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. Grupen. 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
- ML with Pytorch, SciPy
- **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