

Curriculum Vitae

Austin Nguyen | Ph.D. Computer Science Engineering Program
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Education

Doctor of Philosophy (Ph.D.) in Computer Science Engineering, *Candidate*

August 2022 - PRESENT

University of Michigan, Ann Arbor

Advisor: Michael P. Wellman

Research: Multi-Agent Reinforcement Learning, Game Theory, Game-Solving

GPA: 4.00

BA in Computer Science, *High Distinction in General Scholarship*

Aug 2017 - May 2021

University of California, Berkeley

Thesis Title: Scalable, Decentralized Multi-Agent Reinforcement Learning Inspired by Stigmergy and Ant Colonies

Advisor: Ronald S. Fearing

Department GPA: 4.0

Overall GPA: 3.92

Research Interests

Devising methods to **discover equilibria** from large games that necessitate the use of **reinforcement learning** for strategy generation with minimal computational cost and maximal sample efficiency, incorporating elements of multi-agent reinforcement learning and deep learning.

Research Papers

Nguyen, Austin A. (2025) "Explicit Exploration for High-Welfare Equilibria in Game-Theoretic Multi-Agent Reinforcement Learning." *Under Review*.

Nguyen, Austin A. (2021) "Scalable, Decentralized Multi-Agent Reinforcement Learning Inspired by Stigmergy and Ant Colonies." <https://arxiv.org/abs/2105.03546>. (Non-published)

Research Projects

Nguyen, Austin A. and Shi, Yijie (2023) "Using Short-Term, Episodic, and Semantic Memory for Question-Answering." *Advanced Artificial Intelligence CSE 692 Final Project*.

Nguyen, Austin A. and Chandrashekar, Shreyas and Nwatu, Joan (2023) "End-to-End Reinforcement Learning for Black-Box Adversarial Text Generation." *Adversarial Machine Learning CSE 598 Final Project*.

Tambwekar, Anuj and Nguyen, Austin A. and Glasscock, Creighton and Sansom, Jacob (2023) "Optimizing Register Allocation using Graph Neural Networks." *Compilers CSE 583 Final Project*.

Nguyen, Austin A. and Glasscock, Creighton (2022) "Fully Online Decision Transformer." https://sld.eecs.umich.edu/media/eecs595_fa22/11_Nguyen_Glasscock.pdf *Natural Language Processing CSE 595 Final Project*.

Nguyen, Austin A. and Zhu, Jerry and Zhu, Peter and Brown, Daniel (2020) “Combining Deep Bayesian Inverse Reinforcement Learning from Preferences (B-REX) with Bayesian Robust Optimization for Imitation Learning (BROIL).” *Deep Reinforcement Learning EECS 285 Final Project*.

Department, Teaching & Work Experience

Computer Science Engineering Recruitment Chair

Aug 2024 - PRESENT

Computer Science Engineering Graduate Organization, University of Michigan, Ann Arbor

- Recruit student volunteers to assist department-wide events like prospective student visits and application reviews
- Work closely with Graduate Programs Office to organize department event logistics

Reinforcement Learning Graduate Student Instructor - Satinder Singh

Aug 2024 - Dec 2024

CSE 498/598 Course Staff, University of Michigan, Ann Arbor

- Facilitated and organized logistics for final research paper presentations, homework design, midterm design, and grading
- Lead student group consultations to advise on landmark research paper presentations and students' technical understanding
- Hosted office hours for one-on-one tutoring, homework assistance, and clarification on technical concepts taught
- Taught course lectures on multi-agent reinforcement learning, game theory, and equilibrium concepts

Software Engineer

Aug 2021 - April 2022

AWS EC2 Nitro, Amazon Web Services

- Designing framework to autonomously maintain health of EC2 cloud computing fleet, used by all AWS customers
- Collaborating and coordinating with team members in planning EC2 health maintenance campaigns to best serve AWS

Machine Learning Teaching Assistant

Aug 2020 - Dec 2020

CS189 Course Staff, University of California, Berkeley

- Lead course discussions for over 100 students by constructing mini-lectures and giving one-on-one guidance to students
- Lectured and organized review sessions to give course overviews, test preparation, and outlets to answer students' questions

Software Engineer Intern

Jun 2020 - Aug 2020

AWS DynamoDB, Amazon Web Services

- Designed and implemented request router placement algorithm to maximize robustness of 50,000 cloud computing hosts
- Helped construct request router ingestion automation framework still currently used by all of DynamoDB

Relevant Coursework

Advanced Artificial Intelligence - CSE 692 University of Michigan, Ann Arbor

Discussed and studied research papers at the forefront of the artificial intelligence field. Presented papers on offline reinforcement learning and completed a final project exploring the use of semantic, episodic, and short-term memory for embodied agents.

Deep Reinforcement Learning - Compsci 285 University of California, Berkeley

Learned various deep reinforcement learning algorithms and their mathematical motivations and derivations. Implemented algorithms to solve MuJoCo tasks. Designed a risk-tolerant inverse reinforcement learning framework for final research project.

Theoretical Statistics - Statistics 210A University of California, Berkeley

Studied material geared towards research careers in statistics and mathematical machine learning. Concepts included, but not limited to, resampling methods, hypothesis testing and statistical decision theory.

Additional Research Experience

Research Assistant

Oct 2019 - May 2021

Biomimetic Millisystems Lab under Ronald Fearing, University of California, Berkeley

- Completed honors thesis on decentralized multi-agent learning using ant-inspired pheromone coordination and hierarchical reinforcement learning for multi-agent path planning and environment modification
- Designed decentralized multi-agent reinforcement learning algorithm inspired by difference rewards to improve scalability
- Used V-REP robot simulator with ROS interface in Linux (Ubuntu) environment

Research Assistant

Jan 2019 - Sep 2019

Swarm Labs under Kristofer Pister, University of California, Berkeley

- Used Bayesian Optimization to determine optimal quadcopter hovering parameters for PID controller
- Implemented ensemble neural networks with PyTorch to train a model for quadcopter movement dynamics
- Designed general optimal PID parameter generator for any indefinitely hovering quadcopter with arbitrary properties

Honors and Fellowships

National Science Foundation Graduate Research Fellowship

March 2022

High Distinction in General Scholarship

May 2021

Honors in Computer Science

May 2021

Upsilon Pi Epsilon

Dec 2019

Dean's List

May 2019, Dec 2020