Kaiji Fu

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

PROFESSIONAL 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 written in **Python** 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 **deep neural network** using **Python/PyTorch**, achieving **95% accurate real-time object detection** for competition elements such as game pieces and field markers
- Partnered with engineering team to **successfully deploy** the object detection model on an NVIDIA Jetson **edge processor**, 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. - https://nolyn.co/ — May 2023 - Present

*Founded a startup to build a smarter stop-arm camera with a 5-person team, **cutting costs by 100x** ($30 vs. $3,000)*

- Developed a cost-effective **IoT** stop-arm camera solution on ESP32, integrating **real-time image capture**, **wireless connectivity**, and **secure cloud interactions** via **AWS** (**DynamoDB**, **S3**, **API Gateway**, **Lambda**, **MQTT**).
- Built a **ReactJS** admin portal for school officials to review violations, automated deployments with **GitHub Actions**, and implemented **cloud-based motion detection** for accurate stop-arm violation detection.
- Successfully piloted with Pitt County Schools' **200+ buses**, won the **Congressional App Challenge**, and secured a **$1,000 Amazon grant** in recognition of the project's innovative approach to student safety.

ACADEMIC RESEARCH

UNC-Chapel Hill School of Medicine - ***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 intensive models on large-scale medical datasets
- Collaborated closely with UNC School of Medicine cardiologists to **validate model outputs** against expert clinical diagnoses

East Carolina University - ***Privacy-First AI: Implementing Federated Learning in Healthcare*** — Feb 2020 - April 2023

*Using **federated machine learning** to enhance privacy and security in healthcare data analysis.*

Lead Author

- Engineered 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

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