**ZACHARY WEST**

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# **EDUCATION**

**University of Alabama** May 2027

Bachelor of Science in Computer Engineering (Honors), Minors in Mathematics and Computer Science Tuscaloosa, AL

GPA: 3.91

Activities: Undergraduate Researcher under Dr. Omid Reyhani | Co-Founder of Alabama Competitive Programming

Relevant Coursework: Data Structures and Algorithms, Discrete Math, Theory of Probability, Electronics I

# **EXPERIENCE**

**HealthTrust** June 2024 – August 2024

Executive Intern Nashville, TN

* Reported to President & CEO, participated in executive meetings such as MORs, AI workshop, dashboard meetings
* Shadowed additional Executive Leadership including CPO, GPO CFO, Director of Information Security as well as the Supply Chain Financial Ops VP in various functions, meetings and projects

# **PROJECTS**

**Financial Foresight** | *Python, Flask, OpenAI API, SQLite, React, Next.js, Chart.js, Node.js Mar 2025*

* 1st Place Fintech Winner – UAInnovate Hackathon: Developed an AI-powered personal finance dashboard.
* Developed a custom prompt system (OpenAI API) for personalized financial advice and simplified complex terms.
* Designed and built an intuitive React/Next.js frontend featuring dynamic Chart.js visualizations.
* Built budget optimization microservices with Node.js and designed banker-friendly UI praised by judges.

**A Byte of History** | *Python July 2025*

* Designed and implemented a Python-based procedural world generation engine, producing unique 2D maps using string-based random seeds, Perlin noise, Voronoi seeding, and tectonic plate simulation.
* Generated altitude determined by Perlin Noise with influences from tectonic plate fault lines
* Visualized worlds with Matplotlib, featuring interactive zoom/pan and dynamic coloring
* Enabled reproducibility and variation through deterministic random seeding via string hashing, ensuring consistent world generation for identical inputs.

**Chess Game** | *C++ Apr 2025-Jun 2025*

* Engineered a playable chess game in C++ with an emphasis on OOP and bit manipulation, using bitboards for move generation, board representation, and rule enforcement.
* Implemented a move parser to handle algebraic notation input and generate move objects with correct metadata.

**Project Foundations Course** | *JavaScript, html, CSS, git Jun 2025-Jul 2025*

* Built a solid foundation in HTML5, CSS3, Git/GitHub, and JavaScript fundamentals through project-based learning.
* Developed and deployed multiple beginner projects, including a calculator, Rock-Paper-Scissors game, and a landing page.
* Gained experience with responsive design, developer tools, version control best practices, and modular JavaScript
* Practiced problem-solving via coding challenges and built habits of test-driven, maintainable code.

# **SKILLS**

**Languages**: Python, JavaScript, C, C++, HTML/CSS

**Concepts**: System Design, Backend, Fullstack, Microcomputers, Computer Engineering, Circuit Design, STM32 Arch