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 Al-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 Al: 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