Kaiji Fu

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Education

University of North Carolina at Chapel Hill May 2026

B.S. Computer Science and Mathematics | GPA: 4.0 | Carolina Scholar (full scholarship, top 1%) | Honors (top 10%)

Relevant Coursework: Computer Organization, Data Structures, Algorithms & Analysis, Programming Fundamentals

Experience

Ember Learning - *Full Stack Software Engineering Intern* May 2024 – Aug. 2024

*Completed a summer internship at an AI teaching platform, helping drive **MAU up 100x** and **revenue up 1000x***

- Developed **20+** responsive user interface components for an **AI** grading feature with **TypeScript** and **React**
- Scaled **AWS** backend to handle **100,000+ users** answering **3M+ questions** with **AI**, driving **$40k+ in ARR**
- Implemented fine-tuning pipelines for **LLMs** to improve grading accuracy across various educational standards

UNC School of Medicine - *Research Assistant (AI/ML)* Nov. 2024 – Present

*Collaborating with cardiologists to develop **transformer architectures** to analyze ECGs and detect cardiac anomalies*

- Leveraging **transformer architectures** (powers ChatGPT) with **Python/TensorFlow** in a **high-performance Linux environment** to detect cardiac anomalies from ECGs **11% more accurately** than the state of the art

Mozilla - *Software Engineer, Open Source* Dec. 2023 – Present

*Contributing to Mozilla's bugbug project, a bug classification system that uses **ML** to triage **10k+** Firefox bugs/month*

- Implemented critical fixes in **Python** to type-checking issues, merging **2000+** significant lines of code
- Collaborating with core maintainers through **GitHub issues** and **code reviews** to improve tool reliability

ECU School of Medicine - *Research Assistant (AI/ML)* Sep. 2022 – Feb. 2023

*Researched how federated (distributed) **machine learning** enhances patient privacy in healthcare data analysis*

- Demonstrated using **Pandas/Python/TensorFlow** that federated modeling maintains **95%+** accuracy while eliminating the need for cross-institutional data sharing, empowering researchers to train much more robust models
- Won **Best Poster** at the ISS Symposium at East Carolina University, where I presented to other researchers

Projects

Nolyn | *AWS/cloud, React, full-stack, C/C++, RTOS, embedded development/debugging* May 2023 – Present

- **Founded a startup** to build stop-arm cameras for school buses (automated systems that capture license plates of vehicles illegally passing stopped buses) at **100x lower cost** than competitors ($30 vs up to $3,000 each)
- Built microcontoller firmware with **C/RTOS** with **GPIO peripherals** for real-time image capture and analysis
- Engineered **full-stack cloud application** with **AWS** (**DynamoDB**, **S3**, **MQTT**) and **ReactJS** admin portal
- Deployed on **2000+ buses**, won **Congressional App Challenge**, and received a **$1000 Amazon grant**

Blackbeard | *OpenCV, PyTorch, CUDA, robotics, embedded development, computer vision* Aug. 2022 – Present

- Trained object detection neural network with **OpenCV/PyTorch** for **self-driving** in robotics competition
- The model guided navigation with **95% accurate** real-time detection of game elements for autonomous pathing
- Implemented **MQTT** communication protocol in **C++** to connect the **CUDA**-enabled coprocessor and robot controller for reliable low-latency data transfer, boosting autonomous **PID** navigation performance by **4x**

72o | *Python, Numpy, Pandas, Machine Learning, Game Theory* Feb. 2025

- Designed and built an autonomous pokerbot with **Python** that placed **1st/112** in the UNC Pokerbots competition
- Applied **counterfactual regret minimization (CFR)** algorithms to develop optimal betting strategies
- Engineered a **real-time decision engine** capable of modeling and adapting to opponents' play patterns
- Leveraged **multi-threading** to parallelize opponent modeling and strategy computation processes

Technical Skills

Languages: Python, Java, JavaScript, TypeScript, C/C++, SQL, Rust, Golang, HTML/CSS
Frameworks: React, PyTorch, TensorFlow, Pandas, Svelte, Angular, Flask, TailwindCSS, FastAPI
Developer Tools: Git, Docker, CI/CD, AWS, Linux, Kubernetes, CUDA, NVIDIA Jetson, Figma
Domain Knowledge: Machine Learning, AI, LLMs, Computer Vision, IoT, Embedded Systems, RESTful APIs