Rishik Muthyala

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Education

University of Massachusetts Amherst **Sep. 2023 – May 2026**
Honors Bachelor of Science in Computer Science & Mathematics, Minor in Business — GPA: 3.9/4.0 Amherst, Massachusetts

Relevant Coursework

Core: Data Structures, Algorithms, AI/Machine Learning, Object Oriented, Discrete Mathematics, Probability & Statistics, Calc I/II, Linear Algebra, Multivariate Calculus, Differential Equations, Accounting, C Programming

Experience

Treevah **December 2024 – Present**
Software Development Engineer Intern *Chicago, Illinois*

- Engineered a scalable React/TypeScript file management system with B-tree hierarchical organization, Redis caching, and Elasticsearch-powered intelligent search featuring fuzzy matching and WebSocket real-time updates, improving file access latency by 40% and reducing average retrieval time by 25%.
- Integrated complex backend API endpoints with React frontend components, implementing secure blob storage URL processing and state management patterns, reducing transmission errors by 35% and enhancing UI responsiveness
- Architected cloud infrastructure using Azure services, implementing RESTful API endpoints with frontend-optimized response structures, JWT-based authentication, and rate limiting to ensure smooth React component integration
- Led AI integration research leveraging OpenAI's GPT-4 and Azure Cognitive Services; developed proof-of-concept using transformer models for automated file categorization and metadata extraction, demonstrating 60% reduction in manual organization tasks

SelfServe **January 2025 – April 2025**
Head IOS Developer *Boston, MA*

- Engineered comprehensive iOS hospitality app from scratch using SwiftUI/Combine with MVVM architecture; built modular UI components and CoreData persistence layer with OAuth 2.0 integration, reducing development cycle by 40%
- Architected serverless AWS backend (Lambda, API Gateway, PostgreSQL) with real-time WebSocket connections for guest services, room management, and staff coordination for hotel properties with improved uptime

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%

Projects

FoundU (2024 Hackathon Winner) | *React Native, Node.js, Express, Google Vision API, Puppeteer* **November 2024**

- Engineered lost UCard recovery system serving 30,000+ UMass students, enabling finders to photograph cards, with Google Vision API extracting student information and custom Puppeteer automation scraping UMass finder directory
- Developed streamlined user flow using React Native for cross-platform interface, Node.js/Express backend for secure data processing, and Nodemailer for automated location-based email notifications

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, React Native, Node, Express, Next, SwiftUI, TensorFlow, PyTorch, Redux, Pandas, NumPy, WebSockets, OAuth, Azure SDK, Puppeteer
Cloud/Database/Tools: AWS, GCP, Azure, MongoDB, SQL, PostgresSQL, VS Code, Xcode, Android Studio, Git, GitHub, Docker, Arduino, Linux