



ISAIM 2024

International Symposium on Artificial Intelligence and Mathematics
Fort Lauderdale, FL. January 8–10, 2024



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Program

A pdf version of the program is available [here](#).

Rooms for Sessions

We are using the **Grand View** and **Harbor Lights** rooms for the different sessions.

MONDAY, JANUARY 8, 2024

Registration (8:00 — 8:45)

Opening Remarks, Greetings (8.45 — 9:00)

Keynote Speaker (9:00 — 10:30)

Chair: Martin Golumbic and Frederick Hoffman

Time	Description
9:00	The Role of Dataset Reset in Online Reinforcement Learning from Human Feedback
	Wen Sun
9:45	Learning control with Differentiable Simulation
	Animesh Garg

Coffee Break (10:30 — 11:00)

Morning Sessions (11:00 — 12:30)

Main Track Session - Machine Learning Theory and Methods 1

Chair: Claudio Gentile

Time	Description
11:00	A Model for Optimizing Recalculation Schedules to Minimize Regret
	Bethany Austhof, Lev Reyzin
11:30	A Theory of Learning with Competing Objectives and User Feedback

	Pranjal Awasthi, Corinna Cortes, Yishay Mansour, Mehryar Mohri
12:00	Meta Co-Training: Two Views are Better than One
	Jay C. Rothenberger, Dimitrios I. Diochnos

Special Session on Deep Reinforcement Learning 1

Chair: Abhishek Gupta

Time	Description
11:00	The "Deep" in Deep RL: Capacity Loss, and How to Mitigate it in Value-Based RL
	Aviral Kumar
11:45	Provable Guarantees for Generative Behavior Cloning
	Max Simchowitz

Lunch (12:30 — 2:00)

On your own.

After Lunch Sessions (2:00 — 3:30)

Main Track Session - Voting Systems, Games

Chair: Lev Reyzin

Time	Description
2:00	Apportionment with Thresholds: Strategic Campaigns Are Easy in the Top-Choice But Hard in the Second-Chance Mode
	Christian Laußmann, Jörg Rothe, Tessa Seeger
2:30	Trick Costs for α-μ and New Relatives
	Samuel Bounan, Stefan Edelkamp
3:00	Toward Completing the Picture of Control in Schulze and Ranked Pairs Elections
	Cynthia Maushagen, David Niclaus, Paul Nüsken, Jörg Rothe, Tessa Seeger

Special Session on Deep Reinforcement Learning 2

Chair: Abhishek Gupta

Time	Description
2:00	Walking the line between model- and learning-based methods for intelligent robotic manipulation
	Georgia Chalvatzaki

2:45	The Journey of Making Linear MDP Practical
	Bo Dai

Coffee Break (3:30 — 4:00)

Afternoon Sessions (4:00 — 5:30)

Main Track Session - Tractability and Hardness

Chair: Martin Golumbic

Time	Description
4:00	A differential approach for several NP-hard optimization problems Sangram K. Jena, K. Subramani, Alvaro Velasquez
4:30	On the computational complexities of finding selected refutations of linear programs K. Subramani, Piotr Wojciechowski
5:00	Extending the Tractability of the Clique Problem via Graph Classes Generalizing Treewidth Philippe Jegou

Evening

Water Taxi Cruise in Ft. Lauderdale.

Tentative: We will gather in the lobby at 6:30pm, and leave promptly at 6:40pm to walk to a 7:00pm pickup by the Watertaxi.

TUESDAY, JANUARY 9, 2024

Opening Remarks, Greetings (8.45 — 9:00)

Keynote Speaker (9:00 — 10:00)

Chair: Martin Golumbic / Frederick Hoffman

Time	Description
9:00	Group Fairness in Collective Decisions: From Multiwinner Voting to Participatory Budgeting Edith Elkind

Coffee Break (10:00 — 10:30)

Morning Session (10:30 — 12:30)

Special Session on Deep Reinforcement Learning 3

Chair: Abhishek Gupta

Time	Description
10:30	Reinforcement Learning Meets Bilevel Optimization: Learning Leader-Follower Games with Sample Efficiency Zhuoran Yang
11:15	Is RLHF More Difficult than Standard RL? A Theoretical Perspective Chi Jin
12:00	Contributed Talks Brief Student Presentations

Special Session on Alternative Models for Fairness in AI 1

Chair: John Hooker

Time	Description
10:30	The Measure and Mismeasure of Fairness Hans Gaebler
11:00	Enabling fairness in multi-agent reinforcement learning for decision making Tian Lan
11:30	Workforce pDEI: Productivity Coupled with DEI Lanching Du

Lunch (12:30 — 2:00)

On your own.

After Lunch Sessions (2:00 — 3:30)

Special Session on Deep Reinforcement Learning 4

Chair: Abhishek Gupta

Time	Description
2:00	Goal Recognition as RL - Fantastic Goals and Where to Find Them Reuth Mirsky
2:45	Dilemmas in Reinforcement and Imitation Learning Pulkit Agrawal
3:30	To RL or not to RL

	Sanjiban Choudhury
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Special Session on Alternative Models for Fairness in AI 2

Chair: Tae Wan Kim

Time	Description
2:00	Formulating Fairness in Optimization Models Violet Chen
2:30	Structural Properties of Equitable Solutions Özgün Elçi
3:00	Assessing Group Fairness with Social Welfare Optimization John Hooker, Derek Leben

Coffee Break (3:30 — 4:00)

Afternoon Sessions (4:00 — 5:30)

Special Session on Alternative Models for Fairness in AI 3

Chair: Derek Leben

Time	Description
4:00	The Fairness Fair: Bringing Human Perception into Collective Decision-Making Hadi Hosseini
4:30	Bayesian Approach to Estimating Counterfactual Fairness Measures: A Case Study on COMPAS Recidivism Risk Score Saeyoung Rho
5:00	Social Choice for AI Alignment Vincent Conitzer

Main Track Session - Machine Learning Theory and Methods 2

Chair: Dimitrios Diochnos

Time	Description
4:00	Principled Approaches for Learning to Defer with Multiple Experts Anqi Mao, Mehryar Mohri, Yutao Zhong
4:30	On Sample Reuse Methods for Answering k-wise Statistical Queries Lev Reyzin, Duan Tu

Evening

Banquet in the hotel.

The cash bar will open at 6:30pm, with dinner seating at 7:15.

Keynote Speaker (talk integrated with the banquet)

Chair: Martin Golumbic / Frederick Hoffman

Time	Description
TBD	TBA
	Susan Schneider

WEDNESDAY, JANUARY 10, 2024

Opening Remarks, Greetings (8.45 — 9:00)

Keynote Speaker (9:00 — 10:00)

Chair: Martin Golumbic / Frederick Hoffman

Time	Description
9:00	The TPTP World – Infrastructure for Automated Reasoning
	Geoff Sutcliffe

Coffee Break (10:00 — 10:30)

Morning Sessions (10:30 — 12:35)

Main Track Session - Modeling

Chair: TBA

Time	Description
10:30	Seamless Logic-based and Analysis-based Hybrid Systems with Application to Bio-molecular Networks
	H.A. Blair, K.W. Foster
11:00	Single-Instruction, High-Dimension: A Unique Computational Model for AI
	William Edward Hahn, Misha Klopukh
11:30	Neural Diffusion Graph Convolutional Network for Predicting Heat Transfer in Selective Laser Melting
	Benjamin Urich, Tim Häntschel, Martin Schäfer, Erhard Rahm

12:00	New Proportion Measures of Discrimination Based on Natural Direct and Indirect Effects
	Ryusei Shingaki, Manabu Kuroki

Session on Combinatorial Image Analysis - IWCIA

Chair: TBA

Time	Description
10:30	Addressing Discretization Artifacts in Tomography by Accessing and Balancing Pixel Coverage of Projections
	Csaba Olasz
10:55	Finding Straight Skeleton of 3D Orthogonal Polyhedron: A Combinatorial Approach
	Anukul Maity, Mousumi Dutt, Arindam Biswas
11:20	Balanced Infinity Laplacian Applied to Depth Completion on Graphs
	Vanel Lazcano
11:45	Foundation of Learning Finite State Matrix Automata using L* Algorithm
	Abhisek Midya
12:10	Prime Labeling of Mobius Ladder Graphs Mn
	Khandoker Mohammed Mominul Haque, Umme Nasree Khanam, Khandoker Mohammed Faiyaz Shahriar

Lunch (12:35 — 2:00)

On your own.

After Lunch Session (2:00 — 3:00)

Main Track Session - Knowledge Representation, Boolean Formulas

Chair: TBA

Time	Description
2:00	Towards a Unifying View on Monotone Constructive Definitions
	Linde Vanbesien, Samuele Pollaci, Bart Bogaerts, Marc Denecker
2:30	Computing the $\\$D\\$-base and $\\$D\\$-relation of finite closure systems
	Simon Vilmin, Kira Adaricheva, Lhouari Nourine
3:00	Partial Boolean Functions for QBF Semantics
	Allen Van Gelder

Adjourn (3:30)
