MICHAEL LEONG

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EDUCATION

Leland High School *Class of 2024*
Overall GPA: 4.00 (Unweighted)

EXPERIENCE

FRC 604 Quixilver Robotics June 2020 - Present
VP of Engineering *San Jose, CA*

- Lead team in all parts of technical robot design. Responsible for training new members and contributing to robot development.
- Developed time-optimal trajectory optimization software utilizing non-linear optimization algorithms using our robot's kinodynamic constraints.
- Developed particle filter robot localization software using both odometry from motor encoders and computer vision utilizing PhotonVision/OpenCV to detect AprilTag targets.
- Designed numerous robot mechanisms including linear slides and a four-bar linkage arm.

Lawrence Berkeley National Laboratory July 2023 - Present
Research Intern *Berkeley, CA*

- Developed a web-based tool for assessing the building demand flexibility of small and medium-sized businesses.
- Set-up MongoDB, Express, React, Node (MERN) web stack and GitHub Actions automated tests.
- Ported existing building data to MongoDB and implemented REST API to communication between server and client.
- Implemented and optimized existing Demand Flexibility algorithms to the application.

Invantest June 2022 - July 2022
Intern *San Jose, CA*

- Optimized existing Linux shell scripts for setting up software for new recruits.
- Tested the accuracy of AI detection models for defective semiconductor wafers.

PROJECTS

VelocityDraft
GitHub Link: https://github.com/shuklabhay/VelocityDraft

- Created college essay writing scheduler based on writing speed, deadline, and number of necessary revisions. Created with Firebase, Express, React, Node (FERN) web stack.
- Received 3rd place submission while competing against 120+ people.

FRC 604 2022 Robot Code
GitHub Link: https://github.com/frc604/2022-public

- Includes robot code, swerve drive trajectory optimization, and particle filter localization
- Allowed team to receive Autonomous Award and Innovation in Controls Award in the 2022 season

SKILLS

Programming Languages	Java, JavaScript, Python, TypeScript
Libraries + Frameworks	Flask, Firebase, MongoDB, Express, React, Node, React-Native, Expo, Matplotlib, Numpy
Tools	Git, Onshape, Fusion360, Photoshop, Vegas Pro

HONORS & AWARDS

- FIRST Dean's List Semi-Finalist 2023
- OneHacks III 3rd place submission 2023
- Creativity Award sponsored by Rockwell Automation (Championship Level) 2023
- FIRST Championship Carver Division Winner 2022
- Innovation in Controls Award (2x) 2022, 2023
- Autonomous Award Sponsored by Ford (2x) 2021, 2022