

# RISHIK MUTHYALA

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## Education

### University of Massachusetts Amherst

Sep. 2023 – May 2026

Bachelor of Science in Computer Science & Mathematics, Minor in Business — GPA: 3.9/4.0

Amherst, Massachusetts

## Relevant Coursework

- Data Structures
- Discrete Mathematics
- Calc I, II
- Differential Equations
- Python Programming
- Artificial Intelligence
- Linear Algebra
- Accounting
- Object Oriented
- Probability and Statistics
- Multivariate Calculus
- Intro to C

## Experience

### Drobot Co.

May 2023 – September 2023

Software Engineer Intern

Boston, MA

- Developed autonomous drone prototype using Python, TensorFlow, and PyTorch, improving object tracking accuracy by 30% and implemented real-time MAVLink communication system for seamless data transfer between control station and drone
- Optimized mapping algorithms, reducing processing time by 40% and designed custom object detection model accuracy for multi-object tracking
- Utilized CAD for drone component prototyping, reducing weight by 25% and increasing flight time by 15%
- Created data analytics pipeline with Pandas and NumPy, processing 1TB+ of flight data; integrated sensor fusion algorithms, enhancing drone stability and precision by 35%

### Columbia University

June 2022 – May 2023

Software Engineer - Co-op

New York City, NY

- Engineered responsive frontend using React.js and Redux, integrating with a Node.js/Express backend and PostgreSQL database, demonstrating proficiency in modern web development stack
- Deployed application on AWS EC2, implementing CI/CD pipeline with GitHub Actions for testing and deployment

## Projects

### Campus Chirp | React, Node.js, Express, MongoDB, JWT

September 2024

- Developed a full-stack social media platform tailored for college students, enabling real-time post sharing and interaction
- Engineered a responsive frontend using React.js with state management, integrated with Node and Express backend API
- Implemented secure user authentication using JWT and bcrypt, and utilized MongoDB for efficient data storage and retrieval

### Melody | Python, React, PostgreSQL, OAuth, Express.js

August 2024

- Architected a full-stack music-centric social media platform, utilizing React.js for the frontend and Python for backend services
- Designed and implemented a robust RESTful API using Express.js, integrating OAuth for secure authentication and PostgreSQL for efficient data management

### Dorm Buddy | C++, Arduino, Next.js, Node.js

November 2023

- Developed a hardware device using Arduino programmed in C++ to monitor and communicate room and roommate status in real-time
- Developed a scalable backend with Node.js and Next.js, enabling real-time data sync between device and web interface

## Leadership

### First Tech Robotics

June 2022 – June 2023

Co-Captain

Woonsocket, RI

- Co-captained and programmed Java-based competitive robot, implementing sensor fusion and PID algorithms to optimize autonomous task execution in dynamic environments

## Technical Skills

**Languages:** Python, Java, C, C++, JavaScript, TypeScript, Swift, HTML, CSS

**Frameworks/Libraries:** React, Node, Express, Next, SwiftUI, TensorFlow, PyTorch, Redux, Pandas, NumPy, WebSockets, OAuth

**Tools:** VS Code, Xcode, Android Studio, Git, GitHub, Docker, Arduino, Linux

**Cloud/Database:** Amazon Web Services, Google Cloud Platform, MongoDB, SQL, PostgreSQL