Ryan Zmuda

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EDUCATION

University of Dayton, Dayton, OH
Bachelor of Science: Computer Science **GPA***: 3.4* Expected Graduation: May 2026

SKILLS

- Programming Languages: C | C++ | Python | Java | C#
- Frameworks & Libraries: React | Svelte | Flask | SDL | Nuklear
- Software & Tools: Linux | Git | Docker | SQLite | Nginx | Systemd | CMake | gdb

WORK EXPERIENCE

Riverside Research Institute - Secure & Resilient Systems Intern   May 2024 – Present

- Attended DEF CON 32 as a semifinalist for the DARPA AI Cyber Challenge (AIxCC)

- Shaped and engineered a Cyber Reasoning System (CRS), capable of automatically identifying and patching Common Weakness Enumerations in codebases like SQlite and the Linux kernel

- Wrote inter-container communication tooling in python, to enable our CRS to report to competition infrastructure

- Used python to create modular automatic fuzzing and symbolic execution pipelines for AFL++, Syzkaller, and KLEE, which selectively instrumented binaries along previously identified paths from a program control graph

- Won an internal hackathon by creating a local LLM agent with python, Ollama and react, using RAG and function calling to assist employees with context sensitive requests

Riverside Research Institute - Secure & Resilient Systems Intern   May 2023 – August 2023

- Participated in research and design for a novel operating system structure, utilizing a dedicated kernel core

- Worked alongside another intern to implement user-space and kernel-space async system call support in C

- Assisted in drafting proposals for a new internal operating systems research initiative

PROJECT EXPERIENCE

***YoyoEngine - *** github.com/yoyoengine
- Implemented a general purpose 2D game engine and editor from scratch in ~15,000 lines of C

- Fully custom physics, Entity Component System (ECS), and a Lua scripting API

- Supports cross platform CMake builds between Linux, Windows, and the web

***Text To Gcode - *** github.com/zoogies/TextToGcode
- Created and published a python library with over 17,000 downloads to transform text into gcode for CNC machines

Handheld Gaming Hardware/Software
- Designed and manufactured multiple custom portable handheld consoles from scratch

- Each console had custom designed PCB, 3D printed cases, and Linux images

LEADERSHIP

University of Dayton Game Development Club - Founder and President   August 2024 - Present

- Founded, organized, and led a club of 15 students through competing in the GitHub Game Off 2024 Game Jam

- Joined the Engineering Club Student Council to work closely with the university to meet the clubs needs