Adrian Orenstein CV ✉ ○ in

Full-time PhD Student in Computing Science, Artificial Intelligence and Reinforcement Learning.

Education

PhD in Computing Science
The University of Alberta and *The Alberta Machine Intelligence Institute (Amii)*

2023 - present 📅
Edmonton, Canada 📍

I am advised by *Prof. Michael Bowling*. I want agents that can reason about their cognitive processes so that they can improve their computational speed and performance to make better use of the computational resources we give them.

Masters in Computing Science, thesis based
The University of Adelaide and *The Australian Institute for Machine Learning (AIML)*

2021 - 2023 📅
Adelaide, Australia 📍

I was advised by *Prof. Ian Reid*. My thesis was on representation learning for deep reinforcement learning. I improved how we optimise our agents' weights to take advantage of their access to diverse task-related experiences.

🏆 I was awarded the *Lockheed Martin Australia* (LMA) Scholarship.

Bachelor of Computer Science (Artificial Intelligence Major)
The University of Adelaide

2017 - 2019 📅
Adelaide, Australia 📍

My honours project was to improve hypertension diagnosis identification through machine learning using the Australian national general practice database.

🏆 My honours project was awarded the best oral presentation from the World Congress of Epidemiology.

🏆 Two additional awards were given for best presentation skills and the most innovative project at the Ingenuity Convention.

🏆 I was awarded the *The Cheong Choong Kong (CK) Scholarship* for being a leader in pastoral care, community building and being proactive against racism and discrimination.

Academic Service

Senior Reviewer at RLC 2025
📅 2025 📍 Edmonton, Canada

Workshop Co-Organiser at RLC 2024 in the Finding the Frame Workshop
📅 2024 📍 Amherst, USA

RL1 2024 at *University of Alberta*
📅 2024 📍 Edmonton, Canada
Designed a flipped classroom course with a postdoc

Publications

1. Howe, M., Bockman, J., **Orenstein, A.**, Podgorski, S., Bahrami, S., & Reid, I. The Edge of Disaster: A Battle Between Autonomous Racing and Safety. Oral presentation and accepted poster at the Workshop on Artificial Intelligence for Autonomous Driving in the International Joint Conference on Artificial Intelligence (IJCAI), 2022. Oral presentation at the Workshop on Safe Learning for Autonomous Driving in the International Conference on Machine Learning (ICML), 2022.

   🏆 We won 1st place in the learning-to-race competition hosted by Carnegie Mellon University.

2. Sachdeva, R., Hammond, R., Bockman, J., Arthur, A., Smart, B., Craggs, D., Doan, A.-D., Rowntree, T., Schutz, E., **Orenstein, A.**, Yu, A., Chin, T.-J., & Reid, I. D. Autonomy and Perception for Space Mining. Proceedings in the International Conference on Robotics and Automation (ICRA), 2022.

   🏆 We won an innovation prize for our team from the technology our team developed.

   🏆 The mission planner was integral to our team winning *3rd place out of 22 teams*, earning a $100,000 prize in the NASA Space Robotics Competition.

3. Bockman, J., Howe, M., **Orenstein, A.**, & Dayoub, F. AARK: An Open Toolkit for Autonomous Racing Research. Journal of CoRR abs/2410.00358, 2024.

   🏁 Under review at CoRL 2025

Work Experience

Data Scientist Internship at *Canva* 📅 Summer 2021 📍 Sydney, Australia

I delivered two projects that demonstrated to Canva that deep learning can deliver significant value to the business. Using deep learning, we can identify users reaching critical design phases and suggest new templates where coverage is poor.
Tools: Pytorch, Python, SQL **Data**: JSON, SVG, Real-time user data, Big Data

Research Scientist Full-time at *The Australian Institute for Machine Learning* 📅 2020 - 2021 📍 Adelaide, Australia

Worked in a team of senior PhD researchers and professors to streamline the drilling and survey phase of mining.

🏆 Awarded "Most Innovative Modelling" of the problem for the using ground penetrating mineral analysis and deep learning.

Tools: Pytorch, Python **Data**: Geospatial data, RGB, ground penetrating radar

Open-Source Software

(2023) NASA SpaceApps Challenge - Team Ker-boom

Developed an AI research platform using *Kerbal Space Program (KSP)* to simulate challenging scenarios in space. Successfully used AI to de-tumble satellites in a simulated cube-satellite orbiting the Earth.

(2023) Adelaide Autonomous Racing Challenge

Developing an AI research platform using *Assetto Corsa* to simulate challenging scenarios in racing.

(2021) Docker Pytorch Template

I maintain an open-source github template to speed up research and encourage reproducibility of results.

Leadership

RLAI Lab Manager 2024 - present 📅
RLAI Lab - The University of Alberta Edmonton, Canada 📍

I make the RLAI lab working space a great working environment for students in collaboration with the department.

Undergraduate Research Supervisor 2024 Summer 📅
The University of Alberta Edmonton, Canada 📍

I have supervised three students - *Gwen Delos Santos*, *Jessica Chen*, and *Bayley Sapara* - toward developing agents that can learn to reduce the amount of computation they use to solve problems.

Resource-Constrained Reading Group 2024 - present 📅
RLAI Lab - The University of Alberta Edmonton, Canada 📍

I actively seek other researchers with interests in problems where agents need to deal with real-world problems that have finite time or computational power.

AIML Community Cluster at *The University of Adelaide* 📅 2022 📍 Adelaide, Australia

I got buy-in from a senior PhD student to help me build a cluster so that students can complete their experiments faster.

Undergraduate Research Supervisor 2022 - 2023 📅
The University of Adelaide Adelaide, Australia 📍

I have supervised rising stars in computing science.
- *Jason Shen* streamlined the development of graphical machine learning applications using containerisation.
- *Emily Carey* used deep learning to identify cancer in medical MRI images during her summer internship at AIML.
- *Ren You* developed an image auto-encoder to restore old images to their original style.
- *Kosta Hassouros* developed a bot to learn to predict your GPS location given an image of your surroundings.

Early Career Researcher (ECR) General Committee Member 2020 - 2022 📅
The Australian Institute for Machine Learning Adelaide, Australia 📍

I want to improve the professional skills of the students around me. I ran interview preparation workshops and invited guest speakers to talk about the paper review process at my university.

Computer Science Club (CSC) General Committee Member
The University of Adelaide

2018 📅
Adelaide, Australia 📍

I organised Google and Microsoft to come onto campus and deliver industry panels and hackathons.

ECMS Academic Tutor
Lincoln College

2018 📅
Adelaide, Australia 📍

I was a leader in pastoral care, organizing professional trainers to run fitness sessions to accommodate student needs and building a VR game room for the students.

Presentations

Introduction to Transformers and Compilers
The University of Alberta

2024 📅
Edmonton, Canada 📍

I built a strong relationship with *Prof. Nelson Amaral* where I am an active member of his lab.