

Education

Master of Science in Robotics, Systems and Control

2021 – 2024

ETH Zürich

Path Planning Computer Vision Robot Dynamics Dynamic Programming Machine Learning HPC

BSc in Mechanical Engineering and BSc in Computing Technology

2015 – 2020

University of Ottawa

Experience

Robotics Software Intern | San Jose, United States

Mar 2024 – Sep 2024

B Garage

- Evaluated SLAM algorithms for aerial robots using ROS2, C++, and Python

Research Assistant/Masters Thesis | Zürich, Switzerland

Feb 2023 – Feb 2024

ETH Zürich | Computer Vision and Geometry Group

- Building the first large-scale human-robot co-localization benchmark for future mixed-reality applications
- Developed scalable pipeline to integrate robot data into benchmark; corrected systemic odometry measurement drift by detecting loop closures and performing bundle adjustment using Python, C++, ROS, Docker, and Maplab
- Selected and installed sensors on robot using C++, Python and ROS, wrote tooling for recording and managing data using Bash and Python, and recorded robot dataset

Semester Project | Zürich, Switzerland

Feb 2022 – Jun 2022

ETH Zürich | Robotic Systems Lab

- Taught quadruped robot to walk over stepping stone terrain using Principal Policy Algorithm in Isaac Gym environment; added additional rewards to incentivize locomotion and modified terrain curriculum to avoid early catastrophic failure using PyTorch, CuPy and OpenCV

Research Assistant | Ottawa, Canada

Jan 2019 – Sep 2020

University of Ottawa

- Deployed autopilot stack to Pixhawk 4 and Raspberry Pi using Simulink Embedded Coder, allowed serial communication between devices over UART using C++ and Python
- Automated gain selection for airship dynamic model by parallelizing simulation execution and selecting gains based on simulation results using MATLAB

Software/Mechanical Engineering Intern | Ottawa, Canada

Fall 2018

Romaeris Corporation

- Re-wrote multi-threaded aircraft monitoring system with Python and OpenCV, allowing for an arbitrary number of concurrent onboard cameras, and improved frame rate processing speed by 50%

Robotics Intern | Saarbrücken, Germany

Spring 2018

Zentrum für Mechatronik und Automatisierungstechnik

- Used surface laser scans to align end effector of 6-DoF robotic arm with riveting surface using ROS and Python

Tools

C/C++ Python Bash MATLAB PyTorch OpenCV CUDA SSE/AVX OpenMP Docker ROS 1/2 Git Linux