

MICHAEL LEONG

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EDUCATION

University of Southern California
B.S. Computer Science & Engineering

Expected May 2028

EXPERIENCE

FRC 604 Quixilver Robotics

VP of Engineering

June 2020 - Present

San Jose, CA

- Lead team in all branches 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

Research Intern

July 2023 - Present

Berkeley, CA

- Developed a web-based tool for assessing the building energy 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 communicate between server and client.
- Implemented and optimized existing demand flexibility algorithms to the application.

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
- Enabled 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

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|--|------------|
| • 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 |