

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

Amherst, Massachusetts

Relevant Coursework

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

Experience

Drobot Co.

May 2023 – September 2023

Software Engineer Intern

Bellingham, 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

FTC Robotics

- 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