Jason Wang

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Education

2015-2020

Department of Electrical and Computer Engineering University of Toronto
Bachelor of Computer Engineering (April 2020), Minor in Robotics and Business
3rd Year GPA: 3.75   4th Year GPA: 3.91   Dean's Honours List x7, NSERC USRA Summer Research Award

Technical Skills

Programming Languages: C/C++, Matlab, Python, C#, Mathematica, LaTeX, HTML/CSS
Software Frameworks: ROS, Docker, OpenCV, Tensorflow, Unity Engine
Relevant Courses: Robot Modeling and Control, Inference Algorithms and Machine Learning, Control Systems, Systems Control, Probabilistic Reasoning, Introduction to AI, Differential Geometry
Languages: English (Native), Chinese (Native), Japanese (Intermediate), French (Beginner)

Work and Research Experience

2018 May - (Current)

Tailsitter Vision/Control Research Thesis (Private Github) University of Toronto Institute for Aerospace Studies

- Developed and extended calibration, localization, and navigation software of multi-tailsitter-type drones that docks onto other drones mid-flight in simulation. Used Apriltags bundle detection to obtain relative localization to another tailsitter drone.
  Supervisor: Professor Jonathan Kelly.

2019 Sept - May

A Walking Acrobot Capstone Project (Private Github) University of Toronto System Controls Laboratory

- In a team of 4 built a two legged acrobotic robot controlled with a single DC motor that uses guidance via virtual holonomic constraints involving impacts.
- Succeeded in taking 1.5 steps on the actual built robot and 10 steps in simulation.
  Supervisor: Professor Manfredi Maggiore.

2018 Sept - 2019 Sept

Software Engineering Intern - Robotics Rapyuta Robotics

- Created a full simulation and integration testing system of a multi-robot warehouse delivery system. The robots coordinate with workers to fulfill orders retrieved from an inventory management system. Used ROS and C++ to write the simulation framework. Used docker and cloud infrastructure to simulate 30 robots communicating and fulfilling orders on the cloud.
- Worked with the ALICA robot state machine engine, and used Google ORTools to optimize and simulate human movement to find the optimum human movement which reduces movement time.

Extracurricular Activities and Projects

ENGINEERING STUDENT GROUPS

2016-Now

Founder and Software Lead (Github) *University of Toronto Robotics Association*

- In 2017, formed a team of 20-30 talented members working on mechanical, electrical, software and control design of a humanoid soccer robot. Our faculty advisors are Prof. Jonathan Kelly and Prof. D'Eleuterio.
- For robot control, used simple trajectory generation with constant IMU feedback to keep the robot balanced. For computer vision, used OpenCV to integrate line detection with particle filtering to localize the robot. Used darknet for tracking the soccer ball. Source Code
- Attended the 2018 robocup in Montreal as the only Canadian team in the small sized league consisting of purely undergraduate students. Attempting to attend the 2020 Robocup Asia Pacific in Tokyo. Website

2016-17

Team Lead *Hacker Academy*

- Created the challenge for the DeepHealth Hackathon, University of Toronto's first healthcare and machine learning hackathon. Around 80 graduate and undergraduate students attended the challenge.