Aakash Kalmady

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Education

University of Maryland, College Park   College Park, MD
Bachelor of Science in Computer Science   *Expected Graduation: May 2027*
- GPA: 3.74/4.00
- Relevant Coursework: Data Science, Data Structures and Algorithms, Object-Oriented Programming, Computer Systems, Discrete Mathematics, Linear Algebra, Statistics and Probability, Organization of Programming Languages

Experience

Shadowing Software Engineer   Sep 2024 - Dec 2024
Booz Allen Hamilton (via UMD App Development Club)   *College Park, MD*
- Observed a student led software engineering team contracted by Booz Allen Hamilton that automated the auditing process for Medicaid and CHIP claims, leading to projected savings of 12 hours of work weekly and $50,000 annually
- Engaged in the software development lifecycle by attending weekly client meetings with Booz Allen Hamilton representatives to discuss progress, deliverables, and feedback
- Presented a key segment of the final product demo to Booz Allen employees, explaining seven of the core functionalities
- Analyzed the implementation of RESTful APIs for service communication, Docker for containerized deployment, and a Python ML backend with PyTorch and Tesseract for OCR, gaining insight into a professional software architecture

Projects

Eye Disease Detector, *Python, Flask, AWS EC2, TensorFlow, OpenCV, Scikit-learn, NumPy, Docker*   Jul 2025 - Present
- Engineering a machine learning app to classify 3 diseases based on retinal scans, processing a dataset of over 4,000 images
- Fine-tuning a ML model using OpenCV for image processing and TensorFlow for a convolutional neural network (CNN), achieving a mean accuracy of 87.8% through 10-fold cross-validation
- Developing a RESTful API using Flask that integrates the ML model with an app to extract user image data for classification
- Deploying the application using Docker and designing it for scalable deployment on cloud infrastructure with AWS EC2

ClarityVue, clarityvue.com, *Next.js, TypeScript, PostgreSQL, AWS S3, Clerk, Zod, Jest*   Jun 2025 - Jul 2025
- Engineered a full-stack photo portfolio service with authentication, album management, image uploads, and profile sharing
- Designed scalable cloud infrastructure supporting over 1 TB of media and 500+ concurrent users with AWS S3 for media storage and Neon serverless PostgreSQL for high availability
- Reduced production load times to under 200ms by leveraging Next.js SSR and optimizing complex database queries
- Protected against injection attacks and enforced user-specific data access using Clerk authentication and Zod schema validation, leveraging Jest to test and secure 20+ server actions and REST API endpoints

Climate Data Science Project, tinyurl.com/sstanalysis, *Python, Linux, Derecho HPC*   Sep 2024 - Dec 2024
- Analyzed sea surface temperatures and the intensity of hurricanes by simulating hurricane Ida under different conditions
- Processed data containing 3,000+ files and more than 100 GB of hurricane data on the remote Derecho HPC supercomputer through Unix shell commands
- Generated 15 hurricane data plots using wrf-python and shell scripts to analyze differences and interpret weather patterns

VEX Robotics, github.com/aakash-kalmady/SpinUp-81Y, *C++, V5 PROS API*   Sep 2021 - May 2023
- Earned the design award at the world championship competing with 800+ teams and the title of national champions in 2023
- Developed C++ programs and feedback controllers using 10 different sensors for autonomous navigation of a robot
- Fine-tuned controllers by finding optimal settings in Excel for 50% more precision within a 1% error margin (± 0.2 inches)
- Documented results in a 500+ page notebook to illustrate the design process and project management of our team

Technical Skills

Languages: Python, Java, C, C++, JavaScript, TypeScript, Rust, OCaml, HTML, CSS, SQL (PostgreSQL), x86-64 Assembly, MATLAB
Frameworks: Next.js, React.js, Node.js, Express.js, Jest, Flask
Developer Tools: AWS (S3, EC2), Google Cloud Platform, k6, Vim, Unix, Git, Valgrind, GDB, AutoCAD
Libraries: Pandas, NumPy, Scikit-learn (sklearn), Matplotlib, Zod