduction to Invisible Mobile Keyboard .......................................... 1757
Sahng-Min Yoo, Ue-Hwan Kim, Yewon Hwang, Jong-Hwan Kim

KNOWLEDGE REPRESENTATION AND REASONING

Best-Effort Synthesis: Doing Your Best Is Not Harder Than Giving Up ............................................... 1766
Benjamin Aminof, Giuseppe De Giacomo, Sasha Rubin

A Game-Theoretic Account of Responsibility Allocation ....................................................................... 1773
Christel Baier, Florian Funke, Rupak Majumdar

On Cycles, Attackers and Supporters --- A Contribution to The Investigation of Dynamics in
Abstract Argumentation .................................................................................................................. 1780
Ringo Baumann, Markus Ulbricht

Reasoning About Agents That May Know Other Agents’ Strategies ..................................................... 1787
Francesco Belardinelli, Sophia Knight, Alessio Lomuscio, Bastien Maubert, Aniello Murano,
Sasha Rubin

Choice Logics and Their Computational Properties ............................................................................. 1794
Michael Bernreiter, Jan Maly, Stefan Woltran

Cardinality Queries over DL-Lite Ontologies ......................................................................................... 1801
Meghyn Bienvenu, Quentin Manière, Michaël Thomazo
Inferring Time-delayed Causal Relations in POMDPs from the Principle of Independence of Cause and Mechanism ................................................................. 1944
   Junchi Liang, Abdeslam Boularias

Reasoning about Beliefs and Meta-Beliefs by Regression in an Expressive Probabilistic Action Logic ................................................................. 1951
   Daxin Liu, Gerhard Lakemeyer

Multi-Agent Belief Base Revision ............................................................................. 1959
   Emiliano Lorini, Francois Schwarzentruber

Bounded Predicates in Description Logics with Counting ....................................... 1966
   Sanja Lukumbuzya, Mantas Simkus

On the Relation Between Approximation Fixpoint Theory and Justification Theory .................................................. 1973
   Simon Marynissen, Bart Bogaerts, Marc Denecker

Faster Smarter Proof by Induction in Isabelle/HOL ................................................ 1981
   Yutaka Nagashima

Two Forms of Responsibility in Strategic Games .................................................... 1989
   Pavel Naumov, Jia Tao

Compressing Exact Cover Problems with Zero-suppressed Binary Decision Diagrams .................................................. 1996
   Masaaki Nishino, Norihiro Yasuda, Kengo Sakamura

Modeling Precomputation In Games Played Under Computational Constraints ........ 2005
   Thomas Orton

A Ladder of Causal Distances .................................................................................... 2012
   Maxime Peyrard, Robert West

Unsupervised Knowledge Graph Alignment by Probabilistic Reasoning and Semantic Embedding .................................................. 2019
   Zhiyuan Qi, Ziheng Zhang, Jiaoyan Chen, Xi Chen, Yuejia Xiang, Ningyu Zhang, Yefeng Zheng

Efficient PAC Reinforcement Learning in Regular Decision Processes ......................... 2026
   Alessandro Ronca, Giuseppe De Giacomo

Inconsistency Measurement for Paraconsistent Inference ........................................ 2033
   Yakoub Salhi

A Description Logic for Analogical Reasoning ........................................................ 2040
   Steven Schockaert, Yazmin Ibanez-Garcia, Victor Gutierrez-Basulto

Ranking Extensions in Abstract Argumentation ....................................................... 2047
   Kenneth Skiba, Tjitze Rienstra, Matthias Thimm, Jesse Heyninck, Gabriele Kern-Isberner

Physics-informed Spline Learning for Nonlinear Dynamics Discovery ......................... 2054
   Fangzheng Sun, Yang Liu, Hao Sun

Lifting Symmetry Breaking Constraints with Inductive Logic Programming ............ 2062
   Alice Tarzariol, Martin Gebser, Konstantin Schekotihin

Skeptical Reasoning with Preferred Semantics in Abstract Argumentation without Computing Preferred Extensions .................................................. 2069
   Matthias Thimm, Federico Cerutti, Mauro Vallati
Abstract Argumentation Frameworks with Domain Assignments ................................................................. 2076
Alexandros Vassiliades, Theodore Patkos, Giorgos Flouris, Antonis Bikakis, Nick Bassiliades, Dimitris Plexousakis

Transforming Robotic Plans with Timed Automata to Solve Temporal Platform Constraints ....................... 2083
Tarik Viehmann, Till Hofmann, Gerhard Lakemeyer

Neighborhood Intervention Consistency: Measuring Confidence for Knowledge Graph Link Prediction ................................................................. 2090
Kai Wang, Yu Liu, Quan Z. Sheng

Causal Discovery with Multi-Domain LiNGAM for Latent Factors ................................................................. 2097
Yan Zeng, Shohei Shimizu, Ruichu Cai, Feng Xie, Michio Yamamoto, Zhifeng Hao

AMEIR: Automatic Behavior Modeling, Interaction Exploration and MLP Investigation in the Recommender System .................................................................................................................................................................................. 2104
Pengyu Zhao, Kecheng Xiao, Yuanxing Zhang, Kaigui Bian, Wei Yan

MACHINE LEARNING

The Surprising Power of Graph Neural Networks with Random Node Initialization ................................................................. 2112
Ralph Abboud, Ismail İlkan Ceylan, Martin Grohe, Thomas Lukasiewicz

Likelihood-free Out-of-Distribution Detection with Invertible Generative Models ................................................................. 2119
Amirhossein Ahmadian, Fredrik Lindsten

Simulation of Electron-Proton Scattering Events by a Feature-Augmented and Transformed Generative Adversarial Network (FAT-GAN) .................................................................................................................................................................................. 2126
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

Deep Reinforcement Learning for Navigation in AAA Video Games .................................................................................................................................................................................. 2133
Eloi Alonso, Maxim Peter, David Goumard, Joshua Romoff

Conditional Self-Supervised Learning for Few-Shot Classification .................................................................................................................................................................................. 2140
Yuexuan An, Hui Xue, Xingyu Zhao, Lu Zhang

DEHB: Evolutionary Hyperband for Scalable, Robust and Efficient Hyperparameter Optimization ....... 2147
Noor Awad, Neeratyoy Mallik, Frank Hutter

Verifying Reinforcement Learning up to Infinity ................................................................................................. 2154
Edoardo Bacci, Mirco Giacobbe, David Parker

VOLUME 4

Robustly Learning Composable Options in Deep Reinforcement Learning ................................................................. 2161
Akhil Bagaria, Jason Senthil, Matthew Slivinski, George Konidaris

Reconciling Rewards with Predictive State Representations ................................................................................................. 2170
Andrea Baisero, Christopher Amato

Optimal Algorithms for Range Searching over Multi-Armed Bandits ................................................................................................. 2177
Siddharth Barman, Ramakrishnan Krishnamurthy, Saladi Rahul
Efficient Neural Network Verification via Layer-based Semidefinite Relaxations and Linear Cuts .......... 2184
  Ben Batten, Panagiotis Kouvaros, Alessio Lomuscio, Yang Zheng

Fast Pareto Optimization for Subset Selection with Dynamic Cost Constraints .................................. 2191
  Chao Bian, Chao Qian, Frank Neumann, Yang Yu

Partial Multi-Label Optimal Margin Distribution Machine .................................................. 2198
  Nan Cao, Teng Zhang, Hai Jin

Towards Understanding the Spectral Bias of Deep Learning ............................................................... 2205
  Yuan Cao, Zhiying Fang, Yue Wu, Ding-Xuan Zhou, Quanquan Gu

Thompson Sampling for Bandits with Clustered Arms ........................................................................ 2212
  Emil Carlsson, Devdatt Dubhashi, Fredrik D. Johansson

Reinforcement Learning for Sparse-Reward Object-Interaction Tasks in a First-person Simulated 3D Environment .......................................................... 2219
  Wilka Carvalho, Anthony Liang, Kimin Lee, Sungryull Sohn, Honglak Lee, Richard Lewis, Satinder Singh

Generative Adversarial Neural Architecture Search ............................................................................. 2227
  Seyed Saeed Changiz Rezaei, Fred X. Han, Di Niu, Mohammad Salameh, Keith Mills, Shuo Lian, Wei Lu, Shangling Jui

AMA-GCN: Adaptive Multi-layer Aggregation Graph Convolutional Network for Disease Prediction ............................................................................................................. 2235
  Hao Chen, Fuzhen Zhuang, Li Xiao, Ling Ma, Haiyan Liu, Ruifang Zhang, Huiqin Jiang, Qing He

Learning Attributed Graph Representation with Communicative Message Passing Transformer ........... 2242
  Jianwen Chen, Shuangjia Zheng, Ying Song, Jiahua Rao, Yuedong Yang

Understanding Structural Vulnerability in Graph Convolutional Networks ......................................... 2249
  Liang Chen, Jintang Li, Qibiao Peng, Yang Liu, Zibin Zheng, Carl Yang

Monte Carlo Filtering Objectives ........................................................................................................... 2256
  Shuangshuang Chen, Sihao Ding, Yiannis Karayiannidis, Mårten Björkman

Dependent Multi-Task Learning with Causal Intervention for Image Captioning .................................. 2263
  Wenzing Chen, Jidong Tian, Caoyun Fan, Hao He, Yaohui Jin

Few-Shot Learning with Part Discovery and Augmentation from Unlabeled Images ................................ 2271
  Wentao Chen, Chenyang Si, Wei Wang, Liang Wang, Zilei Wang, Tieniu Tan

On Self-Distilling Graph Neural Network ............................................................................................... 2278
  Yizhao Chen, Yatao Bian, Xi Xiao, Yu Rong, Tingyang Xu, Junzhou Huang

Time-Aware Multi-Scale RNNs for Time Series Modeling ...................................................................... 2285
  Zipeng Chen, Qianli Ma, Zhenxi Lin

Variational Model-based Policy Optimization ....................................................................................... 2292
  Yinlam Chow, Brandon Cui, Moonkyung Ryu, Mohammad Ghavamzadeh

CuCo: Graph Representation with Curriculum Contrastive Learning .................................................... 2300
  Guanyi Chu, Xiao Wang, Chuan Shi, Xunqiang Jiang
Convexified Graph Neural Networks for Distributed Control in Robotic Swarms .......................................................... 2307
Saar Cohen, Noa Agmon

Isotonic Data Augmentation for Knowledge Distillation .................................................................................................. 2314
Wanyun Cui, Sen Yan

Graph-Free Knowledge Distillation for Graph Neural Networks ....................................................................................... 2321
Xiang Deng, Zhongfei Zhang

Optimal ANN-SNN Conversion for Fast and Accurate Inference in Deep Spiking Neural Networks ............... 2328
Jianhao Ding, Zhaofei Yu, Yonghong Tian, Tiejun Huang

Boosting Variational Inference with Locally Adaptive Step-Sizes ....................................................................................... 2337
Gideon Dresdner, Saurav Shekhar, Fabian Pedregosa, Francesco Locatello, Gunnar Rätsch

Automatic Translation of Music-to-Dance for In-Game Characters .................................................................................. 2344
Yinglin Duan, Tianyang Shi, Zhipeng Hu, Zhengxia Zou, Changjie Fan, Yi Yuan, Xi Li

Time-Series Representation Learning via Temporal and Contextual Contrasting .......................................................... 2352
Emadeldeen Eldele, Mohamed Ragab, Zhenghua Chen, Min Wu, Chee Keong Kwoh, Xiaoli Li, Cuntai Guan

Jointly Learning Prices and Product Features ................................................................................................................ 2360
Ehsan Emamjomeh-Zadeh, Renato Paes Leme, Jon Schneider, Balasubramanian Sivan

BAMBOO: A Multi-instance Multi-label Approach Towards VDI User Logon Behavior Modeling .......... 2367
Wenping Fan, Yao Zhang, Qichen Hao, Xinya Wu, Min-Ling Zhang

Contrastive Model Inversion for Data-Free Knowledge Distillation ............................................................................... 2374
Gongfan Fang, Jie Song, Xinchao Wang, Chengchao Shen, Xingen Wang, Mingli Song

Deep Reinforcement Learning for Multi-contact Motion Planning of Hexapod Robots ........................................... 2381
Huiqiao Fu, Kaiqiang Tang, Peng Li, Wenqi Zhang, Xinpeng Wang, Guizhou Deng, Tao Wang, Chunlin Chen

On the Convergence of Stochastic Compositional Gradient Descent Ascent Method ............................................. 2389
Hongchang Gao, Xiaqian Wang, Lei Luo, Xinghua Shi

Learning Groupwise Explanations for Black-Box Models .................................................................................................. 2396
Jingyue Gao, Xiting Wang, Yasha Wang, Yulan Yan, Xing Xie

Video Summarization via Label Distributions Dual-Reward .......................................................................................... 2403
Yongbiao Gao, Ning Xu, Xin Geng

BOBCAT: Bilevel Optimization-Based Computerized Adaptive Testing ................................................................. 2410
Aritra Ghosh, Andrew Lan

Method of Moments for Topic Models with Mixed Discrete and Continuous Features ......................................... 2418
Joachim Giesen, Paul Kahlmeyer, Sören Laue, Matthias Mitterreiter, Frank Nussbaum, Christoph Staudt, Sina Zarrieß

Bayesian Experience Reuse for Learning from Multiple Demonstrators ............................................................... 2425
Mike Gimelfarb, Scott Sanner, Chi-Guhn Lee

Fast Multi-label Learning ............................................................................................................................................. 2432
Xiuwen Gong, Dong Yuan, Wei Bao
InverseNet: Augmenting Model Extraction Attacks with Training Data Inversion ........................................ 2439
   Xueluan Gong, Yanjiao Chen, Wenbin Yang, Guanghao Mei, Qian Wang

Hierarchical Class-Based Curriculum Loss ................................................................................................. 2448
   Palash Goyal, Divya Choudhary, Shalini Ghosh

The Successful Ingredients of Policy Gradient Algorithms ............................................................................. 2455
   Sven Gronauer, Martin Gottwald, Klaus Diepold

Learning Nash Equilibria in Zero-Sum Stochastic Games via Entropy-Regularized Policy Approximation .......................................................... 2462
   Yue Guan, Qifan Zhang, Panagiotis Tsiotras

Towards Understanding Deep Learning from Noisy Labels with Small-Loss Criterion ................................ 2469
   Xian-Jin Gui, Wei Wang, Zhang-Hao Tian

Hindsight Value Function for Variance Reduction in Stochastic Dynamic Environment .............................. 2476
   Jiaming Guo, Rui Zhang, Xishan Zhang, ShaoHui Peng, Qi Yi, Zidong Du, Xing Hu, Qi Guo, Yunji Chen

DA-GCN: A Domain-aware Attentive Graph Convolution Network for Shared-account Cross-domain Sequential Recommendation ........................................... 2483
   Lei Guo, Li Tang, Tong Chen, Lei Zhu, Quoc Viet Hung Nguyen, Hongzhi Yin

Robust Regularization with Adversarial Labelling of Perturbed Samples ..................................................... 2490
   Xiaohui Guo, Richong Zhang, Yaowei Zheng, Yongyi Mao

Enabling Retrain-free Deep Neural Network Pruning Using Surrogate Lagrangian Relaxation ..................... 2497
   Deniz Gurevin, Mikhail Bragin, Caiwen Ding, Shanglin Zhou, Lynn Pepin, Bingbing Li, Fei Miao

Riemannian Stochastic Recursive Momentum Method for non-Convex Optimization .................................. 2505
   Andi Han, Junbin Gao

Fine-Grained Air Quality Inference via Multi-Channel Attention Model .................................................... 2512
   Qilong Han, Dan Lu, Rui Chen

Model-Based Reinforcement Learning for Infinite-Horizon Discounted Constrained Markov Decision Processes ........................................................................ 2519
   Aria HasanzadehZonuzy, Dileep Kalathil, Srinivas Shakkottai

State-Based Recurrent SPMNs for Decision-Theoretic Planning under Partial Observability ....................... 2526
   Layton Hayes, Prashant Doshi, Swaraj Pawar, Hari Teja Tatavarti

Beyond the Spectrum: Detecting Deepfakes via Re-Synthesis ..................................................................... 2534
   Yang He, Ning Yu, Margret Keuper, Mario Fritz

Interpretable Minority Synthesis for Imbalanced Classification ..................................................................... 2542
   Yi He, Fudong Lin, Xu Yuan, Nian-Feng Tzeng

DEEPSPLIT: An Efficient Splitting Method for Neural Network Verification via Indirect Effect Analysis ........................................................................ 2549
   Patrick Henriksen, Alessio Lomuscio

Behavior Mimics Distribution: Combining Individual and Group Behaviors for Federated Learning ............ 2556
   Hua Huang, Fanhua Shang, Yuanyuan Liu, Hongying Liu
<table>
<thead>
<tr>
<th>Paper Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>UniGNN: a Unified Framework for Graph and Hypergraph Neural Networks</td>
<td>2563</td>
</tr>
<tr>
<td>Jing Huang, Jie Yang</td>
<td></td>
</tr>
<tr>
<td>Asynchronous Active Learning with Distributed Label Querying</td>
<td>2570</td>
</tr>
<tr>
<td>Sheng-Jun Huang, Chen-Chen Zong, Kun-Peng Ning, Hai-Bo Ye</td>
<td></td>
</tr>
<tr>
<td>On the Neural Tangent Kernel of Deep Networks with Orthogonal Initialization</td>
<td>2577</td>
</tr>
<tr>
<td>Wei Huang, Weitao Du, Richard Yi Da Xu</td>
<td></td>
</tr>
<tr>
<td>On Explaining Random Forests with SAT</td>
<td>2584</td>
</tr>
<tr>
<td>Yacine Izza, Joao Marques-Silva</td>
<td></td>
</tr>
<tr>
<td>Reinforcement Learning for Route Optimization with Robustness Guarantees</td>
<td>2592</td>
</tr>
<tr>
<td>Tobias Jacobs, Francesco Alesiani, Gulcin Ermis</td>
<td></td>
</tr>
<tr>
<td>Learning CNF Theories Using MDL and Predicate Invention</td>
<td>2599</td>
</tr>
<tr>
<td>Archit Jain, Clément Gautrais, Angelika Kimmig, Luc De Raedt</td>
<td></td>
</tr>
<tr>
<td>Learning to Learn Personalized Neural Network for Ventricular Arrhythmias Detection on Intracardiac EGMs</td>
<td>2606</td>
</tr>
<tr>
<td>Zheng Jia, Zhepeng Wang, Feng Hong, Lichuan Ping, Yiyu Shi, Jingtong Hu</td>
<td></td>
</tr>
<tr>
<td>SalientSleepNet: Multimodal Salient Wave Detection Network for Sleep Staging</td>
<td>2614</td>
</tr>
<tr>
<td>Ziyu Jia, Youfang Lin, Jing Wang, Xuehui Wang, Peiyi Xie, Yingbin Zhang</td>
<td></td>
</tr>
<tr>
<td>Knowledge Consolidation based Class Incremental Online Learning with Limited Data</td>
<td>2621</td>
</tr>
<tr>
<td>Mohammed Asad Karim, Vinay Kumar Verma, Pravendra Singh, Vinay Namboodiri, Piyush Rai</td>
<td></td>
</tr>
<tr>
<td>Comparing Kullback-Leibler Divergence and Mean Squared Error Loss in Knowledge Distillation</td>
<td>2628</td>
</tr>
<tr>
<td>Taehyeon Kim, Jaehoon Oh, Nak Yil Kim, Sangwook Cho, Se-Young Yun</td>
<td></td>
</tr>
<tr>
<td>Epsilon Best Arm Identification in Spectral Bandits</td>
<td>2636</td>
</tr>
<tr>
<td>Tomáš Kocák, Aurélien Garivier</td>
<td></td>
</tr>
<tr>
<td>Towards Scalable Complete Verification of Relu Neural Networks via Dependency-based Branching</td>
<td>2643</td>
</tr>
<tr>
<td>Panagiotis Kouvaros, Alessio Lomuscio</td>
<td></td>
</tr>
<tr>
<td>Solving Continuous Control with Episodic Memory</td>
<td>2651</td>
</tr>
<tr>
<td>Igor Kuznetsov, Andrey Filchenkov</td>
<td></td>
</tr>
<tr>
<td>On Guaranteed Optimal Robust Explanations for NLP Models</td>
<td>2658</td>
</tr>
<tr>
<td>Emanuele La Malfa, Rhiannon Michelmore, Agnieszka M. Zbrzezny, Nicola Paoletti, Marta Kwiatkowska</td>
<td></td>
</tr>
<tr>
<td>Topological Uncertainty: Monitoring Trained Neural Networks through Persistence of Activation Graphs</td>
<td>2666</td>
</tr>
<tr>
<td>Théo Lacombe, Yuichi Ike, Mathieu Carrière, Frédéric Chazal, Marc Glisse, Yuhei Umeda</td>
<td></td>
</tr>
<tr>
<td>RetCL: A Selection-based Approach for Retrosynthesis via Contrastive Learning</td>
<td>2673</td>
</tr>
<tr>
<td>Hankook Lee, Sungsoo Ahn, Seung-Woo Seo, You Young Song, Eunho Yang, Sung Ju Hwang, Jinwoo Shin</td>
<td></td>
</tr>
<tr>
<td>TextGTL: Graph-based Transductive Learning for Semi-supervised Text Classification via Structure-Sensitive Interpolation</td>
<td>2680</td>
</tr>
<tr>
<td>Chen Li, Xutan Peng, Hao Peng, Jianxin Li, Lihong Wang</td>
<td></td>
</tr>
</tbody>
</table>
Evaluating Relaxations of Logic for Neural Networks: A Comprehensive Study
Mattia Medina Grespan, Ashim Gupta, Vivek Srikumar

Minimization of Limit-Average Automata
Jakub Michaliszyn, Jan Otop

Details (Don't) Matter: Isolating Cluster Information in Deep Embedded Spaces
Jakub Miklautz, Lena G. M. Bauer, Dominik Mautz, Sebastian Tschiatschek, Christian Böhm, Claudia Plant

Contrastive Losses and Solution Caching for Predict-and-Optimize
Maxime Mulamba, Jayanta Mandi, Michelangelo Diligenti, Michele Lombardi, Victor Bucarey, Tias Guns

Fine-grained Generalization Analysis of Structured Output Prediction
Waleed Mustafa, Yunwen Lei, Antoine Ledent, Marius Kloft

Accelerating Neural Architecture Search via Proxy Data
Byanggook Na, Jisoo Mok, Hyeokjun Choe, Sangroh Yoon

What Changed? Interpretable Model Comparison
Rahul Nair, Massimiliano Matteiti, Elizabeth Daly, Dennis Wei, Oznur Alkan, Yunfeng Zhang

TIDOT: A Teacher Imitation Learning Approach for Domain Adaptation with Optimal Transport
Tuan Nguyen, Trung Le, Nhan Dam, Quan Hung Tran, Truyen Nguyen, Dinh Phung

Learning Embeddings from Knowledge Graphs with Numeric Edge Attributes
Sumit Pai, Luca Costabello

Explaining Deep Neural Network Models with Adversarial Gradient Integration
Deng Pan, Xin Li, Dongxiao Zhu

VOLUME 5

Two Birds with One Stone: Series Saliency for Accurate and Interpretable Multivariate Time Series Forecasting
Qingyi Pan, Wenbo Hu, Ning Chen

Learning Aggregation Functions
Giovanni Pellegrini, Alessandro Tibo, Paolo Frasconi, Andrea Passerini, Manfred Jaeger

Meta-Reinforcement Learning by Tracking Task Non-stationarity
Riccardo Poiani, Andrea Tirinzoni, Marcello Restelli

Multi-version Tensor Completion for Time-delayed Spatio-temporal Data
Cheng Qian, Nikos Kargas, Cao Xiao, Lucas Glass, Nicholas Sidiropoulos, Jimeng Sun

Multi-Agent Reinforcement Learning for Automated Peer-to-Peer Energy Trading in Double-Side Auction Market
Dawei Qiu, Jianhong Wang, Junkai Wang, Goran Strbac

Source-free Domain Adaptation via Avatar Prototype Generation and Adaptation
Zhen Qiu, Yifan Zhang, Hongbin Lin, Shuaicheng Niu, Yanxia Liu, Qing Du, Mingkui Tan

Exact Acceleration of K-Means++ and K-Means||
Edward Raff
Stochastic Shortest Path with Adversarially Changing Costs.................................................. 2936

Aviv Rosenberg, Yishay Mansour

Physics-aware Spatiotemporal Modules with Auxiliary Tasks for Meta-Learning.......................... 2943

Sungyong Seo, Chuizheng Meng, Srirsha Rambhatla, Yan Liu

Don’t Do What Doesn’t Matter: Intrinsic Motivation with Action Usefulness............................. 2950

Mathieu Seurin, Florian Strub, Philippe Preux, Olivier Pietquin

Towards Robust Model Reuse in the Presence of Latent Domains........................................... 2957

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

Regularizing Variational Autoencoder with Diversity and Uncertainty Awareness....................... 2964

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

Interpretable Compositional Convolutional Neural Networks..................................................... 2971

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

Unsupervised Progressive Learning and the STAM Architecture.................................................. 2979

James Smith, Cameron Taylor, Seth Baer, Constantine Dovrolis

Online Risk-Averse Submodular Maximization................................................................................. 2988

Tasuku Soma, Yaichi Yoshida

Positive-Unlabeled Learning from Imbalanced Data ....................................................................... 2995

Guangxin Su, Weitong Chen, Miao Xu

Neural Architecture Search of SPD Manifold Networks.................................................................. 3002

Rhea Sanjay Sukthanker, Zhiwu Huang, Suryansh Kumar, Erik Goron Endsjo, Yan Wu, Luc Van Gool

TE-ESN: Time Encoding Echo State Network for Prediction Based on Irregularly Sampled Time
Series Data....................................................................................................................................... 3010

Chenxi Sun, Shenda Hong, Moxian Song, Yen-Hsiu Chou, Yongyue Sun, Derun Cai, Hongyan Li

MFNP: A Meta-optimized Model for Few-shot Next POI Recommendation....................................... 3017

Huimin Sun, Jiajie Xu, Kai Zheng, Pengpeng Zhao, Pingfu Chao, Xiaofang Zhou

Towards Reducing Biases in Combining Multiple Experts Online.................................................. 3024

Yi Sun, Iván Ramírez Díaz, Alfredo Cuesta Infante, Kalyan Veeramachaneni

Predicting Traffic Congestion Evolution: A Deep Meta Learning Approach.................................... 3031

Yidan Sun, Guiyuan Jiang, Siew Kei Lam, Peilin He

Hyperspectral Band Selection via Spatial-Spectral Weighted Region-wise Multiple Graph Fusion-
Based Spectral Clustering.................................................................................................................. 3038

Chang Tang, Xinwang Liu, En Zhu, Lizhe Wang, Albert Zomaya

Self-supervised Network Evolution for Few-shot Classification....................................................... 3045

Xiaowen Tang, Zhu Teng, Baoping Zhang, Jianping Fan

Dual Active Learning for Both Model and Data Selection............................................................... 3052

Ying-Peng Tang, Sheng-Jun Huang

Compositional Neural Logic Programming...................................................................................... 3059

Son N. Tran
Sensitivity Direction Learning with Neural Networks Using Domain Knowledge as Soft Shape Constraints
Kazuyuki Wakasugi .................................................. 3067

Learning from Complementary Labels via Partial-Output Consistency Regularization ........................................ 3075
Deng-Bao Wang, Lei Feng, Min-Ling Zhang

Probabilistic Sufficient Explanations .......................................................... 3082
Eric Wang, Pasha Khosravi, Guy Van den Broeck

Multi-hop Attention Graph Neural Networks .......................................................... 3089
Guangtao Wang, Rex Ying, Jing Huang, Jure Leskovec

Learn the Highest Label and Rest Label Description Degrees .......................................................... 3097
Jing Wang, Xin Geng

Stability and Generalization for Randomized Coordinate Descent .......................................................... 3104
Puyu Wang, Liang Wu, Yunwen Lei

Discrete Multiple Kernel k-means .......................................................... 3111
Rong Wang, Jitao Lu, Yihang Lu, Feiping Nie, Xuelong Li

Mean Field Equilibrium in Multi-Armed Bandit Game with Continuous Reward .......................................................... 3118
Xiong Wang, Riheng Jia

Demiguise Attack: Crafting Invisible Semantic Adversarial Perturbations with Perceptual Similarity .......................................................... 3125
Yajie Wang, Shangbo Wu, Wenyi Jiang, Shengang Hao, Yu-An Tan, Quanxin Zhang

Self-Supervised Adversarial Distribution Regularization for Medication Recommendation .......................................................... 3134
Yanda Wang, Weitong Chen, Dechang Pi, Lin Yue, Sen Wang, Miao Xu

Against Membership Inference Attack: Pruning is All You Need .......................................................... 3141
Yijue Wang, Chenghong Wang, Zigeng Wang, Shanglin Zhou, Hang Liu, Jinbo Bi, Caiwen Ding, Sanguthevar Rajasekaran

Layer-Assisted Neural Topic Modeling over Document Networks .......................................................... 3148
Yiming Wang, Ximing Li, Jihong Ouyang

Robust Adversarial Imitation Learning via Adaptively-Selected Demonstrations .......................................................... 3155
Yunke Wang, Chang Xu, Bo Du

Reinforcement Learning Based Sparse Black-box Adversarial Attack on Video Recognition Models .......................................................... 3162
Zeyuan Wang, Chaofeng Sha, Su Yang

Reward-Constrained Behavior Cloning .......................................................... 3169
Zhaorong Wang, Meng Wang, Jingqi Zhang, Yingfeng Chen, Chongjie Zhang

Closing the BIG-LID: An Effective Local Intrinsic Dimensionality Defense for Nonlinear Regression Poisoning .......................................................... 3176
Sandamal Weerasinghe, Tamas Abraham, Tansu Alpcan, Sarah M. Erfani, Christopher Leckie, Benjamin I. P. Rubinstein

GSPL: A Succinct Kernel Model for Group-Sparse Projections Learning of Multiview Data .......................................................... 3185
Danyang Wu, Jin Xu, Xia Dong, Meng Liao, Rong Wang, Feiping Nie, Xuelong Li
Deep Reinforcement Learning Boosted Partial Domain Adaptation ........................................ 3192
   Keyu Wu, Min Wu, Jianfei Yang, Zhenghua Chen, Zhengguo Li, Xiaoli Li

Learning Deeper Non-Monotonic Networks by Softly Transferring Solution Space .............. 3200
   Zheng-Fan Wu, Hui Xue, Weimin Bai

Exploiting Spiking Dynamics with Spatial-temporal Feature Normalization in Graph Learning .......... 3207
   Mingkun Xu, Yujie Wu, Lei Deng, Faqiang Liu, Guoqi Li, Jing Pei

k-Nearest Neighbors by Means of Sequence to Sequence Deep Neural Networks and Memory Networks ............................................................. 3214
   Yiming Xu, Diego Klabjan

Evolutionary Gradient Descent for Non-convex Optimization ........................................... 3221
   Ke Xue, Chao Qian, Ling Xu, Xudong Fei

KDExplainer: A Task-oriented Attention Model for Explaining Knowledge Distillation .................. 3228
   Mengqi Xue, Jie Song, Xinchao Wang, Ying Chen, Xingen Wang, Mingli Song

Clustering-Induced Adaptive Structure Enhancing Network for Incomplete Multi-View Data ........ 3235
   Zhe Xue, Junping Du, Changwei Zheng, Jie Song, Wenqi Ren, Meiyu Liang

Differentially Private Pairwise Learning Revisited ......................................................... 3242
   Zhiyu Xue, Shaoyang Yang, Mengdi Huai, Di Wang

Decomposable-Net: Scalable Low-Rank Compression for Neural Networks ................................ 3249
   Atsushi Yaguchi, Taiji Suzuki, Shuhei Nitta, Yukinobu Sakata, Akiyuki Tanizawa

A Clustering-based framework for Classifying Data Streams ............................................ 3257
   Xuyang Yan, Abdollah Homaifar, Mrinmoy Sarkar, Abenezer Girma, Edward Tunstel

Multi-level Generative Models for Partial Label Learning with Non-random Label Noise .............. 3264
   Yan Yan, Yuhong Guo

Secure Deep Graph Generation with Link Differential Privacy ........................................... 3271
   Carl Yang, Haonan Wang, Ke Zhang, Liang Chen, Lichao Sun

Progressive Open-Domain Response Generation with Multiple Controllable Attributes ............. 3279
   Haiqin Yang, Xiaoyuan Yao, Yiquan Duan, Jianping Shen, Jie Zhong, Kun Zhang

Unsupervised Path Representation Learning with Curriculum Negative Sampling ................. 3286
   Sean Bin Yang, Chenjuan Guo, Jilin Hu, Jian Tang, Bin Yang

BESA: BERT-based Simulated Annealing for Adversarial Text Attacks ................................ 3293
   Xinghao Yang, Weifeng Liu, Dacheng Tao, Wei Liu

Rethinking Label-Wise Cross-Modal Retrieval from A Semantic Sharing Perspective ................... 3300
   Yang Yang, Chubing Zhang, Yi-Chu Xu, Dianhai Yu, De-Chuan Zhan, Jian Yang

Blocking-based Neighbor Sampling for Large-scale Graph Neural Networks ........................... 3307
   Kai-Lang Yao, Wu-Jun Li

Understanding the Effect of Bias in Deep Anomaly Detection ........................................... 3314
   Ziyu Ye, Yuxin Chen, Haitao Zheng

Improving Sequential Recommendation Consistency with Self-Supervised Imitation .................. 3321
   Xu Yuan, Hongshen Chen, Yonghao Song, Xiaofang Zhao, Zhuoye Ding
Graph Universal Adversarial Attacks: A Few Bad Actors Ruin Graph Learning Models ................................................. 3328
Xiao Zang, Yi Xie, Jie Chen, Bo Yuan

Hindsight Trust Region Policy Optimization ............................................................. 3335
Hanbo Zhang, Site Bai, Xuguang Lan, David Hsu, Nanning Zheng

Deep Descriptive Clustering ....................................................................................... 3342
Hongjing Zhang, Ian Davidson

Independence-aware Advantage Estimation ............................................................... 3349
Pushi Zhang, Li Zhao, Guoqing Liu, Jiang Bian, Minlie Huang, Tao Qin, Tie-Yan Liu

UNBERT: User-News Matching BERT for News Recommendation ......................... 3356
Qi Zhang, Jingjie Li, Qinglin Jia, Chuyuan Wang, Jieming Zhu, Zhaowei Wang, Xiubang He

Correlation-Guided Representation for Multi-Label Text Classification .................... 3363
Qian-Wen Zhang, Ximing Zhang, Zhao Yan, Ruifang Liu, Yunbo Cao, Min-Ling Zhang

Private Stochastic Non-convex Optimization with Improved Utility Rates ............... 3370
Qiuchen Zhang, Jing Ma, Jian Lou, Li Xiong

Non-I.I.D. Multi-Instance Learning for Predicting Instance and Bag Labels with Variational Auto-Encoder .......................................................... 3377
Weijia Zhang

Model-based Multi-agent Policy Optimization with Adaptive Opponent-wise Rollouts .......................................................... 3384
Weinan Zhang, Xihuai Wang, Jian Shen, Ming Zhou

Rethink the Connections among Generalization, Memorization, and the Spectral Bias of DNNs .................................................. 3392
Xiao Zhang, Haoyi Xiong, Dongrui Wu

User Retention: A Causal Approach with Triple Task Modeling ................................ 3399
Yang Zhang, Dong Wang, Qiang Li, Yue Shen, Ziqi Liu, Xiaodong Zeng, Zhiqiang Zhang, Jinjie Gu, Derek F. Wong

Neural Relation Inference for Multi-dimensional Temporal Point Processes via Message Passing Graph ................................................................. 3406
Yunhao Zhang, Junchi Yan

Combining Tree Search and Action Prediction for State-of-the-Art Performance in DouDiZhu ........................................ 3413
Yunsheng Zhang, Dong Yan, Bei Shi, Haobo Fu, Qiang Fu, Hang Su, Jun Zhu, Ning Chen

Uncertainty-Aware Few-Shot Image Classification .................................................. 3420
Zhizheng Zhang, Cuiling Lan, Wenjun Zeng, Zhibo Chen, Shih-Fu Chang

Automatic Mixed-Precision Quantization Search of BERT ........................................ 3427
Changsheng Zhao, Ting Hua, Yilin Shen, Qian Lou, Hongxia Jin

Graph Debiased Contrastive Learning with Joint Representation Clustering ............. 3434
Han Zhao, Xu Yang, Zhenru Wang, Erkun Yang, Cheng Deng

Uncertainty-aware Binary Neural Networks ............................................................... 3441
Junhe Zhao, Linlin Yang, Baochang Zhang, Guodong Guo, David Doermann

Few-Shot Partial-Label Learning ............................................................................... 3448
Yunfeng Zhao, Guoxian Yu, Lei Liu, Zhongmin Yan, Lizhen Cui, Carlotta Domeniconi
Non-decreasing Quantile Function Network with Efficient Exploration for Distributional Reinforcement Learning ................................................................. 3455
   Fan Zhou, Zhoufan Zhu, Qi Kuang, Liwen Zhang

Multi-Target Invisibly Trojaned Networks for Visual Recognition and Detection ................................................................. 3462
   Xinzhe Zhou, Wenhao Jiang, Sheng Qi, Yadong Mu

AutoReCon: Neural Architecture Search-based Reconstruction for Data-free Compression ........................................... 3470
   Baozhu Zhu, Peter Hofstee, Johan Peltenburg, Jinho Lee, Zaid Alars

   Kefeng Zhu, Peilin Tong, Hongwei Kan, Rengang Li

MapGo: Model-Assisted Policy Optimization for Goal-Oriented Tasks ................................................................. 3484
   Menghui Zhu, Minghuan Liu, Jian Shen, Zhicheng Zhang, Sheng Chen, Weinan Zhang, Deheng Ye, Yong Yu, Qiang Fu, Wei Yang

MACHINE LEARNING APPLICATIONS

Toward Optimal Solution for the Context-Attentive Bandit Problem ................................................................. 3493
   Djallel Bouneffouf, Raphael Feraud, Sohini Upadhyay, Irina Rish, Yasaman Khazaeni

Sample Efficient Decentralized Stochastic Frank-Wolfe Methods for Continuous DR-Submodular Maximization ......................................................... 3501
   Hongchang Gao, Hanzi Xu, Slobodan Vucetic

Self-Guided Community Detection on Networks with Missing Edges ................................................................. 3508
   Dongxiao He, Shuai Li, Di Jin, Pengfei Jiao, Yuxiao Huang

Two-Sided Wasserstein Procrustes Analysis ................................................................. 3515
   Kun Jin, Chaoyue Liu, Cathy Xia

Solving Math Word Problems with Teacher Supervision ................................................................. 3522
   Zhenwen Liang, Xiangliang Zhang

Collaborative Graph Learning with Auxiliary Text for Temporal Event Prediction in Healthcare ................................................................. 3529
   Chang Lu, Chandan K Reddy, Prithwish Chakraborty, Samantha Kleinberg, Yue Ning

MDNN: A Multimodal Deep Neural Network for Predicting Drug-Drug Interaction Events ................................................................. 3536
   Tengfei Lyu, Jianliang Gao, Ling Tian, Zhao Li, Peng Zhang, Ji Zhang

SPADE: A Semi-supervised Probabilistic Approach for Detecting Errors in Tables ................................................................. 3543
   Minh Pham, Craig A. Knoblock, Muhao Chen, Binh Vu, Jay Pujara

TEC: A Time Evolving Contextual Graph Model for Speaker State Analysis in Political Debates ................................................................. 3552
   Ramit Sawhney, Shivam Agarwal, Arnav Wadhwa, Rajiv Shah

Adaptive Residue-wise Profile Fusion for Low Homologous Protein Secondary Structure Prediction Using External Knowledge ................................................................. 3559
   Qin Wang, Jun Wei, Boyuan Wang, Zhen Li, Sheng Wang, Shuguang Cui

Ordering-Based Causal Discovery with Reinforcement Learning ................................................................. 3566
   Xiaoguang Wang, Yali Du, Shengyu Zhu, Liangjun Ke, Zhitang Chen, Jianye Hao, Jun Wang

Boosting Offline Reinforcement Learning with Residual Generative Modeling ................................................................. 3574
   Hua Wei, Deheng Ye, Zhao Liu, Hao Wu, Bo Yuan, Qiang Fu, Wei Yang, Zhenhui Li
Multi-series Time-aware Sequence Partitioning for Disease Progression Modeling ................................................ 3581
   Xi Yang, Yuan Zhang, Min Chi

MULTIDISCIPLINARY TOPICS AND APPLICATIONS

A Rule Mining-based Advanced Persistent Threats Detection System .......................................................... 3589
   Sidahmed Benabderrahmane, Ghita Berrada, James Cheney, Petko Valtchev

Electrocardio Panorama: Synthesizing New ECG views with Self-supervision ........................................... 3597
   Jintai Chen, Xiangshang Zheng, Hongyun Yu, Danny Z. Chen, Jian Wu

VOLUME 6

A Novel Sequence-to-Subgraph Framework for Diagnosis Classification .................................................... 3606
   Jun Chen, Quan Yuan, Chao Lu, Haifeng Huang

Parallel Subtrajectory Alignment over Massive-Scale Trajectory Data ...................................................... 3613
   Lisi Chen, Shuo Shang, Shanshan Feng, Panos Kalnis

TrafficStream: A Streaming Traffic Flow Forecasting Framework Based on Graph Neural Networks and Continual Learning ................................................................. 3620
   Xu Chen, Junshan Wang, Kunqing Xie

Predictive Job Scheduling under Uncertain Constraints in Cloud Computing ........................................... 3627
   Hang Dong, Boshi Wang, Bo Qiao, Wenqian Xing, Chuan Luo, Si Qin, Qingwei Lin, Dongmei Zhang, Gurpreet Virdi, Thomas Moscibroda

   Shangwei Guo, Tianwei Zhang, Han Qiu, Yi Zeng, Tao Xiang, Yang Liu

Dynamic Lane Traffic Signal Control with Group Attention and Multi-Timescale Reinforcement Learning ................................................................. 3642
   Qize Jia, Jingze Li, Weiwei Sun, Baihua Zheng

Differentially Private Correlation Alignment for Domain Adaptation ......................................................... 3649
   Kaizhong Jin, Xiang Cheng, Jiaxi Yang, Kaiyuan Shen

Traffic Congestion Alleviation over Dynamic Road Networks: Continuous Optimal Route Combination for Trip Query Streams ......................................................... 3656
   Ke Li, Lisi Chen, Shuo Shang, Panos Kalnis, Bin Yao

CFR-MIX: Solving Imperfect Information Extensive-Form Games with Combinatorial Action Space ................................................................. 3663
   Shuxin Li, Youzhi Zhang, Xinrun Wang, Wanqi Xue, Bo An

Online Credit Payment Fraud Detection via Structure-Aware Hierarchical Recurrent Neural Network ................................................................. 3670
   Wangli Liu, Li Sun, Qiwei Zhong, Can Liu, Jinghua Feng, Xiang Ao, Hao Yang

Learning Unknown from Correlations: Graph Neural Network for Inter-novel-protein Interaction Prediction ................................................................. 3677
   Guofeng Lv, Zhiqiang Hu, Yanguang Bi, Shaoting Zhang
Adapting Meta Knowledge with Heterogeneous Information Network for COVID-19 Themed Malicious Repository Detection

Yiyue Qian, Yiming Zhang, Yanfang Ye, Chuxu Zhang

Hierarchical Adaptive Temporal-Relational Modeling for Stock Trend Prediction

Heyuan Wang, Shun Li, Tengjiao Wang, Jiayi Zheng

BACKDOORL: Backdoor Attack against Competitive Reinforcement Learning

Lun Wang, Zaynah Javed, Xian Wu, Wenbo Guo, Xinyu Xing, Dawn Song

Hiding Numerical Vectors in Local Private and Shuffled Messages

Shaowei Wang, Jin Li, Yuqiu Qian, Jiachun Du, Wenqing Lin, Wei Yang

Solving Large-Scale Extensive-Form Network Security Games via Neural Fictitious Self-Play

Wangkun Xue, Youzhi Zhang, Shuxin Li, Xinrun Wang, Bo An, Chai Kiat Yeo

Towards Generating Summaries for Lexically Confusing Code through Code Erosion

Fan Yan, Ming Li

Change Matters: Medication Change Prediction with Recurrent Residual Networks

Chaoqi Yang, Cao Xiao, Lucas Glass, Jimeng Sun

SafeDrug: Dual Molecular Graph Encoders for Recommending Effective and Safe Drug Combinations

Chaoqi Yang, Cao Xiao, Fenglong Ma, Lucas Glass, Jimeng Sun

Real-Time Pricing Optimization for Ride-Hailing Quality of Service

Enpeng Yuan, Pascal Van Hentenryck

GraphMI: Extracting Private Graph Data from Graph Neural Networks

Zaixi Zhang, Qi Liu, Zhenya Huang, Hao Wang, Chengqiang Lu, Chuanren Liu, Enhong Chen

CSGNN: Contrastive Self-Supervised Graph Neural Network for Molecular Interaction Prediction

Chengshuai Zhao, Shuai Liu, Feng Huang, Shichao Liu, Wen Zhang

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

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

Objective-aware Traffic Simulation via Inverse Reinforcement Learning

Guanjie Zheng, Hanyang Liu, Kai Xu, Zhenhui Li

NATURAL LANGUAGE PROCESSING

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

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

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

Rexhina Blloshmi, Simone Contia, Rocco Tripodi, Roberto Navigli

Improving Context-Aware Neural Machine Translation with Source-side Monolingual Documents

Linqing Chen, Junhui Li, Zhengxian Gong, Xiangyu Duan, Boxing Chen, Weihua Luo, Min Zhang, Guodong Zhou
Focus on Interaction: A Novel Dynamic Graph Model for Joint Multiple Intent Detection and Slot Filling ............................................................. 3801
Zeyuan Ding, Zhihao Yang, Hongfei Lin, Jian Wang

Dialogue Discourse-Aware Graph Model and Data Augmentation for Meeting Summarization .................. 3808
Xiaohong Feng, Xiaocheng Feng, Bing Qin, Xinwei Geng

Automatically Paraphrasing via Sentence Reconstruction and Round-trip Translation................................. 3815
Zilu Guo, Zhongqiang Huang, Kenny Q. Zhu, Guandan Chen, Kaibo Zhang, Boxing Chen, Fei Huang

Dialogue Disentanglement in Software Engineering: How Far are We?......................................................... 3822
Ziyou Jiang, Lin Shi, Celia Chen, Jun Hu, Qing Wang

FedSpeech: Federated Text-to-Speech with Continual Learning ................................................................. 3829
Ziyue Jiang, Yi Ren, Ming Lei, Zhou Zhao

ALaSca: an Automated approach for Large-Scale Lexical Substitution......................................................... 3836
Caterina Lacerra, Tommaso Pasini, Rocco Tripodi, Roberto Navigli

Enhancing Label Representations with Relational Inductive Bias Constraint for Fine-Grained Entity Typing......................................................................................................................... 3843
Jinqing Li, Xiaojun Chen, Dakui Wang, Yuwei Li

Modelling General Properties of Nouns by Selectively Averaging Contextualised Embeddings..................... 3850
Na Li, Zied Bouraoui, Jose Camacho-Collados, Luis Espinosa-Anke, Qing Gu, Steven Schockaert

Asynchronous Multi-grained Graph Network For Interpretable Multi-hop Reading Comprehension............. 3857
Ronghan Li, Lifang Wang, Shengli Wang, Zeyun Jiang

Keep the Structure: A Latent Shift-Reduce Parser for Semantic Parsing...................................................... 3864
Yuntao Li, Bei Chen, Qian Liu, Yan Gao, Jian-Guang Lou, Yan Zhang, Dongmei Zhang

Discourse-Level Event Temporal Ordering with Uncertainty-Guided Graph Completion................................ 3871
Jian Liu, Jinan Xu, Yufeng Chen, Yujie Zhang

Improving Text Generation with Dynamic Masking and Recovering......................................................... 3878
Zhidong Liu, Junhui Li, Muhua Zhu

Consistent Inference for Dialogue Relation Extraction.................................................................................. 3885
Xinwei Long, Shuji Niu, Yucheng Li

Multi-Hop Fact Checking of Political Claims............................................................................................... 3892
Wojciech Ostrowski, Arnav Arora, Pepa Atanasova, Isabelle Augenstein

Laughing Heads: Can Transformers Detect What Makes a Sentence Funny?.............................................. 3899
Maxime Peyrard, Beatriz Borges, Kristina Gligorić, Robert West

A Streaming End-to-End Framework For Spoken Language Understanding .............................................. 3906
Nihal Potdar, Anderson Raymundo Avila, Chao Xing, Dong Wang, Yiran Cao, Xiao Chen

MultiMirror: Neural Cross-lingual Word Alignment for Multilingual Word Sense Disambiguation........... 3915
Luigi Procopio, Edoardo Barba, Federico Martelli, Roberto Navigli

Learning Class-Transductive Intent Representations for Zero-shot Intent Detection..................................... 3922
Qingyi Si, Yuanxin Liu, Peng Fu, Zheng Lin, Jiangnan Li, Weiping Wang
MEDA: Meta-Learning with Data Augmentation for Few-Shot Text Classification .............................................. 3929
   Pengfei Sun, Yawen Ouyang, Wenming Zhang, Xin-yu Dai

A Sequence-to-Set Network for Nested Named Entity Recognition ................................................................. 3936
   Zeqi Tan, Yongliang Shen, Shuai Zhang, Weiming Lu, Yueting Zhuang

A Structure Self-Aware Model for Discourse Parsing on Multi-Party Dialogues .............................................. 3943
   Ante Wang, Linfeng Song, Hui Jiang, Shaopeng Lai, Junfeng Yao, Min Zhang, Jinsong Su

Hierarchical Modeling of Label Dependency and Label Noise in Fine-grained Entity Typing .............................. 3950
   Junshuang Wu, Richong Zhang, Yongyi Mao, Masoumeh Soflaei Shahrbabak, Jinpeng Huai

Learn from Syntax: Improving Pair-wise Aspect and Opinion Terms Extraction with Rich Syntactic Knowledge ................................................................................................................................. 3957
   Shengqiong Wu, Hao Fei, Yafeng Ren, Donghong Ji, Jingye Li

Knowledge-Aware Dialogue Generation via Hierarchical Infobox Accessing and Infobox-Discourse Interaction Graph Network ................................................................................................................. 3964
   Sixing Wu, Minghui Wang, Dawei Zhang, Yang Zhou, Ying Li, Zhonghai Wu

Improving Stylized Neural Machine Translation with Iterative Dual Knowledge Transfer ................................ 3971
   Xuanxuan Wu, Jian Liu, Xinjie Li, Jinan Xu, Yufeng Chen, Yujie Zhang, Hui Huang

UniMF: A Unified Framework to Incorporate Multimodal Knowledge Bases into End-to-End Task-Oriented Dialogue Systems ........................................................................................................... 3978
   Shiqian Yang, Rui Zhang, Sarah M. Erfani, Jey Han Lau

MRD-Net: Multi-Modal Residual Knowledge Distillation for Spoken Question Answering ................................. 3985
   Chenyu You, Nuo Chen, Yuexian Zou

Cross-Domain Slot Filling as Machine Reading Comprehension ........................................................................... 3992
   Mengshi Yu, Jian Liu, Yufeng Chen, Jinan Xu, Yujie Zhang

Document-level Relation Extraction as Semantic Segmentation .............................................................................. 3999
   Ningyu Zhang, Xiang Chen, Xin Xie, Shumin Deng, Chuanqi Tan, Mosha Chen, Fei Huang, Luo Si, Huajun Chen

Drop Redundant, Shrink Irrelevant: Selective Knowledge Injection for Language Pretraining .......................... 4007
   Ningyu Zhang, Shumin Deng, Xu Cheng, Xi Chen, Yichi Zhang, Wei Zhang, Huajun Chen

Relational Gating for "What If" Reasoning ............................................................................................................... 4015
   Chen Zheng, Parisa Kordjamshidi

PLANNING AND SCHEDULING

Efficient Black-Box Planning Using Macro-Actions with Focused Effects .......................................................... 4024
   Cameron Allen, Michael Katz, Tim Klinger, George Konidaris, Matthew Riemer, Gerald Tesauro

ME-MCTS: Online Generalization by Combining Multiple Value Estimators ..................................................... 4032
   Hendrik Baier, Michael Kaisers

Learn to Intervene: An Adaptive Learning Policy for Restless Bandits in Application to Preventive Healthcare ........................................................................................................................................ 4039
   Arpita Biswas, Gaurav Aggarwal, Pradeep Varakantham, Milind Tambe
<table>
<thead>
<tr>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type-WA*: Using Exploration in Bounded Suboptimal Planning</td>
<td>4047</td>
</tr>
<tr>
<td>Eldan Cohen, Richard Valenzano, Sheila McIlraith</td>
<td></td>
</tr>
<tr>
<td>Custom-Design of FDR Encodings: The Case of Red-Black Planning</td>
<td>4054</td>
</tr>
<tr>
<td>Daniel Fišer, Daniel Gnad, Michael Katz, Jörg Hoffmann</td>
<td></td>
</tr>
<tr>
<td>Active Goal Recognition Design</td>
<td>4062</td>
</tr>
<tr>
<td>Kevin C. Gall, Wheeler Ruml, Sarah Keren</td>
<td></td>
</tr>
<tr>
<td>Stochastic Probing with Increasing Precision</td>
<td>4069</td>
</tr>
<tr>
<td>Martin Hoefer, Kevin Schewior, Daniel Schmand</td>
<td></td>
</tr>
<tr>
<td>Incorporating Queueing Dynamics into Schedule-Driven Traffic Control</td>
<td>4076</td>
</tr>
<tr>
<td>Hsu-Chieh Hu, Allen M. Hawkes, Stephen F. Smith</td>
<td></td>
</tr>
<tr>
<td>Symbolic Dynamic Programming for Continuous State MDPs with Linear Program Transitions</td>
<td>4083</td>
</tr>
<tr>
<td>Jiřihwan Jeong, Parth Jaggi, Scott Sanner</td>
<td></td>
</tr>
<tr>
<td>Interference-free Walks in Time: Temporally Disjoint Paths</td>
<td>4090</td>
</tr>
<tr>
<td>Nina Klobas, George B. Mertzios, Hendrik Molter, Rolf Niedermeier, Philipp Zschoche</td>
<td></td>
</tr>
<tr>
<td>Counterfactual Explanations for Optimization-Based Decisions in the Context of the GDPR</td>
<td>4097</td>
</tr>
<tr>
<td>Anton Korikov, Alexander Shleyfman, J. Christopher Beck</td>
<td></td>
</tr>
<tr>
<td>LTL-Constrained Steady-State Policy Synthesis</td>
<td>4104</td>
</tr>
<tr>
<td>Jan Krčtinský</td>
<td></td>
</tr>
<tr>
<td>Online Learning of Action Models for PDDL Planning</td>
<td>4112</td>
</tr>
<tr>
<td>Leonardo Lamanna, Alessandro Saetti, Luciano Serafini, Alfonso Gerevini, Paolo Traverso</td>
<td></td>
</tr>
<tr>
<td>Polynomial-Time in PDDL Input Size: Making the Delete Relaxation Feasible for Lifted Planning</td>
<td>4119</td>
</tr>
<tr>
<td>Pascal Lauer, Alvaro Torralba, Daniel Fišer, Daniel Höller, Julia Wichlacz, Jörg Hoffmann</td>
<td></td>
</tr>
<tr>
<td>Anytime Multi-Agent Path Finding via Large Neighborhood Search</td>
<td>4127</td>
</tr>
<tr>
<td>Jiaoyang Li, Zhe Chen, Daniel Harabor, Peter J. Stuckey, Sven Koenig</td>
<td></td>
</tr>
<tr>
<td>Dynamic Rebalancing Dockless Bike-Sharing System based on Station Community Discovery</td>
<td>4136</td>
</tr>
<tr>
<td>Jingjing Li, Qiang Wang, Wenqi Zhang, Donghai Shi, Zhiwei Qin</td>
<td></td>
</tr>
<tr>
<td>Synthesizing Good-Enough Strategies for LTLf Specifications</td>
<td>4144</td>
</tr>
<tr>
<td>Yong Li, Andrea Turrini, Moshe Y. Vardi, Lijun Zhang</td>
<td></td>
</tr>
<tr>
<td>Songtuan Lin, Pascal Bercher</td>
<td></td>
</tr>
<tr>
<td>Learning Temporal Plan Preferences from Examples: An Empirical Study</td>
<td>4160</td>
</tr>
<tr>
<td>Valentin Seimetz, Rebecca Eifler, Jörg Hoffmann</td>
<td></td>
</tr>
<tr>
<td>On Weak Stubborn Sets in Classical Planning</td>
<td>4167</td>
</tr>
<tr>
<td>Silvan Sievers, Martin Wehrle</td>
<td></td>
</tr>
<tr>
<td>Learning Generalized Unsolvability Heuristics for Classical Planning</td>
<td>4175</td>
</tr>
<tr>
<td>Simon Stähler, Guillem Francès, Jendrik Seipp</td>
<td></td>
</tr>
<tr>
<td>Solving Partially Observable Stochastic Shortest-Path Games</td>
<td>4182</td>
</tr>
<tr>
<td>Petr Tomášek, Karel Horák, Aditya Aradhye, Branislav Bošanský, Krishnendu Chatterjee</td>
<td></td>
</tr>
<tr>
<td>Title</td>
<td>Page</td>
</tr>
<tr>
<td>----------------------------------------------------------------------</td>
<td>------</td>
</tr>
<tr>
<td>The Fewer the Merrier: Pruning Preferred Operators with Novelty</td>
<td>4190</td>
</tr>
<tr>
<td>Alexander Tuisov, Michael Katz</td>
<td></td>
</tr>
<tr>
<td>TANGO: Commonsense Generalization in Predicting Tool Interactions for Mobile Manipulators</td>
<td>4197</td>
</tr>
<tr>
<td>Shreshth Tuli, Rajas Bansal, Rohan Paul, Mausam</td>
<td></td>
</tr>
<tr>
<td>The Traveling Tournament Problem with Maximum Tour Length Two: A Practical Algorithm with An Improved Approximation Bound</td>
<td>4206</td>
</tr>
<tr>
<td>Jingyang Zhao, Mingyu Xiao</td>
<td></td>
</tr>
<tr>
<td><strong>UNCERTAINTY IN AI</strong></td>
<td></td>
</tr>
<tr>
<td>Non-Parametric Stochastic Sequential Assignment With Random Arrival Times</td>
<td>4214</td>
</tr>
<tr>
<td>Danial Dervovic, Parisa Hassanzadeh, Samuel Assefa, Prashant Reddy</td>
<td></td>
</tr>
<tr>
<td>On the Parameterized Complexity of Polytree Learning</td>
<td>4221</td>
</tr>
<tr>
<td>Niels Grüttemeier, Christian Komusiewicz, Nils Morawietz</td>
<td></td>
</tr>
<tr>
<td>Handling Overlaps When Lifting Gaussian Bayesian Networks</td>
<td>4228</td>
</tr>
<tr>
<td>Mattis Hartwig, Tanya Braun, Ralf Möller</td>
<td></td>
</tr>
<tr>
<td>Deep Bucket Elimination</td>
<td>4235</td>
</tr>
<tr>
<td>Yasaman Razeghi, Kalev Kask, Yadong Lu, Pierre Baldi, Sakshi Agarwal, Rina Dechter</td>
<td></td>
</tr>
<tr>
<td>BKT-POMDP: Fast Action Selection for User Skill Modelling over Tasks with Multiple Skills</td>
<td>4243</td>
</tr>
<tr>
<td>Nicole Salomons, Emir Akdere, Brian Scassellati</td>
<td></td>
</tr>
<tr>
<td>Improved Acyclicity Reasoning for Bayesian Network Structure Learning with Constraint Programming</td>
<td>4250</td>
</tr>
<tr>
<td>Fulya Trösser, Simon de Givry, George Katsirelos</td>
<td></td>
</tr>
<tr>
<td>Provable Guarantees on the Robustness of Decision Rules to Causal Interventions</td>
<td>4258</td>
</tr>
<tr>
<td>Benjie Wang, Clare Lyle, Marta Kwiatkowska</td>
<td></td>
</tr>
<tr>
<td>Fast Algorithms for Relational Marginal Polytopes</td>
<td>4266</td>
</tr>
<tr>
<td>Yuanhong Wang, Timothy van Bremen, Juhua Pu, Yuyi Wang, Ondrej Kuzelka</td>
<td></td>
</tr>
<tr>
<td><strong>SURVEY TRACK</strong></td>
<td></td>
</tr>
<tr>
<td>Partition Function Estimation: A Quantitative Study</td>
<td>4276</td>
</tr>
<tr>
<td>Durgesh Agrawal, Yash Pote, Kuldeep S. Meel</td>
<td></td>
</tr>
<tr>
<td>A Survey of Machine Learning-Based Physics Event Generation</td>
<td>4286</td>
</tr>
<tr>
<td>Yasir Alanazi, Nobuo Sato, Pawel Ambrozewicz, Astrid Hiller-Blin, Wally Melnitchouk, Marco Battaglieri, Tianbo Liu, Yaohang Li</td>
<td></td>
</tr>
<tr>
<td>Distortion in Social Choice Problems: The First 15 Years and Beyond</td>
<td>4294</td>
</tr>
<tr>
<td>Elliot Anshelevich, Aris Filos-Ratsikas, Nisarg Shah, Alexandros A. Voudouris</td>
<td></td>
</tr>
<tr>
<td>Building Affordance Relations for Robotic Agents - A Review</td>
<td>4302</td>
</tr>
<tr>
<td>Paola Ardón, Éric Pairet, Katrin S. Lohan, Subramanian Ramamoorthy, Ron P. A. Petrick</td>
<td></td>
</tr>
<tr>
<td>Recent Advances in Adversarial Training for Adversarial Robustness</td>
<td>4312</td>
</tr>
<tr>
<td>Tao Bai, Jinqi Luo, Jun Zhao, Bihan Wen, Qian Wang</td>
<td></td>
</tr>
</tbody>
</table>
Hardware-Aware Neural Architecture Search: Survey and Taxonomy.......................................................... 4322
Hadjer Benmeziane, Kaoutar El Maghraoui, Hamza Ouarnoughi, Smail Niar, Martin Wistuba, Naigang Wang

Recent Trends in Word Sense Disambiguation: A Survey ........................................................................ 4330
Michele Bevilacqua, Tommaso Pasini, Alessandro Raganato, Roberto Navigli

When Computational Representation Meets Neuroscience: A Survey on Brain Encoding and Decoding .......................................................... 4339
Lu Cao, Dandan Huang, Yue Zhang

Combinatorial Optimization and Reasoning with Graph Neural Networks .................................................. 4348
Quentin Cappart, Didier Chételat, Elias B. Khalil, Andrea Lodi, Christopher Morris, Petar Veličković

Mechanism Design for Facility Location Problems: A Survey ................................................................. 4356
Hau Chan, Aris Filos-Ratsikas, Bo Li, Minming Li, Chenhao Wang

Knowledge-aware Zero-Shot Learning: Survey and Perspective ............................................................... 4366
Jiaoyan Chen, Yuxia Geng, Zhuo Chen, Ian Horrocks, Jeff Z. Pan, Huajun Chen

Causal Learning for Socially Responsible AI............................................................................................... 4374
Lu Cheng, Ahmadreza Mosallanezhad, Paras Sheth, Huan Liu

Understanding the Relationship between Interactions and Outcomes in Human-in-the-Loop Machine Learning.................................................................................................................................................................................................................................................................................................................. 4382
Yuchen Cui, Pallavi Koppol, Henny Admoni, Scott Niekum, Reid Simmons, Aaron Steinfeld, Tesca Fitzgerald

Argumentative XAI: A Survey ..................................................................................................................... 4392
Kristijonas Čyras, Antonio Rago, Emanuele Albini, Pietro Baroni, Francesca Toni

Explanation in Constraint Satisfaction: A Survey ....................................................................................... 4400
Sharmi Dev Gupta, Begum Genc, Barry O'Sullivan

Bayesian Nonparametric Space Partitions: A Survey .................................................................................. 4408
Xuhui Fan, Bin Li, Ling Luo, Scott A. Sisson

Where Is Your Place, Visual Place Recognition? .......................................................................................... 4416
Sourav Garg, Tobias Fischer, Michael Milford

A Comprehensive Survey on Image Dehazing Based on Deep Learning .................................................. 4426
Jie Gui, Xiaofeng Cong, Yuan Cao, Wendi Ren, Jun Zhang, Jing Zhang, Dacheng Tao

Emerging Methods of Auction Design in Social Networks ........................................................................ 4434
Yuhang Guo, Dong Hao

Recent Advances in Heterogeneous Relation Learning for Recommendation .............................................. 4442
Chao Huang

Optimal Transport for Deep Generative Models: State of the Art and Research Challenges ...................... 4450
Viet Huynh, Dinh Phung, He Zhao
Reasoning-Based Learning of Interpretable ML Models ................................................................. 4458
Alexey Ignatiev, Joao Marques-Silva, Nina Narodytska, Peter J. Stuckey

If Only We Had Better Counterfactual Explanations: Five Key Deficits to Rectify in the Evaluation of Counterfactual XAI Techniques ................................................................. 4466
Mark T. Keane, Eoin M. Kenny, Eoin Delaney, Barry Smyth

End-to-End Constrained Optimization Learning: A Survey .......................................................... 4475
James Kotary, Ferdinando Fioretto, Pascal Van Hentenryck, Bryan Wilder

A Survey on Complex Knowledge Base Question Answering: Methods, Challenges and Solutions .... 4483
Yunshi Lan, Gaole He, Jinhao Jiang, Jing Jiang, Wayne Xin Zhao, Ji-Rong Wen

Pretrained Language Model for Text Generation: A Survey .......................................................... 4492
Junyi Li, Tianyi Tang, Wayne Xin Zhao, Ji-Rong Wen

Person Search Challenges and Solutions: A Survey ................................................................. 4500
Xiangtan Lin, Pengzhen Ren, Yun Xiao, Xiaojun Chang, Alex Hauptmann

Policy Learning with Constraints in Model-free Reinforcement Learning: A Survey ....................... 4508
Yongshuai Liu, Avishai Halev, Xin Liu

What’s the Context? Implicit and Explicit Assumptions in Model-Based Goal Recognition ............. 4516
Peta Masters, Mor Vered

A Survey on Goal Recognition as Planning .................................................................................. 4524
Felipe Meneguzzi, Ramon Fraga Pereira

Hybrid Probabilistic Inference with Logical and Algebraic Constraints: a Survey .......................... 4533
Paolo Morettin, Pedro Zuidberg Dos Martires, Samuel Kolb, Andrea Passerini

The Power of the Weisfeiler-Leman Algorithm for Machine Learning with Graphs .................... 4543
Christopher Morris, Matthias Fey, Nils Kriege

Automated Fact-Checking for Assisting Human Fact-Checkers .................................................. 4551
Preslav Nakov, David Corney, Maram Hasanain, Firoj Alam, Tamer Elsayed, Alberto Barrón-Cedeño, Paolo Papotti, Shaden Shaar, Giovanni Da San Martino

Ten Years of BabelNet: A Survey ..................................................................................................... 4559
Roberto Navigli, Michele Bevilacqua, Simone Conia, Dario Montagnini, Francesco Cecconii

Analogical Proportions: Why They Are Useful in AI .................................................................... 4568
Henri Prade, Gilles Richard

A Survey on Spoken Language Understanding: Recent Advances and New Frontiers .................... 4577
Libo Qin, Tianbao Xie, Wanxiang Che, Ting Liu

Neural Temporal Point Processes: A Review .................................................................................... 4585
Oleksandr Shchur, Ali Caner Türkmen, Tim Januschowski, Stephan Günnemann

Qualitative Spatial and Temporal Reasoning: Current Status and Future Challenges .................. 4594
Michael Sioutis, Diedrich Wolter

A Unifying Bayesian Formulation of Measures of Interpretability in Human-AI Interaction ............. 4602
Sarath Sreedharan, Anagha Kulkarni, David Smith, Subbarao Kambhampati
Tournaments in Computational Social Choice: Recent Developments .................................................. 4611
Warut Suksompong

A Survey on Response Selection for Retrieval-based Dialogues ......................................................... 4619
Chongyang Tao, Jiazhan Feng, Rui Yan, Wei Wu, Daxin Jiang

Generalizing to Unseen Domains: A Survey on Domain Generalization .............................................. 4627
Jindong Wang, Cuiling Lan, Chang Liu, Yidong Ouyang, Tao Qin

A Survey on Low-Resource Neural Machine Translation ............................................................................. 4636
Rui Wang, Xu Tan, Renqian Luo, Tao Qin, Tie-Yan Liu

Graph Learning based Recommender Systems: A Review ........................................................................... 4644
Shoujin Wang, Liang Hu, Yan Wang, Xiangnan He, Quan Z. Sheng, Mehmet A. Orgun, Longbing Cao, Francesco Ricci, Philip S. Yu

Time Series Data Augmentation for Deep Learning: A Survey ................................................................. 4653
Qingsong Wen, Liang Sun, Fan Yang, Xiaomin Song, Jingkun Gao, Xue Wang, Huan Xu

Challenges and Opportunities of Building Fast GBDT Systems ............................................................... 4661
Zeyi Wen, Qinbin Li, Bingsheng He, Bin Cui

Information-Theoretic Methods in Deep Neural Networks: Recent Advances and Emerging Opportunities .................................................................................................................. 4669
Shujian Yu, Luis Sanchez Giraldo, Jose Principe

A Comparative Survey: Benchmarking for Pool-based Active Learning .................................................. 4679
Xueying Zhan, Huan Liu, Qing Li, Antoni B. Chan

A Survey on Universal Adversarial Attack ................................................................................................. 4687
Chaoning Zhang, Philipp Benz, Chengu Lin, Adil Karjauv, Jing Wu, In So Kweon

Deep Learning for Click-Through Rate Estimation .................................................................................... 4695
Weinan Zhang, Jiaru Qin, Wei Guo, Ruiming Tang, Xiuqiang He

Automated Machine Learning on Graphs: A Survey ................................................................................... 4704
Ziwei Zhang, Xin Wang, Wenwu Zhu

Topic Modelling Meets Deep Neural Networks: A Survey ........................................................................ 4713
He Zhao, Dinh Phung, Viet Huynh, Yuan Jin, Lan Du, Wray Buntine

Cross-Domain Recommendation: Challenges, Progress, and Prospects .................................................... 4721
Feng Zhu, Yan Wang, Chaochao Chen, Jun Zhou, Longfei Li, Guanfeng Liu

**SISTER CONFERENCES BEST PAPERS**

Hierarchical Graph Traversal for Aggregate k Nearest Neighbors Search in Road Networks
(Extended Abstract) ................................................................................................................................. 4730
Tenindra Abeywickrama, Muhammad Aamir Cheema, Sabine Storandt

Defining the Semantics of Abstract Argumentation Frameworks through Logic Programs and Partial Stable Models (Extended Abstract) ................................................................. 4735
Gianvincenzo Alfano, Sergio Greco, Francesco Parisi, Irina Trubitsyna

Comparing Weak Admissibility Semantics to their Dung-style Counterparts (Extended Abstract) .......... 4740
Ringo Baumann, Gerhard Brewka, Markus Ulbricht
Abstract Cores in Implicit Hitting Set MaxSat Solving (Extended Abstract) ............................................................ 4745
Jeremias Berg, Fahiem Bacchus, Alex Poole

Robust Domain Adaptation: Representations, Weights and Inductive Bias (Extended Abstract) .................. 4750
Victor Bouvier, Philippe Very, Clément Chastagnol, Myriam Tami, Céline Hudelot

Decentralized No-regret Learning Algorithms for Extensive-form Correlated Equilibria (Extended Abstract) .......................................................... 4755
Andrea Celli, Alberto Marchesi, Gabriele Farina, Nicola Gatti

Weaving a Semantic Web of Credibility Reviews for Explainable Misinformation Detection (Extended Abstract) ................................................................. 4760
Ronald Denaux, Martino Mensio, Jose Manuel Gomez-Perez, Harith Alani

Improved Guarantees and a Multiple-descent Curve for Column Subset Selection and the Nystrom Method (Extended Abstract) .......................................................... 4765
Michał Dereziński, Rajiv Khanna, Michael W. Mahoney

Mental Models of AI Agents in a Cooperative Game Setting (Extended Abstract) .......................................................... 4770
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

Successor-Invariant First-Order Logic on Classes of Bounded Degree (Extended Abstract) .......................... 4775
Julien Grange

Deep Drone Acrobatics (Extended Abstract) ........................................................................................................ 4780
Elia Kaufmann, Antonio Loquercio, Rene Ranftl, Matthias Müller, Vladlen Koltun, Davide Scaramuzza

On Sampled Metrics for Item Recommendation (Extended Abstract) ............................................................. 4784
Walid Krichene, Steffen Rendle

Revisiting Wedge Sampling for Budgeted Maximum Inner Product Search (Extended Abstract) .................. 4789
Stephan S. Lorenzen, Ninh Pham

On Learning Sets of Symmetric Elements (Extended Abstract) ........................................................................ 4794
Haggai Maron, Or Litany, Gal Chechik, Ethan Fetaya

The Moodo Library: Quantitative Metrics to Model How Teachers Make Use of the Classroom Space by Analysing Indoor Positioning Traces (Extended Abstract) ......................................................................................... 4799
Roberto Martinez-Maldonado, Vanessa Echeverria, Katerina Mangaroska, Antonette Shibani, Gloria Fernandez-Nieto, Jurgen Schulte, Simon Buckingham Shum

Controlling Fairness and Bias in Dynamic Learning-to-Rank (Extended Abstract) .................................................. 4804
Marco Morik, Ashudeep Singh, Jessica Hong, Thorsten Joachims

Unifying Online and Counterfactual Learning to Rank: A Novel Counterfactual Estimator that Effectively Utilizes Online Interventions (Extended Abstract) ..................................................................................... 4809
Harrie Oosterhuis, Maarten de Rijke

Finding the Hardest Formulas for Resolution (Extended Abstract) ............................................................. 4814
Tomáš Peitl, Stefan Szeider

Exploring the Effects of Goal Setting When Training for Complex Crowdsourcing Tasks (Extended Abstract) ..................................................................................... 4819
Amy Rechkemmer, Ming Yin
Beyond Accuracy: Behavioral Testing of NLP Models with Checklist (Extended Abstract) ........................................ 4824
  Marco Tulio Ribeiro, Tongshuang Wu, Carlos Guestrin, Sameer Singh

Politeness for the Theory of Algebraic Datatypes (Extended Abstract) ................................................................. 4829
  Ying Sheng, Yoni Zohar, Christophe Ringeissen, Jane Lange, Pascal Fontaine, Clark Barrett

Imprecise Oracles Impose Limits to Predictability in Supervised Learning (Extended Abstract) .......................... 4834
  Anjali Sifar, Nisheeth Srivastava

RAFT: Recurrent All-Pairs Field Transforms for Optical Flow (Extended Abstract) ................................................. 4839
  Zachary Teed, Jia Deng

Open Intent Extraction from Natural Language Interactions (Extended Abstract) .................................................. 4844
  Nikhita Vedula, Nedim Lipka, Pranav Maneriker, Srinivasan Parthasarathy

Speech Recognition Using RFID Tattoos (Extended Abstract) ................................................................................. 4849
  Jingxian Wang, Chengfeng Pan, Haojian Jin, Vaibhav Singh, Yash Jain, Jason I. Hong,
  Carmel Majidi, Swarun Kumar

Unsupervised Learning of Probably Symmetric Deformable 3D Objects from Images in the Wild (Extended Abstract) ........................................................................................................................................................................... 4854
  Shangzhe Wu, Christian Rupprecht, Andrea Vedaldi

TAXOGAN: Hierarchical Network Representation Learning via Taxonomy Guided Generative Adversarial Networks (Extended Abstract) ........................................................................................................... 4859
  Carl Yang, Jieyu Zhang, Jiawei Han

Semantic Linking Maps for Active Visual Object Search (Extended Abstract) ......................................................... 4864
  Zhen Zeng, Adrian Röfer, Odest Chadwicke Jenkins

Deep Residual Reinforcement Learning (Extended Abstract) ......................................................................................... 4869
  Shangtong Zhang, Wendelin Boehmer, Shimon Whiteson

DOCTORAL CONSORTIUM

Greybox Algorithm Configuration .............................................................................................................................. 4875
  Marie Anastacio

Bottleneck Identification to Semantic Segmentation of Industrial 3D Point Cloud Scene via Deep Learning .............. 4877
  Romain Cazorla, Line Poinel, Panagiotis Papadakis, Cédric Buche

Multi-agent Approach to Resource Allocation in Autonomous Vehicle Fleets ......................................................... 4879
  Alaa Daoud

Automatic Design of Heuristic Algorithms for Binary Optimization Problems ....................................................... 4881
  Marcelo de Souza

Distributional Metareasoning for Heuristic Search ........................................................................................................ 4883
  Tianyi Gu

Automated Facilitation Support in Online Forum ......................................................................................................... 4885
  Wen Gu

Safety Analysis of Deep Neural Networks .................................................................................................................... 4887
  Dario Guidotti
<table>
<thead>
<tr>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Towards Robust Dynamic Network Embedding</td>
<td>4889</td>
</tr>
<tr>
<td>Chengbin Hou, Ke Tang</td>
<td></td>
</tr>
<tr>
<td>An Information-Theoretic Approach on Causal Structure Learning for Heterogeneous Data Characteristics of Real-World Scenarios</td>
<td>4891</td>
</tr>
<tr>
<td>Johannes Hugle</td>
<td></td>
</tr>
<tr>
<td>Robot Manipulation Learning Using Generative Adversarial Imitation Learning</td>
<td>4893</td>
</tr>
<tr>
<td>Mohamed Khalil Jabri</td>
<td></td>
</tr>
<tr>
<td>Planning and Reinforcement Learning for General-Purpose Service Robots</td>
<td>4895</td>
</tr>
<tr>
<td>Yuqian Jiang</td>
<td></td>
</tr>
<tr>
<td>Nash Welfare in the Facility Location Problem</td>
<td>4897</td>
</tr>
<tr>
<td>Alexander Lam</td>
<td></td>
</tr>
<tr>
<td>Deep Reinforcement Learning with Hierarchical Structures</td>
<td>4899</td>
</tr>
<tr>
<td>Siyuan Li</td>
<td></td>
</tr>
<tr>
<td>AI for Planning Public Health Interventions</td>
<td>4901</td>
</tr>
<tr>
<td>Aditya Mate</td>
<td></td>
</tr>
<tr>
<td>Uncertain Time Series Classification</td>
<td>4903</td>
</tr>
<tr>
<td>Michael Franklin Mbowopda</td>
<td></td>
</tr>
<tr>
<td>Combining Reinforcement Learning and Causal Models for Robotics Applications</td>
<td>4905</td>
</tr>
<tr>
<td>Arquimides Méndez-Molina</td>
<td></td>
</tr>
<tr>
<td>On the Learnability of Knowledge in Multi-Agent Logics</td>
<td>4907</td>
</tr>
<tr>
<td>Ionela G Mocanu</td>
<td></td>
</tr>
<tr>
<td>Towards an Explainer-agnostic Conversational XAI</td>
<td>4909</td>
</tr>
<tr>
<td>Navid Nobani, Fabio Mercorio, Mario Mezzanzanica</td>
<td></td>
</tr>
<tr>
<td>Hardware-friendly Deep Learning by Network Quantization and Binarization</td>
<td>4911</td>
</tr>
<tr>
<td>Haotong Qin</td>
<td></td>
</tr>
<tr>
<td>Modeling Institutions in Socio-Ecosystems</td>
<td>4913</td>
</tr>
<tr>
<td>Sirtraka Oliva Raharivel, Jean-Pierre Müller</td>
<td></td>
</tr>
<tr>
<td>Inter-Task Similarity for Lifelong Reinforcement Learning in Heterogeneous Tasks</td>
<td>4915</td>
</tr>
<tr>
<td>Sergio A. Serrano</td>
<td></td>
</tr>
<tr>
<td>A Human-AI Teaming Approach for Incremental Taxonomy Learning from Text</td>
<td>4917</td>
</tr>
<tr>
<td>Andrea Seveso, Fabio Mercorio, Mario Mezzanzanica</td>
<td></td>
</tr>
<tr>
<td>Continual Lifelong Learning for Intelligent Agents</td>
<td>4919</td>
</tr>
<tr>
<td>Ghada Sokar</td>
<td></td>
</tr>
<tr>
<td>Learning from Multimedia Data with Incomplete Information</td>
<td>4921</td>
</tr>
<tr>
<td>Renshuai Tao</td>
<td></td>
</tr>
<tr>
<td>Data Efficient Algorithms and Interpretability Requirements for Personalized Assessment of Taskable AI Systems</td>
<td>4923</td>
</tr>
<tr>
<td>Pulkit Verma</td>
<td></td>
</tr>
</tbody>
</table>
Adversarial Examples in Physical World .............................................................. 4925
Jiakai Wang

Learning and Planning Under Uncertainty for Green Security .................................. 4927
Lily Xu

An Automated Framework for Supporting Data-Governance Rule Compliance in Decentralized MIMO Contexts ................................................................. 4929
Rui Zhao

Anomaly Mining - Past, Present and Future ............................................................. 4931
Leman Akoglu

EARLY CAREER

From Computational Social Choice to Digital Democracy ........................................... 4937
Markus Brill

Adaptive Experimental Design for Optimizing Combinatorial Structures .................... 4940
Janardhan Rao Doppa

Intelligent and Learning Agents: Four Investigations .............................................. 4946
Shivaram Kalyanakrishnan

Safe Weakly Supervised Learning ........................................................................ 4951
Yu-Feng Li

Planning for Novelty: Width-Based Algorithms for Common Problems in Control, Planning and Reinforcement Learning ......................................................... 4956
Nir Lipovetzky

Towards a New Generation of Cognitive Diagnosis .................................................. 4961
Qi Liu

Alleviating Road Traffic Congestion with Artificial Intelligence ............................ 4965
Guni Sharon

Towards Fair and Transparent Algorithmic Systems ................................................. 4970
Yair Zick

A Neural Network Auction For Group Decision Making Over a Continuous Space ........ 4975
Yoram Bachrach, Ian Gemp, Marta Garnelo, Janos Kramar, Tom Eccles, Dan Rosenbaum, Thore Graepel

DEMO TRACK

Web Interoperability for Ontology Development and Support with crowd 2.0 .................... 4980
German Braun, Giuliano Marinelli, Emiliano Rios Gavagnin, Laura Cecchi, Pablo Fillotrani

Skills2Graph: Processing million Job Ads to face the Job Skill Mismatch Problem ........... 4984
Anna Giabelli, Lorenzo Malandri, Fabio Mercorio, Mario Mezzanzanica, Andrea Seveso

HIVE: Hierarchical Information Visualization for Explainability .................................. 4988
Yi-Ning Juan, Yi-Shyuan Chiang, Shang-Chuan Liu, Ming-Feng Tsai, Chuan-Ju Wang
ConvLogMiner: A Real-Time Conversational Lifelog Miner ................................................................. 4992
   Pei-Wei Kao, An-Zi Yen, Hen-Hsen Huang, Hsin-Hsi Chen

InfOCF-Web: An Online Tool for Nonmonotonic Reasoning with Conditionals and Ranking Functions ................................................................. 4996
   Steven Kutsch, Christoph Beierle

A Compression-Compilation Framework for On-mobile Real-time BERT Applications .......................... 5000
   Wei Niu, Zhenglun Kong, Geng Yuan, Weiwen Jiang, Jiexiong Guan, Caïwen Ding, Pu Zhao,
   Sijia Liu, Bin Ren, Yanzhi Wang

VisioRed: A Visualisation Tool for Interpretable Predictive Maintenance ............................................. 5004
   Spyridon Paraschos, Ioannis Mollas, Nick Bassiliades, Grigoris Tsoumakas

Connect Multi-Agent Path Finding: Generation and Visualization .......................................................... 5008
   Arthur Queffelec, Ocan Sankur, Francois Schwarzentruber

Towards Fast and Accurate Multi-Person Pose Estimation on Mobile Devices ...................................... 5012
   Xuan Shen, Geng Yuan, Wei Niu, Xiaolong Ma, Jiexiong Guan, Zhengang Li, Bin Ren, Yanzhi Wang

Predictive Analytics for COVID-19 Social Distancing ............................................................................ 5016
   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

Graph-Augmented Code Summarization in Computational Notebooks .................................................. 5020
   April Wang, Dakuo Wang, Xuye Liu, Lingfei Wu

Interactive Video Acquisition and Learning System for Motor Assessment of Parkinson’s Disease .......... 5024
   Yunyue Wei, Bingquan Zhu, Chen Hou, Chen Zhang, Yanan Sui

AutoBandit: A Meta Bandit Online Learning System .............................................................................. 5028
   Miaoxie Xie, Wotao Yin, Huan Xu

Communication-efficient and Scalable Decentralized Federated Edge Learning .................................... 5032
   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

IIAS: An Intelligent Insurance Assessment System through Online Real-time Conversation Analysis ........ 5036
   Mengdi Zhou, Shuang Peng, Minghui Yang, Nan Li, Hongbin Wang, Li Qiao, Haitao Mi,
   Zajie Wen, Teng Xu, Lei Liu

Self-Adaptive Swarm System (SASS) ......................................................................................................... 5040
   Qin Yang

Author Index