Angus Fung

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EDUCATION

University of Toronto, Robotics Institute Sept. 2019 - Dec. 2024
Doctor of Philosophy (Ph.D)
Topic Robotic Approach to Detection and Tracking under Intraclass Variations
Supervisor Goldie Nejat

University of Toronto, Engineering Science Sept. 2014 - May 2019
Bachelor of Applied Science (BASc), Specialization in Robotics
Topic Population-based Hyperparameter Optimization
Supervisor Jimmy Ba

RESEARCH AND INDUSTRY EXPERIENCE

Autonomous System and Biomechatronics Lab, University of Toronto Sept 2019 - Present
Ph.D Candidate

- **Deep Learning** Developed self-supervised and weakly-supervised methods for robot perception
- **Deployment** Robots deployed in the real world including grocery stores and long-term care homes
- **Publication** Contributed to peer-reviewed journals and conferences in the fields of computer vision and robotics, including IJCV, RA-L, ICRA, IROS, and Transactions on Cybernetics

Scholarply Sept 2023 - Present
CTO, Co-founder

- Accelerating the scholarship application process via LLM agents to help students secure funding while focusing on their studies
- Selected by Microsoft Startup Hub Program, receiving grants worth $150k
- Succesfully raised at $1.4M Valuation

AI Researcher Sept 2023 - Present
Temetry Faculty of Medicine

- Built LLM-powered patient screening tool and deploying through SMS to increase healthcare accessibility

ONE800 Jan 2023 - Present
CTO, Co-founder

- Co-founded ONE800, an AI-powered personal assistant on iMessage
- **Deep Learning** Developed multimodal large language models (LLMs) agents for text, images, and audio, incorporating multi-lingual capabilities with short/long-term memory
- **Tech** Developed the software stack including the front-end, back-end, 3rd party integrations (*e.g.*, payment providers, communication channels), and security protocols/systems
- **Scale** Implemented load balancing, rate-limiting, *etc.*, for system efficiency and responsiveness

Toronto Robotics and AI Lab, University of Toronto May 2019 - Sept. 2019
Research Intern

- **Controls** Developed controllers for high speed trajectory tracking/landing, supervised by Steven Waslander
- **Mobile Robot** Outdoor field testing and demos to industry partners on the DJI Matrice 210 drone

· **Publication** Conference publication to ICRA

Machine Learning Group, Vector Institute March 2018 - May 2019
Research Intern

· **Research** Developed distributed learning algorithms, supervised by Prof. Jimmy Ba
· **Deep Learning** Implemented CNNs, GANs, Transformers in PyTorch and Tensorflow

Advanced Micro Devices (AMD) May 2017 - Sept. 2018
Machine Learning Engineer

· **Chip Design** Worked on design flow for CPU/GPU/APUs using industry standard EDA tools
· **Machine Learning** Developed solutions to EDA problems during place and route of chip design

WIRLab, University of Toronto May 2018 - Sept. 2018
Research Intern

· **Machine Learning** Developed SOTA wireless-based robot localization using unsupervised learning, supervised by Prof. Shahrokh Valaee

PUBLICATIONS

Referred Contributions:

LDTrack: Dynamic People Tracking by Service Robots using Diffusion Models
A. Fung, B. Benhabib, and G. Nejat
Submitted, 2024

Robots Autonomously Detecting People: A Multimodal Deep Contrastive Learning Method Robust to Intraclass Variations
A. Fung, B. Benhabib, and G. Nejat
Accepted at *IEEE Robotics and Automation Letters (RA-L) + IROS*, 2023

A Multi-Robot Person Search System for Finding Multiple Dynamic Users in Human- Centered Environments
S. Mohamed, A. Fung, and G. Nejat
Accepted at *IEEE Transactions on Cybernetics*, 2022

Robots Understanding Contextual Information in Human-Centered Environments using Weakly Supervised Mask Data Distillation
D. Dworakowski, A. Fung, G. Nejat
Accepted at *International Journal of Computer Vision*, 2022

Using Deep Learning to Find Victims in Unknown Cluttered Urban Search and Rescue Environments
A. Fung, L. Wang, K. Zhang, G. Nejat, B. Benhabib
Accepted at *Springer*, *Current Robotics Reports* 2020

AC/DCC : Accurate Calibration of Dynamic Camera Clusters for Visual SLAM
J. Rebello, A. Fung, S. Waslander
Accepted at *IEEE International Conference on Robotics and Automation*, 2020

Non-referred Contributions:

Jeeves, the Ethically Designed Interface
Angus Fung, Aaron Hao Tan, Michael Pham-Hung, Cristina Getson
Technical Report, Talk at *RO-MAN: Roboethics Competition*, 2021

Socially Assistive Service Robots at the Autonomous Systems and Biomechatronics Lab
Angus Fung, Aaron Hao Tan, Shane Saunderson

Poster at *University of Toronto Engineering Research Days*, 2021

Population-based Hyperparameter Optimization (Undergraduate Thesis)
Angus Fung, Jimmy Ba
Technical Report, Talk at *University of Toronto Engineering Science*, 2018

Development of an Autonomous Barrel Inspection Robot
Angus Fung, Ahmed Amanullah, Ali Aftabjahani
Technical Report, Talk at *University of Toronto Engineering Science*, 2016

TEACHING

MIE443: Mechatronics Systems: Design & Integration, Head TA (2020, 2021, 2022, 2023)
ROB501: Computer Vision for Robotics, TA (2022)

MENTORING

Michelle Quan, Undergraduate Thesis Student (2023-Present)
Grace Bae, Undergraduate Thesis Student (2022-2023)
Giro Ele, Undergraduate Thesis Student (2021-2022)

EXTRACURRICULAR

Pupil Nov. 2022 - Present
ML Engineer

- **Music** Collaborating with with 2x Grammy Award recipient Sean Leon to build AI technology for their Herd Immunity and God's Algorithm Project.
- **Deep Learning** Using SOTA natural language and vision models to generate art, music, and conversation bots for advertisement (*e.g.,* billboards, social media), album releases, and other creative mediums

aUToronto, Self-driving Car Team, University of Toronto Jan. 2020 - Jan. 2021
Software Engineer

- **Controls** Improving model predictive controller in simulation and on the real car
- **Competition** First prize winner of the Years 1-4 SAE Autodrive Challenge

UTRA, Autonomous Rover Team, University of Toronto Sept. 2016 - May 2018
Software Lead

- Led the localization and mapping team. Developed filter-based SLAM on the autonomous rover

Musician
Organist, Corpus Christi Church Sept. 2014 - Present

- Providing music and improvisation for weekly rehearsals, masses and seasonal concerts
- Leading the children's choir

Organ Scholar, Metropolitan United Church Sept. 2013 - Sept. 2014

- Provided music for Sunday services, recitals, weddings, funerals, seasonal and orchestral concerts, supervised by Dr. Patricia Wright
- Rehearsal accompanist for the children and adult choir

Organist, St. Bartholomew's Anglican Church Sept. 2012 - Aug. 2013

TV Organist, St. Basil's Catholic Parish Sept. 2011 - Feb. 2012

SERVICE

Reviewer for ICRA 2020, IROS 2020-2023

RECOGNITION

Microsoft Startup Grant, 2024 ($150,000)

Ontario Graduate Scholarship (OGS), 2023 ($15,000)

Rimrott Memorial Graduate Scholarship, 2022 ($4,000)

RO-MAN Roboethics Competition 2021, **1st Prize Winner** ($1,000)

University of Toronto MIE Fellowship 2019, 2020, 2021, 2022, 2023 ($14,000)

Healthcare Robotics NSERC Fellowship 2019, 2020, 2021

Queen Elizabeth II Graduate Scholarship 2020 ($15,000)

University of Toronto Scholars 2014 (Academic Excellence) ($7,500)

Dean's Honour List 2014, 2015, 2016, 2017, 2018

Associate of Royal Conservation of Music Diploma (ARCT) - Piano Performance, 2013

Associate of Royal Conservation of Music Diploma (ARCT) - Organ Performance, 2013