Kaiwen Mo

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EDUCATION

University of Michigan – Ann Arbor **GPA: 3.80 / 4.00**
Bachelors of Science in Computer Science and Economics Honors *May 2026*

SKILLS

Programming & Web: *C++, Python, JavaScript, SQL, React, Flask, HTML/CSS, Git*
Systems & Backend: *Distributed Systems, MapReduce, REST APIs, AWS EC2*
Applied ML & Security: *OpenCV, YOLOv8, MediaPipe; Wireshark, Disk Forensics (Autopsy), Web (SQLi, XSS, CSRF)*

WORK EXPERIENCE

Next Play Games Inc. **Remote**
Software Engineer Intern | AI Team Lead *May 2025 – Aug. 2025*

- Designed and deployed a real-time video analytics pipeline integrating computer vision inference, rule-based event logic, and downstream classification for live football games.
- Built modular backend components to ingest multi-angle video feeds, project player and ball positions into a unified field coordinate system, and infer plays such as passes and possession.
- Implemented a second-stage event detection service to classify complex game events (e.g., fumbles, flags), improving system robustness beyond raw model predictions.
- Developed SportLingo, a full-stack interactive training application using MediaPipe pose tracking and real-time feedback loops to support gamified sports learning.

PROJECT EXPERIENCE

MapReduce Framework - Distributed Systems *Feb. 2025 – Apr. 2025*

- Designed and implemented a distributed MapReduce execution framework with a centralized Manager and multiple Worker processes, enabling parallel execution of map and reduce tasks across large datasets.
- Built socket-based inter-process communication and multi-stage data pipelines (map → group → reduce) for worker registration, task scheduling, and result aggregation, ensuring correctness and coordination under concurrent workloads.

Scalable Search Engine - Information Retrieval *Apr. 2025 – Apr. 2025*

- Built a scalable search engine by constructing a segmented inverted index over large document collections.
- Implemented relevance ranking and query serving by integrating tf-idf and PageRank scoring with RESTful backend APIs that return ranked JSON and power a frontend search interface.

Stock Market Simulation & Bank Transaction System *Oct. 2024 – Nov. 2024*

- Designed a C++ simulator for an electronic stock exchange capable of processing 100,000+ trades across 20 traders and 25 stocks within seconds, incorporating a 'time-traveler' feature to explore optimal trading strategies.
- Constructed a real-time C++ banking simulator to process 10,000+ transactions per session with integrated fraud detection, optimizing data handling through an intuitive interface to manage customer data and transaction history.

Industry-Sponsored MDP Project - Wade Trim **Ann Arbor, MI**
Student Research Engineer *Jan. 2026 – Present*

- Contributing to an industry-sponsored Digital Twin project modeling urban stormwater infrastructure using GIS-integrated simulation (PCSWMM) and environmental data.
- Designing and building a browser-based web application that links PCSWMM simulation outputs to interactive map and chart visualizations, enabling scenario configuration and user-driven model runs.

Real-Time Social Media Platform *Jan. 2025 – Mar. 2025*

- Designed and built a full-stack web app using React, Flask, and AWS EC2, supporting features like infinite scrolling, real-time updates, and double-click to like; optimized for 100+ concurrent users.
- Implemented a SQL database and REST API for user data management, including robust user authentication and session handling with Flask cookies, employing skills in cloud deployment and full-stack integration.