GEORGE OYANG

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CAREER OBJECTIVE

Recent masters engineering graduate with a passion in learning new things, software engineering, and building interesting and useful back end and full stack applications. I excel in problem solving, staying organized, and managing my time. I'm excited to apply the problem solving, and programming skills I've learned through my time as a student to real world projects that make an impact.

SKILLS

PROGRAMMING LANGUAGES | Python, JavaScript, HTML, CSS

TECHNOLOGIES | WSL2 (Ubuntu), Django, ReactJS, Bootstrap, NodeJS, ExpressJS, MongoDB, SQL, AWS, Git

MISCILLANEOUS | Machine Learning (PyTorch, Scikit-learn), Machine Perception (OpenCV), SOLIDWORKS

PROJECTS

TRADING JOURNAL WEB APPLICATION
GitHub Link | https://github.com/goyangrui/trading-journal
Personal Project | August 2022 – December 2022
- Built a full stack web application using the **MERN** stack, designed to help stock traders track their trades, visualize their trading performance, and reflect on their trades with the ultimate goal of making them a better trader
- Gained experience in working with **APIs** (such as **Stripe**), as well as building my own APIs
- Utilized **MongoDB** and **AWS S3** database for storing relevant information regarding users, trade entries, and journal entries and accompanying images
- Learned how to build **responsive UI/UX** components using **ReactJS**

SEMI-AUTONOMOUS QUAD-ROTOR SYSTEM DESIGN
University Project | January 2023 – April 2023
- Implemented, and integrated various industry standard systems together for semi-autonomous functionality of the Crazyflie 2.0 quad-rotor
- Applied knowledge of data structures and algorithms to implement **A* graph search** algorithm for quad-rotor collision-free path finding functionality
- Designed waypoint pruning scheme, and implemented **minimum snap trajectory generator**, used to generate smooth splines between waypoints
- Implemented **non-linear geometric PD controller**, responsible for ensuring the quad-rotor can track provided trajectory in a stable manner
- Implemented **visual inertial odometry (VIO) system for state estimation** using measurements from simulated onboard IMU, and stereo pair data.

ROBOT ARM PICK AND PLACE CHALLENGE
University Project | January 2022 – April 2022
- Worked with a team of engineering students on the design of an algorithm to have a 7 DOF robot arm manipulator (FRANKA Emika) transfer blocks between platforms, and stack them
- Applied knowledge of **Forward Kinematics** and **Inverse Kinematics** to map configuration to end-effector pose, and vice versa
- Implemented RRT algorithm for collision free path generation

EDUCATION

UNIVERSITY OF PENNSYLVANIA
MSE, Mechanical Engineering and Applied Mechanics / May 2023 | Philadelphia, PA
Concentration | Mechatronic and Robotic Systems
GPA: 3.60/4.00

THE PENNSYLVANIA STATE UNIVERSITY
BS, Mechanical Engineering | May 2021 | University Park, PA
GPA: 3.75/4.00

COURSEWORK

- CS50 Introduction to Computer Science, CS50 Web Programming with Python and JavaScript, Intro to Python and Java, Machine Learning, Machine Perception, Design of Mechatronic Systems, Feedback Control Design, Introduction to Robotics, Advanced Robotics, Foundations of Leadership

CERTIFICATIONS

- Certified SOLIDWORKS Associate in Mechanical Design (**CSWA**)