

# Aaron Hao Tan

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## Education

### University of Toronto

Doctor of Philosophy, Robotics Institute

Toronto, Canada

September, 2019 - Present

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

## Experience

### Deep Learning and Robotics Researcher, Ph.D. Thesis

Toronto, Ontario

Autonomous System and Biomechatronics Lab, University of Toronto

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.

### CEO, Founder

Toronto, Ontario

ONE800

Jan. 2023 - Present

- **AI Accessibility** One-stop-shop experience for a collection of AI tools (ChatGPT, Art), delivered through native smartphone apps.
- **Leadership** Managed cross-functional teams from engineering to marketing and business operations.
- **Growth** 30 percent month over month growth in users since beta launch.
- **YCombinator** Second round of interview with Garry Tan, CEO of YC, and received great feedback, on first application.

### Healthcare AI Researcher

Toronto, Ontario

Mount Sinai Hospital, Toronto

May. 2022 - Present

- **Deep Learning** First application of deep learning to the classification of homonymous defects on automated perimetry.
- **Healthcare** Deploying automated SMS-based service for patient screening and history taking in remote regions.
- **Publications** Outperformed current standard of care. Results published in British Journal of Ophthalmology.

### Machine Learning Engineer

Toronto, Ontario

Robotics and ML Projects

Sept. 2019 - Sept. 2021

- **Music** Working with 2x Grammy Award Recipient using Stable Diffusion and GPT-3 to empower creators globally.
- **AuToronto: Self-driving Car Team** Implement object detection (YOLO) and traffic sign labelling. Multi-year winning team.
- **SmartARM** Collaborated with a Microsoft funded startup to develop AI powered features for prosthetics.

### Robotics Researcher, MASc Thesis

Oshawa, Ontario

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

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

Oshawa, Ontario

General Motors of Canada Company - Active Safety Advanced Development

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

2022	<b>Apple AI/ML Scholar Nominee (1 of 3 selected across university)</b> , University of Toronto	Toronto, Ontario
2022	<b>Ontario Graduate Scholarship (\$15k Prize)</b> , University of Toronto	Toronto, Ontario
2022	<b>DiDi Graduate Scholarship (\$10k Prize)</b> , University of Toronto	Toronto, Ontario
2021	<b>1st Place at RO-MAN: The Roboethics Competition (\$1k Prize)</b> , McGill University	Montreal, Quebec
2021	<b>Best Research Day Paper in Dept. of Ophthalmology and Vision Sciences</b> , University of Toronto	Toronto, Ontario
2019	<b>Outstanding Thesis Award &amp; Dean's Graduate Scholarship (\$5k Prize)</b> , Ontario Tech University	Oshawa, Ontario
2018	<b>Photography for Apple's Shot on iPhone Campaign</b> , Apple	California, USA