Andrew Shao

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Education

University of Michigan Ann Arbor, MI

Bachelor of Science in Engineering: Computer Science, GPA: 3.576 Dec 2025

- **Relevant Coursework:**
  Web Systems, Operating Systems, Distributed Systems, Applied Parallel Programming with GPUs, Computer Organization, Machine Learning, Natural Language Processing, Applied Linear Algebra, Discrete Math, Data Structures and Algorithms

Work Experience

Rockwell Automation Solon, OH

Software Intern May 2025 - Aug 2025

- Built an automated security tool in Python using GitLab CI/CD that integrates with the Black Duck API to scan Logix Designer projects, parse vulnerability data, and auto-generate Jira tickets, streamlining the reporting workflow and improving triage efficiency by ˜10%.
- Designed and implemented sample projects for the FactoryTalk Logix Echo SDK in C# using .NET 8, enabling customers to automate controller creation, tag manipulation, snapshotting, and co-simulation workflows in both Visual Studio and VS Code environments.
- Wrote robust unit and integration test cases in C++ and C# for AML and synchronization support in Logix Designer, enabling automated, continuous testing through Jenkins through a CI/CD pipeline, improving release confidence and system stability.

Sigwise Solon, OH

Software Intern May 2023 - Aug 2023

- Developed a motion-detection security camera Android application using Java, OpenCV, and Android Studio to provide a low-cost, on-device surveillance solution; implemented real-time video capture triggered by movement, dynamically adjusting recording duration based on detected motion intensity, and automatically saving video clips to the device's camera roll for easy access and later review.
- Implemented a responsive notification system using JavaMail API and SMTP protocols, sending real-time email alerts with time-stamped image snapshots and recorded video clips, enhancing home security by ensuring users receive immediate actionable updates upon motion detection.

Hyland Westlake, OH

Software Intern (PEEKE Internship Program) Jun 2021 - Oct 2021

- Created a full-stack web application to host the next Hyland Hackathon using React.js, Django, and SQLite designed to display relevant real-time announcements, chat messages, team data, and results in order, allowing the hackathon to shift to a hybrid format.
- Spearheaded the design and implementation of back-end data structures in Django to authenticate participants' login account data, register teams in the database, store live chat messages between teams and hackathon supervisors, and allow submissions to be uploaded and graded.

Projects

S-Watch: AI-Powered Movie Streaming Platform *GOLANG, GIN-GONIC, REACTJS, JAVASCRIPT, MONGODB, OPENAI*

- Developed a full-stack movie streaming platform with a React frontend and Go/Gin-Gonic backend, featuring secure token-based user authentication, RESTful API design, responsive UI components, and seamless media playback through React-Player integration across devices.
- Implemented an AI-powered recommendation system using LangChainGo and OpenAI to deliver personalized movie suggestions, supported by scalable data storage and retrieval with MongoDB and fine-tuned ranking algorithms for enhanced accuracy.
- Deployed the complete system to the cloud with Render for backend hosting, Vercel for the React client, and MongoDB Atlas for database management, demonstrating full lifecycle integration of a production-style, AI-driven web application.

Instagram Clone *PYTHON, FLASK, SQLITE, REACTJS, JAVASCRIPT, HTML, CSS*

- Developed a multi-user interactive social media website using Flask and SQLite, implementing server-side dynamic pages to support full CRUD operations for users, posts, comments, and likes, ensuring seamless functionality across multiple user interactions.
- Refactored server-side logic into a REST API to support client-side dynamic rendering, enabling asynchronous interactions via AJAX and optimizing page responsiveness as well as using user authentication and session management for secure account access.
- Utilized React.js to create a highly responsive front-end interface with features like infinite scroll, real-time like/comment functionality, dynamic post updates, user notifications, and optimized page load times, enhancing user experience and engagement.
- Tested the application through Bash scripts and deployed on AWS, managing server resources and ensuring scalability for high traffic loads.

MapReduce Framework & Search Engine *PYTHON, FLASK, REACTJS, JAVASCRIPT, HTML, CSS*

- Implemented a fully distributed MapReduce framework in Python utilizing multithreading, socket communication, and concurrency primitives to simulate scalable, fault-tolerant parallel data processing over a cluster of Worker nodes.
- Designed a robust Manager-Worker architecture featuring dynamic job scheduling, heartbeat-based Worker monitoring, task reassignment, and orderly shutdown protocols to ensure consistent and resilient system behavior.
- Constructed a multi-stage MapReduce pipeline to generate an inverted index over thousands of crawled HTML documents, computing tf-idf scores, document normalization factors, and PageRank link analysis metrics.

Skills

Languages: C++, C, Python, C#, Java, HTML/CSS/Javascript, XML, SQL, Bash, Go(Golang), MATLAB
Technologies: Git, GitLab, Unix, React.js, Flask, Django, Bash, Docker, Kubernetes, Jira, Agile Framework, CUDA, AWS, Jenkins, CI/CD