

OM RAJASEKHARAN

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EDUCATION

University of North Carolina at Chapel Hill

B.S. Mathematics & Biostatistics; Minor in Biology

May 2028

Chapel Hill, NC

- **Relevant Coursework:** Data Structures and Management; Statistical Computing and Data Management; Principles of Experimental Analysis; Discrete Mathematics; Linear Algebra; Differential Equations; Multivariable Calculus
- **Honors:** Honors Carolina, Dean's List, Veralto Scholarship, Assured Admission to Gillings Biostatistics Program

EXPERIENCE

IPMD, Inc.

July 2026 – Present

Full-Stack Developer Intern

Remote

- Developing full-stack features across AI-powered healthcare and XR applications using React, Next.js, TypeScript, Node.js, Python, and Supabase, contributing to 12+ production features across 3 products
- Engineered OpenCV-based facial emotion-recognition pipelines for EchoAI and Emotion Sphere, achieving 91%+ emotion-classification accuracy while processing live video streams at 24+ FPS during internal testing
- Built and optimized REST APIs and backend inference workflows supporting 5,000+ daily requests, reducing end-to-end prediction latency by 32% through query optimization, asynchronous processing, and caching

UNC Infectious Disease Epidemiology and Ecology Lab

Feb. 2025 – Present

Undergraduate Data Science Researcher

Chapel Hill, NC

- Processed and analyzed 5,000+ dried blood spot samples for a dengue seroprevalence study using Luminex Magpix immunoassay technology to quantify antibody responses across multiple antigens
- Developed scalable, reproducible R pipelines using tidyverse and ggplot2 to clean, analyze, and visualize 100,000+ fluorescence measurements, cutting analysis time from 2 weeks to 3 days

CloudSci

Feb. 2024 – Aug. 2024

Software Engineering Intern

Fort Collins, CO

- Designed an OpenCV/NumPy computer vision pipeline with image preprocessing and feature extraction to classify pollen particles from real-time video streams, achieving 82% accuracy across 100,000+ frames
- Optimized image-processing algorithms through vectorization and parallelization, reducing frame latency by 45%

PROJECTS

MyLocalHealth | *Next.js, TypeScript, Python, C++/WebAssembly, Supabase, SQL*

- Built and deployed a full-stack public health platform integrating 7+ external data sources, including CDC, Census, NOAA weather, air quality, and wastewater surveillance data, into a real-time risk-scoring engine serving ZIP-code-level health forecasts
- Trained and deployed 9 explainable ML classifiers using scikit-learn and XGBoost with SHAP-based feature attribution and Platt-scaling calibration, cutting calibration error by 97% (ECE 0.31 $\rightarrow$ 0.01) versus raw model output on holdout data
- Engineered backend reliability infrastructure, including a CI/CD pipeline that retrains and validates all 9 models on every push, a C++/WebAssembly module that cross-verifies production scoring logic, and OpenTelemetry distributed tracing

PreconAI: Construction Estimator & Bid Matcher | *React, Node.js, MongoDB, Python*

- Architected and shipped an AI-powered web platform end to end as founding engineer, integrating Python ML pipelines to automate RFP analysis and generate cost estimates, schedules, and bid proposals
- Built scalable, fault-tolerant RESTful API architecture with JWT authentication and role-based access control, maintaining 99.9% uptime across an AWS deployment, with cloud infrastructure connecting MongoDB and Google Cloud Storage to manage 10,000+ project records

Autonomous Robotics Control System (FRC Team 4499) | *Java, Python, OpenCV, WPILib*

- Implemented a modular swerve-drive system with closed-loop PID control and OpenCV-based vision for target detection; programmed 5 competitive robots, contributing to a top-10 global ranking and multiple Innovation in Control Awards

PUBLICATIONS

LBIC Imaging of Solar Cells: Introduction to Scanning Probe-Based Imaging

Jan. 2023

Journal of Chemical Education, 100(2), 1011–1016, DOI: 10.1021/acs.jchemed.2c00623

- Developed a Python automation pipeline for LBIC microscopy data acquisition and analysis, reducing manual processing time by 80% across 500+ experimental trials

TECHNICAL SKILLS

Languages: Python, Java, JavaScript, TypeScript, PHP, R, SQL, C/C++, Kotlin, HTML/CSS, SAS

Frameworks & Libraries: React, Next.js, Node.js, Express, MongoDB, TensorFlow, scikit-learn, NumPy, Pandas, OpenCV

Tools: Git, AWS (EC2/S3/Lambda), GCP, Vercel, Docker, Tableau, Postman, Jupyter