Jason Wang

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GitHub: https://github.com/Vuwij
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Selected Experience

2020 May - Current

Robotics Software Team Lead Rapyuta Robotics

- Leading a team of 8 Software Engineers and Interns for the software development of a new warehouse robotic bin storage project and demoed successfully to customers
- Developed the overall software architecture and wrote most of the control, state machine, code for the robotic bin storage system.
- Used A* and some basic AI to optimize robot navigation in 3D structured space
- Dockerized, packaged and released IO-AMR robotics software to Hitachi's AI forklift system.

2016 Sept - Current

Founder and Software Lead (Github, Website) *University of Toronto Robosoccer Team*

- In 2017, formed a team of 20-30 talented members for the Robocup's humanoid kid-size competition with faculty advisors are Prof. Jonathan Kelly and Prof. D' Eleuterio. The repository currently has over 100 stars.
- Created a walking engine using trajectory generation, classic control and IMU feedback using a PID feedback controller
- Used an ICP algorithm to get visual odometry from camera transformations of field lines detected using OpenCV and used it in a UKF to get optimal robot localization in a soccer field
- Attended in the 2018 humanoid kid-sized Robocup league in Montreal, 2021 humanoid kid-sized virtual Robocup league, and the 2022 humanoid kid-sized Robocup league in Thailand

2018 May - 2020 August

Tailsitter Vision/Control Research Thesis (Github) UTIAS

- Funded by the NSERC USRA Summer Research Award, developed and extended calibration, localization, and navigation software of multi-tailsitter-type drones that docks onto other drones mid-flight in simulation. Used Apriltag bundle detection to obtain relative localization to another tailsitter drone.
  Supervisor: Professor Jonathan Kelly.

Technical Skills

Programming Languages: Python, C/C++, MATLAB, C#, Mathematica, LaTeX
Software: ROS, Docker, Django, OpenCV, Tensorflow, Pytorch, Unity Engine
Languages: English, Chinese, Japanese, Persian, Arabic, French

Education

Masters of Engineering in Robotics and Systems Controls (Honours) University of Toronto
Courses: Convex Optimization, Robust and Optimal Control, State Estimation
Thesis: UKF Localization with Field Lines Observations for Humanoid Robotic Soccer

Bachelor of Computer Engineering (with honours) University of Toronto
with minor in Robotics and Business
3rd Year GPA: 3.75 4th Year GPA: 3.91 Dean's Honours List x8
Final Year Project: A Walking Acrobot - Winner of the Gordon Slemon Award ($1000) for top 4th year project