Michael Vertin
Software Engineer | Computer Science Graduate
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Summary

Computer Science graduate with a track record of solving complex technical challenges and developing optimized, scalable solutions. Experienced in API design, databases, and object oriented programming (OOP) using Python, Java, Flask, React, and Docker. Rapid learner with proven debugging and optimization instincts.

Education

Northern Arizona University - GPA: 3.73, Dean's List, Teacher's Assistant — Fall 2020 – Spring 2025
Bachelor of Science in Computer Science, Minor in Mathematics & Electrical Engineering

Skills

Programming Languages: Python, Java, JavaScript, C#, C++, C, TypeScript, HTML, CSS
Frameworks & Libraries: Flask, React, Node.js, Angular, Spring, JUnit, Javalin, Socket.IO, JDBC
Databases & APIs: SQL, REST APIs, API design and integration
Tools & Platforms: Git, GitHub, Docker, Docker Compose, AWS (EC2, S3), Linux, Windows, WebGL
Software Practices: Object-Oriented Programming (OOP), Debugging, Optimization

Work Experience

AI Code Reviewer - Data Annotation Tech — June 2025 - Present

- Designed programming prompts and tests to evaluate large language model (LLM) code generation.
- Conducted code reviews across Python, Java, C++, and JavaScript, identifying logic flaws, runtime errors, and inefficient implementations, and ensuring best practices (OOP, data structures, algorithm efficiency) are followed.
- Analyzed debugging and optimization techniques to validate software solutions and improve code quality.

Projects

Image Similarity Search | Python, JavaScript, React, Flask, Docker, AWS EC2 | SCA Image Search

- Built a web-based image retrieval application using Flask and React frontend.
- Used feature extraction and inner product similarity to compare 100,000+ visual documents.
- Deployed containerized backend and frontend services via Docker Compose and AWS EC2.

Robot Invasions | Unity, C#, WebGL | Github

- Designed and implemented a real-time tower defense game with dynamic wave difficulty using object-oriented design principles and event-driven game logic.
- Implemented gameplay balancing and state-based tower controls to manage gameflow.

Online Card War | Python, JavaScript, HTML/CSS, AWS EC2 | Github

- Developed a web turn-based multiplayer card game with Flask backend and JavaScript frontend.
- Implemented real-time session control and game logic using REST APIs, Python and JavaScript.

Finite Automaton Disproof | Proof/Theory | Github

- Identified and corrected a flaw in a professor's DFA impossibility proof method.
- Proposed a corrected more flexible approach with less restrictions.

Word Search Optimization | Python | Github

- Increased search performance by 550%-1300% in a competitive programming challenge through targeted data structure optimizations, controlled set insertion order.
- Applied probabilistic analysis to safely skip over complex insertions with high resource costs.

Halma Game Tournament | Python | Github

- Implemented dynamic depth control to maximize the use of the allotted time.
- Improved alpha-beta algorithm performance by shallow-sorting recursion order to decrease pruning conditions faster and place worse decisions towards the back of the search.