MIKUL SARAVANAN

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EDUCATION

Columbia University, *School of Engineering and Applied Science* New York, NY
Bachelor of Science in Computer Science and Economics | **Egleston Scholar**
Classes: Data Structures & Algorithms, Advanced Programming, Multivariable Calc, Discrete Math, Economics
Clubs: CU Formula Racing, Columbia Space Initiative, CU Robotics Club, Columbia Financial Investment Group

WORK EXPERIENCE

Cranbrook HUB for Robotics, *Instructor*, Bloomfield Hills, Michigan *June 2023 – Aug 2023*
- Guided hands-on VEX robot construction and programming for individual teams
- Instructed Horizons-Upward Bound students in foundational robotics and the engineering design process

Rockbridge Growth Equity, *Intern*, Detroit, Michigan *May 2023 – June 2023*
- Researched potential companies to add to the private equity portfolio and analyzed financials and background
- Evaluated the competitive landscape of companies and discussed results and next steps with the team

Intrepid Control Systems, *Embedded Intern*, Troy, Michigan *June 2022 - Aug 2022*
- Accelerated GPS module startup time for Intrepid Control Systems data loggers for better usability
- Revamped C code to enhance data transmission and capture, boosting GPS and product reliability
- Worked on CIP/ CIM summaries and presented one-pagers to executives

Intrepid Control Systems, *Engineering Intern*, Troy, Michigan *July 2021–Sep 2021*
- Designed a CI/CD pipeline for automated PCB assembly, build, and BOM generation and validation

RESEARCH PROJECTS

Researcher @ The Accessible and Accelerated Robotics Lab (A²R) *February 2024 – Present*
- Integrating custom software stack for accelerated motion algorithms onto the robot dog for real-life testing

Stock Analysis & Trading Program *August 2023 – Present*
- Analyzing stocks programmatically to pinpoint the best moments for buying and selling strategically
- Leveraging technical indicators, applying machine learning on stock data, and creating predictive algorithms

Student Researcher, Oakland University (CSE), Michigan *June 2020–December 2022*
- Developed adversarial attack defense algorithms using teacher/student and federated learning techniques
- Implemented supervised, self-supervised, federated, teacher/ student AI algorithms for ASV countermeasures
- **Published** a comparative analysis of ASV methods in the Artificial Intelligence Review

Air Cleaning Robot, Science Fair Project Version 1 & 2 *August 2020–March 2023*
- Designed a novel multipurpose air-handling robot equipped with AI-driven anomaly detection
- Integrated Jetson Nano, LiDAR, Depth and tracking Cameras, ROS, and sensors for air quality & humidity
- Coded AI algorithms for fall detection, sound classification, and environmental monitoring
- **Three patents pending** with a USPTO patent number 17/726,698 and paper **published paper** in IJHSR

ACHIEVEMENT HIGHLIGHTS

- **Special Award winner at** International Science and Engineering Fair **(ISEF)** 2022, 2021
- Robotics: **Vex World Championships 2022 Division semifinalist** & **Qualified** 2023, 2022, 2019
- Recipient of the **McCaul STEM Grant 2022, 2029** & the **JSHS Momentum Grant** 2021

SKILLS

- **Programming and ML:** Python, Java, C++, TensorFlow, PyTorch, ROS, HTML, PHP, MySQL, Linux
- **Data & Analysis:** Research, Data Analysis, Impactful Presentations, Microsoft Office, Excel
- **Hardware:** CAD (Fusion 360, Inventor, Solidworks, Ansys), Robotics, Electronics, Raspberry Pi, Arduino
- **Personal Attributes:** Passionate, driven, empathetic, adaptive, active listener, collaborative