

COURSES

Deep Reinforcement Learning CS294-112: DQN, A2C, PPO, GAE, Tensorflow

Convolutional Neural Networks CS231n: CNN Architectures, RNN, Generative Models, PyTorch

Autonomous Mobile Robots MTE544: State Estimation, Mapping, State-Space Control, Planning, ROS

Advanced Dynamics SYDE553: Dynamics of Rigid Bodies, Hamiltonian Mechanics, Calculus of Variations

PROJECTS

Autonomous Indoor Aerial Robot

Fourth Year Design Project

May 2017 - Present

- **Deep Learning:** Collision avoidance in indoor environment by predicting the probability of collision with CNN.
- **Deep Reinforcement Learning:** Fine tuning the policy network by collecting real data with hardware.

RaeboSchool

Personal Project

Oct 2017

- **Deep Reinforcement Learning:** Implementing DeepRL algorithms for OpenAI's Roboschool environments.
- **Robot Continuous Control:** Focus on DeepRL algorithms suited for continuous control in state space.

Robotic Arm Project

Personal Project

May 2015 - Dec 2015

- **Mechatronics:** Low-cost 4 DOF modular actuator robotic arm from scratch.
- **Controls:** PID controls for individual joints for the robotic arm

EXPERIENCE

Istuary Innovation

Robotics Engineering Intern

Vancouver, BC

May 2017 - Aug 2017

- **Robotic Arm Motion Planning:** Flexible motion planning module for UR5 robotic arm using STOMP planner.
- **Deep Reinforcement Learning:** Research assistant for deep reinforcement learning research for robotic arms.

Fetch Robotics

Robotics Engineering Intern

San Jose, CA

Jan 2016 - Dec 2016

- **Robotic Arm Optimization:** Increasing the robotic arm efficiency by optimizing the robot joint actuator.
- **Mobile Robot:** Designing electro-mechanical attachments for enabling capabilities for mobile robots.

Waterloo Autonomous Vehicles Lab

Research Assistant

Waterloo, ON

Sept 2015 - Dec 2015

- **Camera Gimbal:** Testing the camera gimbal for its accuracy and precision.
- **Stereo Vision Camera:** Modifying the PS4EYE camera to be used with ROS for stereo vision research.

MakeLab

Robotics Engineering Intern

Toronto, ON

May 2015 - Aug 2015

- **Robotic Arm Design:** Designing robotic arms to be used as versatile marketing event tool.
- **Robotic Arm Software:** Developing the software interface with ROS for ease of use.

EDUCATION

University of Waterloo

Bachelor of Applied Science, Mechatronics Engineering, Honours

Waterloo, Ontario, Canada

Sept. 2013 - Apr. 2018