

KELLEN KANARIOS

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EDUCATION

University of Michigan

B.S. Mathematics with Honors and Computer Science with High Honors

Aug 2020 – Present

Ann Arbor, MI

- Cumulative GPA: 3.85

RESEARCH EXPERIENCE

Honors Thesis

Meta Learning for Continual Reinforcement Learning

June 2024–Sep 2024

Ann Arbor, MI

- **Advisor:** Lei Ying
- Implemented existing meta-gradient GVF discovery algorithm and studied generalization ability.
- Proposed and implemented modifications to improve stability and forward transfer.

University of Michigan SURE Program

Cost Aware Best Arm Identification

Sept 2023–Jul 2023

Ann Arbor, MI

- **Advisor:** Lei Ying
- Studied variant of the Best Arm Identification problem, providing a well-motivated, novel formulation.
- Proved asymptotically tight lower bound on the complexity of δ -PAC algorithms in this formulation.
- Published at the Reinforcement Learning Conference ([link](#))

UCLA RIPS 2023

Parallel Algebraic Multigrid Methods for Higher-Order PDEs

June 2023–Aug 2023

Los Angeles, CA

- **Advisors:** Robert Falgout, Daniel Osei-Kuffour
- Designed and implemented a new algorithm that improved convergence factor of existing state of the art by a factor $> 10^8$ on a fourth-order PDE that arises in nuclear fusion applications.
- 1 of 36 students selected (5000+ applicants).
- Manuscript available at ([link](#))

ACADEMIC EXPERIENCE

EECS Department

- Winter 2024: Teaching Assistant, EECS 602 (Reinforcement Learning Theory)
- Fall 2023: Grader, EECS 592 (Advanced Artificial Intelligence)
- Fall 2023: Grader, EECS 574 (Computational Complexity)
- Fall 2021: Grader, EECS 183 (Elementary Programming Concepts)
- Summer 2022: Research Assistant, MIPL Lab (Synthesizing TensorFlow Programs)

SKILLS

Languages: Python, C++, MATLAB, CUDA, \LaTeX . **DL:** JAX, PyTorch. **Tools:** Vim, Git, Linux.

HIGHLIGHTED TALKS

Reinforcement Learning Conference

Cost Aware Best Arm Identification ([link](#))

Aug 10, 2024

Amherst, MA

Joint Mathematics Meetings

Parallel Algebraic Multigrid for Higher-Order PDEs ([link](#))

Jan 5, 2024

San Francisco, CA

SEMINAR TALKS

Math Undergraduate Seminar, University of Michigan

- Dec 2023: *Parallel Algebraic Multigrid for Higher-Order PDEs*

Directed Reading Program

- Apr 2022: *An Introduction to Brownian Motion and Stochastic Calculus*

ADVANCED COURSEWORK

Coursework at the University of Michigan

** indicates graduate level coursework*

- MATH 663 – Convex Optimization*
- MATH 602 – Analysis II (Functional Analysis)*
- MATH 597 – Analysis I (Measure Theory)*
- MATH 494 – Honors Algebra II (Ring/Galois Theory)*
- MATH 493 – Honors Algebra I (Group/Representation Theory)*
- MATH 395 – Analysis on Manifolds
- STATS 621 – Probability Theory*
- EECS 598 – Reinforcement Learning*
- EECS 598 – Machine Learning Theory*
- EECS 598 – Large Language Models*
- EECS 572 – Randomness and Computation*
- EECS 553 – Machine Learning*
- EECS 482 – Operating Systems
- EECS 471 – Applied Parallel Programming with GPUs

Instructor

Salar Fattahi
Dmitry Chelkak
Mattias Jonsson
Andrew Snowden
Andrew Snowden
David Barrett
Tailen Hsing
Satinder Singh
Wei Hu
Samet Oymak
Mahdi Cheragchi
Clayton Scott
Manos Kapritsos
Valeriy Tenishev