

39th AAAI Conference on Artificial Intelligence (AAAI-25), 37th Conference on Innovative Applications of Artificial Intelligence (IAAI-25), and 15th Symposium on Educational Advances in Artificial Intelligence (EAAI-25)

Volume 14: AAAI Technical Tracks

- Intelligent Robots
- Knowledge Representation and Reasoning

Philadelphia, Pennsylvania, USA
25 February - 4 March 2025

ISBN: 979-8-3313-2524-4

Printed from e-media with permission by:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571



Some format issues inherent in the e-media version may also appear in this print version.

Copyright© (2025) by Association for the Advancement of Artificial Intelligence
All rights reserved.

Printed with permission by Curran Associates, Inc. (2025)

For permission requests, please contact Association for the Advancement of Artificial Intelligence
at the address below.

Association for the Advancement of Artificial Intelligence
2275 East Bayshore Road
Suite 160
Palo Alto, California 94303
USA

Phone: 1-650-328-3123
Fax: 1-650-321-4457

<https://aaai.org/Press/press.php>

Additional copies of this publication are available from:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: 845-758-0400
Fax: 845-758-2633
Email: curran@proceedings.com
Web: www.proceedings.com

TABLE OF CONTENTS

AAAI TECHNICAL TRACK ON INTELLIGENT ROBOTS

Generating Traffic Scenarios via In-Context Learning to Learn Better Motion Planner	14539
<i>Aizierjiang Aiersilan</i>	
MRBTP: Efficient Multi-Robot Behavior Tree Planning and Collaboration	14548
<i>Yishuai Cai, Xinglin Chen, Zhongxuan Cai, Yunxin Mao, Minglong Li, Wenjing Yang, Ji Wang</i>	
Int2Planner: An Intention-based Multi-modal Motion Planner for Integrated Prediction and Planning	14558
<i>Xiaolei Chen, Junchi Yan, Wenlong Liao, Tao He, Pai Peng</i>	
Optimal Control Operator Perspective and a Neural Adaptive Spectral Method	14567
<i>Mingquan Feng, Zhijie Chen, Yixin Huang, Yizhou Liu, Junchi Yan</i>	
Efficient Language-instructed Skill Acquisition via Reward-Policy Co-Evolution	14576
<i>Changxin Huang, Yanbin Chang, Junfan Lin, Junyang Liang, Runhao Zeng, Jianqiang Li</i>	
GNN-Transformer Task Planning Enhanced with Semantic-Driven Data Augmentation	14585
<i>Soojin Jeong, Seongwan Byeon, Sangwoo Kim, HyeokJun Kwon, Yoonseon Oh</i>	
Multi-fingered Hand Grasps with Visuo-Tactile Fusion via Multi-Agent Deep Reinforcement Learning	14594
<i>Peida Jia, Xuanheng Li, Tianqiang Zhu, Rina Wu, Xiangbo Lin, Yi Sun</i>	
State-Based Disassembly Planning	14602
<i>Chao Lei, Nir Lipovetzky, Krista A. Ehinger</i>	
FloNa: Floor Plan Guided Embodied Visual Navigation	14610
<i>Jiaxin Li, Weiqi Huang, Zan Wang, Wei Liang, Huijun Di, Feng Liu</i>	
Safe Planner: Empowering Safety Awareness in Large Pre-Trained Models for Robot Task Planning	14619
<i>Siyuan Li, Feifan Liu, Lingfei Cui, Jiani Lu, Qinqin Xiao, Xirui Yang, Peng Liu, Kewu Sun, Zhe Ma, Xun Wang</i>	
ConDo: Continual Domain Expansion for Absolute Pose Regression	14628
<i>Zijun Li, Zhipeng Cai, Bochun Yang, Xuelun Shen, Siqi Shen, Xiaoliang Fan, Michael Paulitsch, Cheng Wang</i>	
When Should We Prefer State-to-Visual DAgger over Visual Reinforcement Learning?	14637
<i>Tongzhou Mu, Zhaoyang Li, Stanislaw Wiktor Strzelecki, Xiu Yuan, Yunchao Yao, Litian Liang, Hao Su</i>	
Heterogeneous Multi-Robot Graph Coverage with Proximity and Movement Constraints	14646
<i>Dolev Mutzari, Yonatan Aumann, Sarit Kraus</i>	
Evolutionary Reinforcement Learning with Parameterized Action Primitives for Diverse Manipulation Tasks.....	14655
<i>Xianxu Qiu, Haiming Huang, Weiwei Chen, Qiuzhen Lin, Wei-Neng Chen, Fuchun Sun</i>	

Enhancing Multi-Robot Semantic Navigation Through Multimodal Chain-of-Thought Score Collaboration	14664
<i>Zhixuan Shen, Haonan Luo, Kexun Chen, Fengmao Lv, Tianrui Li</i>	
Towards Audio-Visual Navigation in Noisy Environments: A Large-Scale Benchmark Dataset and an Architecture Considering Multiple Sound-Sources	14673
<i>Zhanbo Shi, Lin Zhang, Linfei Li, Ying Shen</i>	
Discovering Conceptual Knowledge with Analytic Ontology Templates for Articulated Objects	14681
<i>Jianhua Sun, Yuxuan Li, Longfei Xu, Jiude Wei, Liang Chai, Cewu Lu</i>	
Instruction-Augmented Long-Horizon Planning: Embedding Grounding Mechanisms in Embodied Mobile Manipulation	14690
<i>Fangyuan Wang, Shipeng Lyu, Peng Zhou, Anqing Duan, Guodong Guo, David Navarro-Alarcon</i>	
BEVSync: Asynchronous Data Alignment for Camera-based Vehicle-Infrastructure Cooperative Perception Under Uncertain Delays	14699
<i>Wentao Wang, Jiaqian Wang, Yuxin Deng, Guang Tan</i>	
NaviFormer: A Spatio-Temporal Context-Aware Transformer for Object Navigation.....	14708
<i>Wei Xie, Haobo Jiang, Yun Zhu, Jianjun Qian, Jin Xie</i>	
Neural Assembler: Learning to Generate Fine-Grained Robotic Assembly Instructions from Multi-View Images	14717
<i>Hongyu Yan, Yadong Mu</i>	
Online Guidance Graph Optimization for Lifelong Multi-Agent Path Finding	14726
<i>Hongzhi Zang, Yulun Zhang, He Jiang, Zhe Chen, Daniel Harabor, Peter J. Stuckey, Jiaoyang Li</i>	
GMAP: Generalized Manipulation of Articulated Objects in Robotic Using Pre-trained Model.....	14736
<i>Hongliang Zeng, Ping Zhang, Fang Li, QinPeng Yi, Tingyu Ye, Jiahua Wang</i>	
MapExpert: Online HD Map Construction with Simple and Efficient Sparse Map Element Expert	14745
<i>Dapeng Zhang, Dayu Chen, Peng Zhi, Yinda Chen, Zhenlong Yuan, Chenyang Li, Sunjing, Rui Zhou, Qingguo Zhou</i>	
FlowPolicy: Enabling Fast and Robust 3D Flow-Based Policy via Consistency Flow Matching for Robot Manipulation.....	14754
<i>Qinglun Zhang, Zhen Liu, Haoqiang Fan, Guanghui Liu, Bing Zeng, Shuaicheng Liu</i>	
Loosely Synchronized Rule-Based Planning for Multi-Agent Path Finding with Asynchronous Actions	14763
<i>Shuai Zhou, Shizhe Zhao, Zhongqiang Ren</i>	

AAAI TECHNICAL TRACK ON KNOWLEDGE REPRESENTATION AND REASONING

ASP-Driven Emergency Planning for Norm Violations in Reinforcement Learning	14772
<i>Sebastian Adam, Thomas Eiter</i>	
Minimal Change in Modal Logic S5	14781
<i>Carlos Aguilera-Ventura, Jonathan Ben-Naim, Andreas Herzig</i>	
An Extension-Based Argument-Ranking Semantics: Social Rankings in Abstract Argumentation	14790
<i>Lars Bengel, Giovanni Buraglio, Jan Maly, Kenneth Skiba</i>	

Fast Computing of Dung Semantics in Acyclic Probabilistic Argumentation Frameworks	14798
<i>Stefano Bistarelli, Victor David, Pierre Monnin, Francesco Santini, Carlo Taticchi</i>	
DPCL-Diff : Temporal Knowledge Graph Reasoning Based on Graph Node Diffusion Model with Dual-Domain Periodic Contrastive Learning	14806
<i>Yukun Cao, Lisheng Wang, Luobin Huang</i>	
CognTKE: A Cognitive Temporal Knowledge Extrapolation Framework	14815
<i>Wei Chen, Yuting Wu, Shuhan Wu, Zhiyu Zhang, Mengqi Liao, Youfang Lin, Huaiyu Wan</i>	
Answering Conjunctive Queries with Safe Negation and Inequalities over RDFS Knowledge Bases	14824
<i>Gianluca Cima, Marco Console, Roberto Maria Delfino, Maurizio Lenzerini, Antonella Poggi</i>	
A Practical Approach to Causal Inference over Time	14832
<i>Martina Cinquini, Isacco Beretta, Salvatore Ruggieri, Isabel Valera</i>	
Germane Conflicts: Desirable Properties for Localising Inconsistency	14840
<i>Glauber de Bona, Anthony Hunter</i>	
Situation Calculus Temporally Lifted Abstractions for Generalized Planning	14848
<i>Giuseppe de Giacomo, Yves Lespérance, Matteo Mancanelli</i>	
A Computationally Grounded Framework for Cognitive Attitudes.....	14858
<i>Tiago de Lima, Emiliano Lorini, Elise Perrotin, François Schwarzentruher</i>	
Sound Over-Approximation of Equational Reasoning with Variable-Preserving Rules Parameterized by Derivation Depth	14867
<i>Mateus de Oliveira Oliveira</i>	
An Automatic Sound and Complete Abstraction Method for Generalized Planning with Baggage Types	14875
<i>Hao Dong, Zheyuan Shi, Hemeng Zeng, Yongmei Liu</i>	
Replacing Paths with Connection-Biased Attention for Knowledge Graph Completion	14885
<i>Sharmishtha Dutta, Alex Gittens, Mohammed J. Zaki, Charu C. Aggarwal</i>	
Recursive Aggregates as Intensional Functions in Answer Set Programming: Semantics and Strong Equivalence	14893
<i>Jorge Fandinno, Zachary Hansen</i>	
Solving Epistemic Logic Programs Using Generate-and-Test with Propagation	14902
<i>Jorge Fandinno, Lute Lillo</i>	
A Syntactic Approach to Computing Complete and Sound Abstraction in the Situation Calculus	14911
<i>Liangda Fang, Xiaoman Wang, Zhang Chen, Kailun Luo, Zhenhe Cui, Quanlong Guan</i>	
On the Logic of Theory Base Change: Reformulation of Belief Bases	14922
<i>Eduardo L. Fermé, Andreas Herzig, Maria Vanina Martinez</i>	
Argumentative Large Language Models for Explainable and Contestable Claim Verification	14930
<i>Gabriel Freedman, Adam Dejl, Deniz Gorur, Xiang Yin, Antonio Rago, Francesca Toni</i>	
First-Order Automata.....	14940
<i>Luca Geatti, Alessandro Gianola, Nicola Gigante</i>	
Temporal Causal Reasoning with (Non-Recursive) Structural Equation Models.....	14949
<i>Maksim Gladyshev, Natasha Alechina, Mehdi Dastani, Dragan Doder, Brian Logan</i>	

LTLf Synthesis Under Unreliable Input	14958
<i>Christian Hagemeier, Giuseppe de Giacomo, Moshe Y. Vardi</i>	
An Algebraic Notion of Conditional Independence, and Its Application to Knowledge Representation	14967
<i>Jesse Heyninck</i>	
LTLf Synthesis on First-Order Agent Programs in Nondeterministic Environments	14976
<i>Till Hofmann, Jens Claßen</i>	
New Compilation Languages Based on Restricted Weak Decomposability.....	14987
<i>Petr Illner</i>	
Hybrid Reasoning About Relative Position and Orientation of Objects and Navigating Agents Using Answer Set Programming	14997
<i>Yusuf Izmirliloglu</i>	
APKGC: Noise-enhanced Multi-Modal Knowledge Graph Completion with Attention Penalty.....	15005
<i>Yue Jian, Xiangyu Luo, Zhifei Li, Miao Zhang, Yan Zhang, Kui Xiao, Xiaojun Hou</i>	
A Modal Logic for Joint Abilities of Structured Strategies with Bounded Complexity	15014
<i>Ruiqi Jin, Yongmei Liu, Liping Xiong</i>	
Reasoning About Actual Causes in Nondeterministic Domains.....	15024
<i>Shakil M. Khan, Yves Lespérance, Maryam Rostamigiv</i>	
An Alternative Theory of Stable Revision for Nondeterministic Approximation Fixpoint Theory and the Relationships.....	15033
<i>Spencer Killen, Jia-Huai You, Jesse Heyninck</i>	
On Action Theories with Iterable First-Order Progression.....	15041
<i>Daxin Liu, Jens Claßen</i>	
Scalable Knowledge Refactoring Using Constrained Optimisation	15049
<i>Minghao Liu, David M. Cerna, Filipe Gouveia, Andrew Cropper</i>	
Dung's Argumentation Framework: Unveiling the Expressive Power with Inconsistent Databases.....	15058
<i>Yasir Mahmood, Markus Hecher, Axel-Cyrille Ngonga Ngomo</i>	
Spectra of Cardinality Queries over Description Logic Knowledge Bases	15067
<i>Quentin Manière, Marcin Przybylko</i>	
Temporal Specification Optimisation for the Event Calculus	15075
<i>Periklis Mantenoglou, Alexander Artikis</i>	
Consistent Query Answering over Existential Rules with Open and Closed Predicates	15083
<i>Lorenzo Marconi, Riccardo Rosati</i>	
Probabilistic Strategy Logic with Degrees of Observability	15092
<i>Chunyan Mu, Nima Motamed, Natasha Alechina, Brian Logan</i>	
An And-Sum Circuit with Signed Edges That Is More Succinct than SDD	15100
<i>Ryoma Onaka, Kengo Nakamura, Masaaki Nishino, Norihito Yasuda</i>	
Tensor Decomposition Meets Knowledge Compilation: A Study Comparing Tensor Trains with OBDDs	15109
<i>Ryoma Onaka, Kengo Nakamura, Masaaki Nishino, Norihito Yasuda</i>	

A Logical Analysis of Hanabi.....	15118
<i>Elise Perrotin</i>	
Checking Consistency of CP-Theory Preferences in Polynomial Time	15126
<i>Erik Rauer, Samik Basu, Vasant Honavar</i>	
Shield Synthesis for LTL Modulo Theories.....	15134
<i>Andoni Rodríguez, Guy Amir, Davide Corsi, César Sánchez, Guy Katz</i>	
A Variable Occurrence-Centric Framework for Inconsistency Handling	15143
<i>Yakoub Salhi</i>	
Learning Theorem Rationale for Improving the Mathematical Reasoning Capability of Large Language Models	15151
<i>Yu Sheng, Linjing Li, Daniel Dajun Zeng</i>	
Joint Knowledge Editing for Information Enrichment and Probability Promotion.....	15160
<i>Wenhong Shi, Yiren Chen, Shuqing Bian, Xinyi Zhang, Zhe Zhao, Pengfei Hu, Wei Lu, Xiaoyong Du</i>	
MTVHunter: Smart Contracts Vulnerability Detection Based on Multi-Teacher Knowledge Translation.....	15169
<i>Guokai Sun, Yuan Zhuang, Shuo Zhang, Xiaoyu Feng, Zhenguang Liu, Liguang Zhang</i>	
Column-Oriented Datalog on the GPU.....	15177
<i>Yihao Sun, Sidharth Kumar, Thomas Gilray, Kristopher Micinski</i>	
SR-FoT: A Syllogistic-Reasoning Framework of Thought for Large Language Models Tackling Knowledge-based Reasoning Tasks.....	15186
<i>Wentao Wan, Zhuojie Yang, Yongcan Chen, Chenglin Luo, Ruilin Wang, Kehao Cai, Nan Kang, Liang Lin, Keze Wang</i>	
Traffic Scenario Logic: A Spatial-Temporal Logic for Modeling and Reasoning of Urban Traffic Scenarios	15195
<i>Ruolin Wang, Yuejiao Xu, Jianmin Ji</i>	
Goal-Driven Reasoning in DatalogMTL with Magic Sets	15203
<i>Shaoyu Wang, Kaiyue Zhao, Dongliang Wei, Przemysław Andrzej Wałęga, Dingmin Wang, Hongming Cai, Pan Hu</i>	
Eliciting Causal Abilities in Large Language Models for Reasoning Tasks.....	15212
<i>Yajing Wang, Zongwei Luo, Jingzhe Wang, Zhanke Zhou, Yongqiang Chen, Bo Han</i>	
Temporal Conjunctive Query Answering via Rewriting	15221
<i>Lukas Westhofen, Jean Christoph Jung, Daniel Neider</i>	
SPAC: Sparse Partitioning and Adaptive Core Tensor Pruning Model for Knowledge Graph Completion	15230
<i>Chuhong Yang, Bin Li, Nan Wu</i>	
Knowledge Graph Completion with Relation-Aware Anchor Enhancement.....	15239
<i>Duanyang Yuan, Sihang Zhou, Xiaoshu Chen, Dong Wang, Ke Liang, Xinwang Liu, Jian Huang</i>	
What Is a Good Question? Assessing Question Quality via Meta-Fact Checking.....	15248
<i>Bo Zhang, Jianghua Zhu, Chaozhuo Li, Hao Yu, Li Kong, Zhan Wang, Dezhuang Miao, Xiaoming Zhang, Junsheng Zhou</i>	

A Theory of Formalisms for Representing Knowledge	15257
<i>Heng Zhang, Guifei Jiang, Donghui Quan</i>	
Counterfactual Debiasing for Physical Audiovisual Commonsense Reasoning.....	15265
<i>Daoming Zong, Chaoyue Ding, Kaitao Chen, Yinsheng Li, Shuaiyu Wang</i>	

Author Index