Michael Vertin

Software Engineer | Computer Science
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Education

Northern Arizona University – Flagstaff, AZ August 2020 – May 2025
Bachelor of Science, Computer Science
Minor in Mathematics and Electrical Engineering
GPA: 3.73, Dean's List

Skills

Languages: Python, C, C++, C#, Java, JavaScript/TypeScript, HTML/CSS
Tools/Platforms: Linux, Git, Docker, AWS Services (EC2), Angular, React
Databases/APIs: SQL, REST APIs, HTTP APIs, JDBC
Other Skills: Debugging, Data Structures, Algorithms, Optimization, Version Control, Agile

Experience

Full Stack Training, Revature August 2025 – Present
- Built two projects featuring database interactions and API development in Java, SQL, and Spring Boot.
- Learned data structures such as sets, maps, arrays, and linked lists, and how to apply them effectively in algorithms.
- Completed timed assessments implementing algorithms to test understanding of data structures and OOP.

Quality Assurance, DataAnnotation.tech June 2025 – Present
- Design prompts and tests to evaluate LLM code generation across a variety of languages and frameworks.
- Conduct code reviews to identify defects, logical errors, and inefficiencies, often involving edge cases.
- Validate data structure and algorithm best practices, ensuring correctness and maintainability.

Teacher's Assistant, Northern Arizona University Jan 2023 – May 2024
- Reviewed 3-5 programming projects each week featuring data structure implementation and algorithms.
- Produced detailed written feedback explaining issues, their impact, and recommended fixes, often clarifying theoretical CS concepts in context, similar to peer review.
- Assessed 100+ projects, building skill in spotting effective design patterns and common pitfalls.

Projects

SCA Image Search insight.library.nau.edu
- Delivered a production-ready image retrieval system on AWS EC2 in an agile client-facing environment.
- Integrated a Hugging Face AI model using python, javascript, and React to enable searches across 100k+ images.
- Improved search performance by over 300% by parallelizing HTTP requests to the client's database.
- Built microservices with separate APIs to build components atomically and to improve resource management.

Word Search Optimization github.com/MichaelVertin
- Achieved 550%-1300% performance improvement to place 1st in a class competition.
- Implemented a reverse-iteration strategy to allow early termination when existing prefixes are encountered, recognizing that future iterations would be redundant due to the uniqueness property of sets.

Halma Game Tournament github.com/MichaelVertin
- Won 1st place in a Halma tournament by implementing game-tree search optimizations such as shallow-sorting recursion to trigger alpha-beta cutoffs earlier.
- Designed an exponential-to-linear depth approximation model to maximize use of allotted resources.

Robot Invasion github.com/MichaelVertin
- Built a real-time C# tower defense game using design patterns, object oriented principles, and event-driven logic.
- Implemented dynamic difficulty scaling and state-based tower controls for balanced gameplay.