Lauren Kwon

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Education

Iowa State University Expected Dec 2026

Bachelor of Science in Computer Science (GPA: 3.9 / 4.00), Minor in Statistics *Ames, Iowa*

- **Relevant Coursework:** Introduction to Data Structures (Java), Introduction to Object-Oriented Programming (Java), Software Development Practices (Java), Computer Processing of Scientific Data (SAS), Intermediate Statistical Concepts and Methods, Linear Algebra, Discrete Computational Structures, Calculus I, II, III

Projects

Study Buddy Android Application | *Android Studio, Java, Volley, Spring Boot, MySQL*

- Led frontend development in a team of three and developed an Android application to facilitate peer collaboration through study session coordination and real-time tracking features using WebSocket for live updates.
- Engineered automated study buddy matching to connect users based on shared classes, improving collaboration.
- Built a robust event management system allowing users to create, RSVP, and manage study sessions for scheduling.
- Implemented a study tracking module to log hours and visualize academic progress, promoting accountability.

Crittrly Web Application | *React, Node.js, Express.js, MySQL*

- Co-developing a full-stack pet adoption platform supporting photo uploads, tag-based categorization, and radius-based location search via Leaflet and OpenStreetMap, designed to streamline the pet discovery experience.
- Developing a backend system with role-based access control to manage pet care resources, enabling CRUD operations on categorized content via a modular Express.js REST API and normalized MySQL schema.

Experience

University of Missouri Consumer Networking Technologies May 2025 – July 2025

REU Research Intern *Columbia, Missouri*

- Investigated AI-driven vulnerability detection in C/C++ code by generating 21,550 synthetic functions with LLMs (DeepSeek, Llama4 Maverick) to enhance Graph Neural Network vulnerability detection model training pipelines.
- Automated injection and validation of code-level vulnerabilities using LLMs via HuggingFace and OpenRouter, combined with static analysis tools to simulate realistic test cases for software quality assurance pipelines.
- Applied graph-based learning and deep neural networks to program structure data (ASTs, CFGs, PDGs) using PyTorch Geometric, gaining hands-on experience with scalable model training and inference in Python.

Dr.Ying Cai, Professor of Computer Science, Iowa State University Jan 2025 – Present

Research Lab Assistant *Ames, Iowa*

- Applied convex polyhedral algorithms to improve rank-aware query processing, applying mathematical modeling and algorithmic analysis to contribute toward designing efficient data retrieval methods for large and complex datasets.
- Conducted foundational literature reviews on cryptographic techniques such as homomorphic encryption, private information retrieval, and lightweight cryptography to inform research on privacy-preserving query processing.

Technical Skills

Languages: Python, Java, JavaScript, HTML, CSS, Node.js, Express.js, R, SAS, JMP
Technologies: Git, Android Studio
Concepts: Full-Stack Development, Web Development, Mobile App Development, Statistical Computing
Spoken Languages: Korean (Expert), English (Expert)

Leadership & Activities

Google Developer Student Club – Technical Skills Development Chair *Sep 2024–Present*
Korean Tennis Association – Member *May 2024–Present*
STEM Scholars / Graduation Plus - Member *Oct 2024–Present*
Iowa State Running Club – Member *Aug 2024–May 2025*
Iowa State Univ., Friley Hall Hutton House Cabinet – Treasurer *Sep 2024–May 2025*