

Aaron Hao Tan

☎ (905) 410-6802 | ✉ aaronhao.tan@utoronto.ca | 🏠 aarontan-git.github.io | 📺 aaron-hao-tan | 🎓 A. H. Tan

Education

University of Toronto

Doctor of Philosophy, Robotics Institute

Toronto, Canada
September, 2019 - Present

Thesis Enhancing Robot Task Completion Through Environment and Task Inference, CGPA (4.0/4.0)

Experience

Deep Learning and Robotics Researcher, Ph.D. Thesis

Autonomous System and Biomechanics Lab, University of Toronto

Toronto, Ontario
Sept. 2019 - Present

- **Deep Multi-agent Reinforcement Learning** Centralized training for decentralized execution to address multi-robot task inference.
- **Consistency Models** Multi-robot map prediction via contrastive learning and consistency models in 3D environments.
- **Decision Transformers** End-to-end, goal oriented multi-robot navigation in unknown, unstructured environments.
- **Neural Implicit Mapping** Mobile robot mapping of dynamic environments.
- **Sim 2 Real** Transferred robot navigation policy from simulation to the real world using domain randomization.
- **Publications** Published in ICRA/IROS (oral presentation), RAL, JIRS, ASME conferences.

Technical Founder

Scholarply, ONE800

Toronto, Ontario
Jan. 2023 - Current

- **Scholarply, an LLM Agent** Building LLM agents to automate the scholarship application process for students.
- **ChatGPT for Seniors** Integrated generative AI technologies to iMessage to improve AI accessibility for senior population.
- **LangChain, Vector DB** Deployed LangChain for linguistic data workflows and DB for high-dimensional embedding queries.
- **Vision and Speech** Implemented CV and NLP modules to achieve multimodal user interface paradigms.
- **Leadership** Managed cross-functional teams from engineering to marketing and business operations.
- **YCombinator** Second round of interview with Garry Tan, CEO of YC, and received great feedback (top 3 percent).

AI Researcher

Temetry Faculty of Medicine, Toronto

Toronto, Ontario
May, 2022 - Present

- **LLMs** Built LLM-powered patient screening tool and deploying through SMS to increase healthcare accessibility.
- **Ophthalmology** First application of deep learning to the classification of homonymous defects on automated perimetry.
- **Mask Detection** Deployed novel DL models for social assistive robots to enforce COVID-19 safety protocols.
- **EdTech** Quantitative analysis on the impacts of remote education for surgeons globally.
- **Accessibility** Deploying automated SMS-based service for patient screening and history taking in remote regions.
- **Publications** Published in British Journal of Ophthalmology.

Robotics Researcher, MASc Thesis

General Robotics & Autonomous Systems and Processes Lab, Ontario Tech University

Oshawa, Ontario
May, 2017 - May, 2019

- **Mobile Robot Stack** Designed and developed both hardware and software for a novel multi-terrain robot.
- **Mechatronics** Designed and implemented hardware architecture for robot sensing, data acquisition, and motion control.
- **Computer Vision** Position and image based visual servoing of mobile manipulators for autonomous robot inspection.
- **Publications** Published 4 papers for IEEE and ASME conferences and journals.

Engineering Specialist/Advanced Technology Specialist Intern

General Motors of Canada Company - Active Safety Advanced Development

Oshawa, Ontario
2 Terms (2016/2017)

- **Wearable Technology** Designed wearable hardware and developed ML models to predict driver behavior based on vital signs.
- **Camera System** Designed an adjustable camera system for trailers to provide drivers with greater awareness.

Recognition

2023	Ontario Graduate Scholarship (\$15k Prize) , University of Toronto	Toronto, Ontario
2023	Annual Shot on iPhone Photography Award (3rd Place) , IPPAWARDS	NYC, New York
2022	Apple AI/ML Scholar Nominee (1 of 3 selected across university) , University of Toronto	Toronto, Ontario
2022	Ontario Graduate Scholarship (\$15k Prize) , University of Toronto	Toronto, Ontario
2022	DiDi Graduate Scholarship (\$10k Prize) , University of Toronto	Toronto, Ontario
2021	1st Place at RO-MAN: The Roboethics Competition (\$1k Prize) , McGill University	Montreal, Quebec
2021	Best Research Day Paper in Dept. of Ophthalmology and Vision Sciences , University of Toronto	Toronto, Ontario
2018	Photography for Apple's Shot on iPhone Campaign , Apple	California, USA