Jiuqi Wang

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Education

University of Virginia *Aug. 2023 - May. 2028*
Ph.D. Computer Science Charlottesville, Virginia
Advisor: Shangtong Zhang

University of Alberta *Sep. 2021 - Jun. 2023*
MSc. Computing Science (Thesis) Edmonton, Alberta
Co-Supervisors: Martin Müller and Jonathan Schaeffer

McGill University *Sep. 2017 - Jun. 2021*
BSc. Honours Computer Science Montréal, Québec
Distinction, First-Class Honours

Research Interests

Sequential Decision Making under Uncertainty, Reinforcement Learning (RL), Deep Learning

Research Experience

Graduate Research Assistant *Mar. 2023 - present*
Advised by Prof. Shangtong Zhang Charlottesville, Virginia

- Focus on the theory and application of reinforcement learning for solving sequential decision-making problems.
- Recent projects include almost sure convergence of temporal difference learning algorithms and in-context reinforcement learning. Please see Publications for more detail.

Master's Thesis *May 2022 - June 2023*
Co-Supervised by Prof. Martin Müller and Jonathan Schaeffer Edmonton, Alberta

- **Title:** Deep Dive on Checkers Endgame Data
- Developed the raw-data-to-tensor pipeline that reads in byte representations of board positions and turns them into tensors.
- Designed and implemented the deep neural networks in JAX.
- Constructed a flexible and scalable experiment workflow.

Undergraduate Research *May 2020 - Sep. 2020*
Supervised by Prof. Hsiu-chin Lin Montréal, Québec

- **Topic:** *Sim-to-Real Transfer Learning of Time-Invariant Linear Parameter-Varying Dynamical Systems from Gaussian Mixture Models*
- Reviewed relevant literature on dynamical systems and transfer learning.
- Implemented the learning algorithm in NumPy.
- Conducted experiments on benchmark datasets.
- Developed and studied an adaptive re-training procedure that increases the algorithm's robustness under noisy training data.

Teaching Experience

Teaching Assistant *Sep. 2024 - Dec. 2024*
Reinforcement Learning Charlottesville, Virginia

- Hosted office hours to provide academic support and facilitate student learning.
- Announced and graded homeworks.

Teaching Assistant *Jan. 2022 - Apr. 2022*
Search, Knowledge and Simulations Edmonton, Alberta

- Prepared the starter code of the assignments for the students and the scripts for grading the assignments.
- Monitored and graded the final project, where each student group developed a game-playing agent and competed with each other in a tournament.

Teaching Assistant *Sep. 2021 - Dec. 2021*
Intro to the Foundations of Computation I Edmonton, Alberta

- Held labs with other TAs to review and complement the materials covered in lectures.
- Graded student assignments.

Teaching Assistant *Jan. 2020 - May 2020*
Intro to Computer Science Montréal, Québec

- Prepared original weekly quiz questions for the course.
- Held office hours to answer questions from students.

Professional Experience

AI-SCORE 2024 *May 2024 - Jun. 2024*
University of Maryland College Park, Maryland

- One of the 30 selected Ph.D. students to participate in the inaugural AI-SCORE summer school where students and scholars from the artificial intelligence and operations research communities join to discuss interdisciplinary research.
- Attended lectures and panel discussions and exchanged ideas with fellow students from both disciplines.
- Travel and lodging costs were fully reimbursed.

Development Intern *May 2021 - Jul. 2021*
PTC Inc. Suzhou, China

- Worked on product internationalization using the i18next framework that translates the originally hard-coded English webpages to the selected language.
- Toubleshooted several front-end issues.

Publications

* indicates equal contribution; † indicates advisor

1. Almost Sure Convergence of Linear Temporal Difference Learning with Arbitrary Features
   Jiuqi Wang, Shangtong Zhang†
   arXiv preprint arXiv:2409.12135, 2024.
2. Transformers Learn Temporal Difference Methods for In-Context Reinforcement Learning
   Jiuqi Wang*, Ethan Blaser*, Hadi Daneshmand, Shangtong Zhang†
   arXiv preprint arXiv:2405.13861, 2024
   Contributed talk at the Reinforcement Learning Conference (RLC) Workshop on Training Agents with Foundation Models, 2024
   Spotlight Award at the International Conference on Machine Learning (ICML) Workshop on In-Context Learning, 2024
3. Deep Dive on Checkers Endgame Data
   Jiuqi Wang, Martin Müller†, Jonathan Schaeffer†
   IEEE Conference on Games (CoG), 2023

Peer Review

- Asian Conference on Machine Learning (ACML) 2024
- Reinforcement Learning Conference (RLC) 2024
- International Conference on Artificial Intelligence and Statistics (AISTATS) 2024
- International Conference on Learning Representations (ICLR) 2024

Honors and Awards

IEEE CIS Travel Grant *Jul. 2023*
$500 IEEE CIS

GSA Academic Travel Grant *Jul. 2023*
$500 University of Alberta

Science Undergraduate Research Award (SURA) *May 2020*
$7,000 McGill University

Dean's Honour List *Aug. 2018*
McGill University

Faculty of Science Scholarship *Jul. 2018*
$500 McGill University

Complementary Award *Sep. 2017*
$3,000 McGill University

Hugh Brock Scholarship *Jul. 2017*
$3,000 McGill University

Skills

- **Technology:** Python(NumPy, Matplotlib, Jupyter Notebook, PyTorch, JAX) (advanced), Java (intermediate), Git (intermediate), Linux (intermediate), LaTeX(advanced)
- **Knowledge:** Statistical Machine Learning (advanced), Deep Learning (advanced), (Deep) Reinforcement Learning (advanced), Heuristic Search (advanced), Robotics (intermediate)
- **Language:** English(proficient), Mandarin(native), French(elementary)