

Rohan Bandaru

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ABOUT ME

Motivated freshman at UC Santa Barbara with internship experience in Embedded Systems, Signal Processing, Robotics, and Data Science. I learn quickly and independently. According to previous employers, I have a “diligent work ethic” and “impressive technical intelligence.”

EDUCATION

University of California, Santa Barbara, CA **Class of 2027**

- Pursuing Computer Engineering Major + Math Minor

Lexington High School, Lexington MA **Class of 2023**

- GPA: 3.91 (Unweighted) | SAT: 1570 | 11 AP Classes (4.8 avg score)
- Clubs: Hon. Symphony Orchestra President, Aerospace Club Captain, FIRST Robotics

WORK EXPERIENCE

Embedded Security Intern @MITRE, Bedford MA **Summer 2023**

- Completed an electromagnetic side-channels and sensing project
- Learned Digital Signal Processing and Software Defined Radio with little guidance

Instructor @MIT Beaver Works Summer Institute, Remote **Summer 2023**

- Taught a 4-week intensive [embedded security course](#) to gifted high schoolers
- Received positive feedback from students about my lectures and course material

Student Researcher @Carnegie Mellon Airlab, Remote **2022-Feb 2023**

- Added key features to the [Pypose Python library](#) for integrating traditional robotic state estimation algorithms with ML models. Coauthored an [IEEE publication](#) in CVPR 2023

FTC Robotics Mentor @Penguin Coding School, Lexington MA **Spring 2023**

- Coached a local robotics team competing in the FIRST Tech Challenge
- Took initiative to start the program for middle school students

Technical Aide @MITRE, Bedford MA **Summer 2022**

- Improved logic analyzer automation and interoperability by creating internal tools and technical documentation. Gained experience with Python and Reverse Engineering

Data Science Intern @Verseau Therapeutics, Bedford MA **Summer 2021**

- Analyzed macrophage expression profiles to assess therapeutic benefit of novel antibodies for Immuno-oncology. Created their histopathology analysis pipeline

Data Science Intern @MSEF (MA Science & Eng. Fair), Remote **Summer 2021**

- Informed High-School Science Fair organizers of trends in STEM participation, interest and demographics through statistical [analysis of previous years data](#).

Student Researcher @UMass Amherst Lab for Perceptual Robotics, Remote **2021**

- Developed robot simulation tools for Reinforcement Learning experiments with Prof. Gruen. Revamped legacy C codebase and participated in experiment design.

SKILLS & TOOLS (bold indicates highly proficient)

- **Python, C/C++, Java, Rust, R**
- **Git, Linux, Android**
- AWS, Docker
- Microsoft Office
- **Embedded Systems**
- **PCB Design** with KiCAD
- MATLAB/Simulink
- Spanish (intermediate)
- **Onshape 3D Modeling**
- **3D Printing, Soldering**
- Digital Signal Processing
- Audio/Video Editing



INDEPENDENT PROJECTS ([see website](#) | [see Github](#))

[VISIT MAKER PORTFOLIO FOR DETAILED DESCRIPTIONS](#)



Deep Learning for Visual Odometry - 2022 (MSEF Grand Prize)

- 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 our real robot in simulated adverse conditions



Model Rocket Guidance System - 2021 (MSEF 1st Place, AJAS Fellowship)

- Created [small-scale inertial guidance](#) capable of hitting a target apogee.
- Created a custom PCB flight computer, robust actuation mechanism, quaternion orientation, PID controllers with aerodynamic feedforward, and EKF for altitude



FTC Robotics Control Scheme - 2020 (MA, NJ State Champions, Intl. 4th Rank)

- Software lead on FIRST tech challenge [team 14039 IrRaTiONAL](#)
- Created custom localization, planning, and control algorithms
- Highest offensive power rating in the world, fourth highest autonomous rating



Ground & Aerial Robotic Simulation Environment - 2023

- Creating an [ARMA](#) Reforger Mod for simulating/training robotic agents with humans in the loop. Simulated environment allows easy collection of ML training data.

for full list of projects, please see my maker portfolio (linked above)



AWARDS

- 2022 MA Science Fair Grand Prize - Winner of \$10k prize
- AIME Qualifier (2019, 2020, 2021) - Top 5% in American Math Contest
- USA Computing Olympiad Gold (2021) - Top ~15% in contest
- 2021 MA Science Fair 1st Place - Winner of Pauline J. Lamarche Award
- 2020 MA State Champions (2019 and 2018 finalists) - FIRST Tech Challenge
- 2020 #1 World Offensive Power Rating - FIRST Tech Challenge
- 2019 National Spanish Exam Gold Medalist
- National Honors Society, AP Scholar with distinction
- Johns Hopkins Study of Exceptional Talent

Thank you for your consideration