|  |  |  |
| --- | --- | --- |
| **KAIJI FU**  [kaiji@unc.edu](mailto:kaiji@unc.edu) | (252) 267-0412 | Github/Linkedin: kaijif | US Citizen | Experienced software engineer searching for internships | | |
| **EDUCATION** | | |
| **University of North Carolina at Chapel Hill** – Chapel Hill, NC | | Expected Jun 2026 |
| *Computer Science, B.S.* | | |
| GPA: 4.0 | Carolina Scholar (full scholarship, top 1%) | Honors (top 10%) | Information Science Assured Admit | | |
| **WORK EXPERIENCE** | | |
| **Mozilla** – San Francisco, CA (Remote) – Open-Source Contributor | Dec. 2023 - present | |
| *Collaborating with core maintainers to contribute to Mozilla's bugbug project by implementing critical type checking fixes* | | |
| * Actively contributed to Mozilla's bugbug project, an AI-powered bug classification system that uses machine learning to automate bug triage across Firefox repositories * Collaborated with core project maintainers through GitHub issues and code reviews, iteratively refining the solution based on feedback from senior Mozilla engineers and merged a 200+ line commit that fixed an issue related to type checking | | |
| **Pitt Pirates Robotics Club** – Chapel Hill, NC - Software Engineer | Aug 2022 – Present | |
| *Led robotics club’s AI development, creating and deploying a high-accuracy computer vision system for autonomous navigation.* | | |
| * Designed and trained a custom YOLOv7 AI deep neural network using PyTorch, achieving 95% accurate real-time object detection for competition elements such as game pieces and field markers * Collaborated with engineering team to successfully deploy the object detection model on an NVIDIA Jetson, configuring an Ubuntu Linux environment and optimizing CUDA acceleration for real-time performance * Implemented a MQTT communication protocol between the Jetson and the robot's main controller for reliable, low-latency data transfer in competition environments | | |
| **PERSONAL PROJECTS** | | |
| **Nolyn** – Greenville, N.C. | May 2023 - present | |
| *Developed a smarter stop-arm (red light camera for school buses) with a 5-person team, cutting costs by 100x ($30 vs. $3,000) -* [*https://nolyn.co/*](https://nolyn.co/) | | |
| * Engineered a complete IoT camera solution on the ESP32 microcontroller platform, leveraging C++ and real-time operating system (RTOS) programming to optimize performance, implement wireless connectivity, and manage resource constraints while ensuring reliable image capture and transmission capabilities * Developed a specialized HTTP client from the ground up to enable secure cloud interactions, addressing limitations in existing libraries and successfully implementing form-data POST requests required for S3 integration * Designed and built AWS cloud infrastructure using DynamoDB for metadata storage, S3 for video storage, API Gateway and Lambda for secure REST endpoints, and an MQTT broker for reliable real-time camera communication * Implemented cloud-based image processing motion detection algorithms to detect and document school bus stop-arm violations with high accuracy in varying light conditions * Designed and developed a responsive admin portal using Figma and ReactJS, enabling school officials to review violations, generate reports, and manage bus camera fleets. * Established a CI/CD pipeline using GitHub Actions to automate testing and deployment of both firmware and web application updates, reducing deployment times by 100x * Coordinated closely with stakeholders and working on deploying on Pitt County Schools' 200+ buses * Won the Congressional App Challenge and received a $1,000 grant from Amazon in recognition of the value of the project's innovative approach to enhancing student safety while reducing costs for school districts | | |
| **ACADEMIC RESEARCH** | | |
| ***Machine Learning-Enhanced Electrocardiograms*** | Sep 2024 - present | |
| *Leveraging convolutional neural networks (CNNs) and transformers to detect cardiac anomalies with high accuracy.* | | |
| *Researcher* | | |
| * Developed robust data preprocessing pipeline using Pandas and SciPy to normalize ECG waveforms * Implemented convolutional neural networks (CNNs) and transformer architectures—the same technology powering modern AI LLMs like ChatGPT—to detect cardiac anomalies * Leveraged high-performance Linux-based SLURM environments to train computationally intensive models on large-scale medical datasets * Collaborated closely with UNC School of Medicine cardiologists to validate model outputs against expert clinical diagnoses | | |
| ***Privacy-First AI: Implementing Federated Learning for Secure Healthcare Data Analysis*** | Feb 2020 - April 2023 | |
| *Using federated machine learning to enhance privacy and security in healthcare data analysis.* | | |
| *Lead Author* | | |
| * Implemented an advanced machine learning pipeline utilizing TensorFlow to train federated learning models * Employed Pandas and NumPy libraries to perform comprehensive data processing, cleansing, and transformation for improved model accuracy and performance across distributed systems * Demonstrated that federated modeling maintains >95% accuracy while eliminating the need for cross-institutional data sharing, making training robust models much easier and presented my findings at the ISS Symposium | | |
| **SKILLS** | | |
| **Languages/Tools/Skills:** Python, JavaScript, Java, Rust, C/C++, PyTorch, TensorFlow, Figma, Linux, Git, CI/CD, AWS, Docker, embedded applications, machine learning, AI, LLMs, and open-source software, RESTful API design, database design, web development, React, project management, cross-functional collaboration, growth mindset, enthusiastic learner | | |