Jeremy Ky

ky.jeremy@virginia.edu | github.com/jeremyky | linkedin.com/in/jeremy-ky

Education

University of Virginia — Charlottesville, VA
M.S. + B.A. Computer Science | GPA: 3.8/4.0 — *Aug. 2023 – May 2027*

Experience

Software Engineering Intern — June 2024 – Present
Dewberry Engineers — *Fairfax, VA*

- Architected a **full-stack web application** using **Flask** and **React** to process **50,000+** financial documents, leveraging **OpenAI API** for intelligent document analysis and **Firebase** for real-time data synchronization.
- Implemented secure user management with **Firebase Authentication** and designed **RESTful APIs** for document processing, enabling multi-user collaboration and reducing processing time by **90%**.
- Engineered an interactive financial analytics dashboard using **D3.js** and **pandas**, automating pattern detection and reporting workflows to save **$10,000+** annually.

Machine Learning Research Assistant — June 2024 – Present
UVA Link Lab, Advised by Dr.Yen-Ling Kuo — *Charlottesville, VA*

- Developed a **full-stack driving simulator** in Python integrated with a physical driving rig, simulating over **10,000** driving scenarios using **Tesla, Waymo, and Uber** datasets.
- Tested and compared **reinforcement learning** policies for **autonomous systems**, improving policy success rates and enhancing data quality for simulation, while streamlining **hardware-software integration** to reduce latency by **30%**.

Machine Learning Research Assistant — Jan. 2024 – Present
UVA School of Medicine, Advised by Dr.David Acunzo — *Charlottesville, VA*

- Developed a full-stack **deep learning pipeline** to automate end-to-end workflows for psychiatric experiments, utilizing **CNNs** and **SBERT** to process datasets of over **100,000** images with data visualization techniques.
- Streamlined the experimental process to ensure statistical significance and optimized results for inclusion in research publications, reducing manual effort by **90%** and improving data processing efficiency by **70%**.
- Utilized UVA's **HPC** system with **MATLAB, Python, and Julia** to statistically analyze over **100+** EEG time series datasets, reducing computation time by **80%** and accelerating insights into neural activity patterns.

Software Engineering Fellow — Dec. 2024 – Jan. 2025
Palantir Technologies — *New York, NY*

- Built an **AI-powered supply chain platform** using **Palantir's AIP** and **Ontology SDK** to analyze **1M+ real-time** shipping data points, achieving **90%** anomaly detection accuracy and **30%** reduction in forecasted delays through **LLM-powered automated rerouting**.

Projects

Speech Sentiment Analysis | *MongoDB, Express.js, React.js, Node.js, TensorFlow, OpenAI Whisper, NLP*

- Built a full-stack **MERN** web application to analyze speech sentiment from MP4, MP3, or live recordings, using **OpenAI Whisper** for transcription and fine-tuned **NLP** models for sentiment classification.
- Developed an interactive **React.js** frontend and **Express.js** backend for real-time sentiment visualization, with a **MongoDB** database for metadata storage, streamlining end-to-end processing with **TensorFlow** and **OpenCV**.

Autonomous Race Car | *ROS, ROSPYAPI, Ubuntu, OpenCV, CAD, YOLO, Python*

- Built an autonomous race car using **ROS**, **LIDAR**, and **YOLO** for real-time localization and obstacle detection, implementing multiple **path planning algorithms** to optimize racing performance against competing vehicles.

My Striking Coach | *Swift, OpenCV, iOS, Python, Firebase*

- Developed an iOS fitness app using **Swift** and **OpenCV** to analyze and coach striking workouts through computer vision, implementing real-time pose estimation and movement tracking for instant feedback on form and technique.
- Integrated **Firebase** for user authentication and cloud-based data management, enabling seamless synchronization of workout data and progress tracking.

Course Management System | *Java, HTML, CSS, Spring Boot, MySQL*

- Developed a **full-stack application** with **Spring Boot** to help students organize schedules by searching and filtering courses, featuring a **responsive front-end** and a **MySQL database** for efficient data management.