Rohan Bandaru

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https://rohanbandaru.github.io/site

Intro

Computer engineering student with multidisciplinary interests. Internship experience in Robotics, Embedded Systems, Signal Processing, and Data Science. I learn quickly and independently.
Clearance: Inactive Secret

Education

Univ of California, Santa Barbara
B.S. Computer Engineering
B.S. Mathematics
Expected Graduation 2027
Engineering Honors

Skills

Languages

Python	●●●●●
C/C++	●●●●○
CMake	●●●●○
Java	●●●●●
R	●●●●○
MATLAB	●●●○○

Software

Git	●●●●○
Linux	●●●●○
Android	●●●●○
ROS 2	●●●●○
GDB	●●●●○
Arduino	●●●●●
Docker	●●●○○

Hardware

KiCAD	●●●●○
Onshape	●●●●●
Solidworks	●●●○○
Logic Analyzer	●●●●○
Oscilloscope	●●●●○
FDM 3D Printing	●●●●●
Soldering/Reflow	●●●●○
Shop Tools	●●●●○

Work Experience

MIT Lincoln Labs · Controls and Autonomy Intern · Lexington, MA — Summer 2024
- Developed a high-fidelity simulation environment for UAVs and ground targets to enable rapid SITL testing of GNC and object tracking algorithms. Implemented a camera sensor model and fixed-wing autopilot. Migrated key software to ROS 2
- Wrote control code for autonomous ground vehicles. Used Motion Capture system

MITRE · Embedded Security Intern · Bedford, MA — Summer 2023
- Completed an electromagnetic side-channels and sensing project on MIPI CSI bus
- Learned Digital Signal Processing and Software Defined Radio with little guidance

CMU AirLab · Student Researcher · Remote — 05/2022 - 02/2023
- Added key features to the PyPose Python library for integrating state estimation and control algorithms with ML models. Coauthored a publication in CVPR 2023

MITRE · Technical Aide · Bedford, MA — Summer 2022
- Improved logic analyzer automation and interoperability by creating internal tools and technical documentation. Gained experience with Python and Rev. Engineering

Verseau Therapeutics · Data Science Intern · Bedford, MA — Summer 2021
- Analyzed macrophage expression profiles to assess the therapeutic benefit of novel antibodies for Immuno-oncology. Created their histopathology analysis pipeline

UMass Lab for Perceptual Robotics · Student Researcher · Remote — Summer 2021
- Developed robot simulation tools for Reinforcement Learning experiments with Prof. Rod Grupen. Revamped legacy C codebase and participated in experiment design.

MSEF (MA Science & Eng. Fair) · Data Science Intern · Remote — Summer 2021
- Informed High-School Science Fair organizers of trends in STEM participation, interest and demographics through statistical analysis of previous years data

Projects (rohanbandaru.github.io/site)

DiceGrid CTF Challenge — 04/2024-Present
- Worked with DiceGang to create a novel hacking challenge where players must design inverters and supply to a small-scale power grid
- Helped design game infrastructure (PCBs, Transmission Towers) and gameplay
- Culminated in a 2-day event in NYC where 8 teams generated over 30 Wh

Deep Learning for Visual Odometry — 2022
- Worked with a friend to create an improved Deep VO algorithm and a robot test-bed
- Used AWS Sagemaker and S3 bucket to train on KITTI dataset augmented with virtual Unity game engine data. Evaluated using real robot in adverse conditions
- Won the Grand Prize at the MA High School Science and Engineering Fair

Model Rocket Guidance System — 2021-2023
- Created small-scale inertial guidance capable of somewhat hitting a target apogee
- Created a custom PCB flight computer, robust actuation mechanism, quaternion orientation, PID controllers with aerodynamic feedforward, and LKF for altitude
- Won 1st place at the MA Science and Engineering Fair and at the MassJAS Symposium. Presented at the 2022 American Junior Academy of Science conference

FIRST Robotics (FTC 14039 IrRaTiONAl) — 2018-2022
- Software lead on a self-funded FIRST Tech Challenge team of 7 friends
- Created custom localization, planning, and control. Implemented PIDF, Pure Pursuit, and Computer Vision algorithms in Java to run in real-time on Android
- In 2020, we were MA and NJ state champs, with the highest offensive power rating in the world, fourth highest autonomous rating (Worlds cancelled due to COVID-19)

Activities

IEEE Officer · Project Lead · Santa Barbara, CA — 05/2024 - Present
- Lead students in completing various hardware/software projects.