Justin Bunryu Smith

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https://justynsmyth.github.io/portfolio-2023/

EDUCATION

University Of Michigan, Ann Arbor, MI ***2021 - 2025***
B.S Computer Science, *BMA Percussion Music Performance* GPA: 3.67

- Course Highlights: DSA, Linear Algebra, VR / XR, Distributed Systems, Web Systems, Computer Vision, Game Engine Design, Cybersecurity, GPU Parallel Programming
- Ongoing Courses: Operating Systems, Computer Game Design, Search Engine System Design
- Awards/Honors: Honors Distinction, Ruth Lobdell Scholarship (Academic), Everett Learnard Science Award

PROFESSIONAL EXPERIENCE

Boeing, Interaction and Collaboration Research Lab, Ann Arbor, MI
AGV-Interaction and Mass Evacuation Testbed Developer *May 2024 - Present*

- **Unreal Engine / C++:** Developed for two sponsored projects: a mass evacuation and a worker-AGV interaction testbed in VR. Optimized frame time performance of navigation system by 33% and designed data structures for data logging. Utilized KatVR omnidirectional treadmill to simulate a realistic environment.
- Leverage Remote Procedure Calls for server communication. Integrated ONNX Runtime within the testbed to run the neural network with custom Blender assets and eHMI vehicle animations based on the model's trajectory predictions.
- **Python / JS / HTML / CSS:** Created a web application to enable interaction with dynamic UI display and data recording

Level 9 Communications, Sanford, FL
Summer IT Intern and Web Developer *June 2022 - August 2022*

- **Python, Shell Scripting:** Automated routine package downloads for clients. Performed remote security tests to monitor, troubleshoot, and support IT assets remotely. Performed virtual machine leverage tests before deployment
- **React:** Integrated RESTful API with a team to display all documentation and video tutorials on the company's internal website for future onboarding employees

DANA INCORPORATED, Humboldt, TN
Engineering Intern, Robotic Systems Maintenance *June 2022 - July 2022*

- Reduced downtime for welding machines with new software to increase daily quota by 5%

ADDITIONAL PROJECTS/ORGANIZATIONS

Koppers Sponsor Computer Vision Team *January 2023 - Present*
Drone Inventory Management, Galesburg, IL

- **Python:** Led computer vision sub-team for object detection (YOLO) and custom character recognition model (98% accuracy) to reduce railroad tie inventory manual counting time to an hour for the entire inventory yard
- **Node.js:** Developed a web application to combine GPS zone tracking to aid drone navigation as part of the final deliverable

Multi-shot Paxos-based Key/Value Store Service November 2024 - *Present*

- **Go:** Created Paxos system for consensus replication with linearized operations. Used sharding to distribute stores across servers.

Custom Game Engine *January 2024 - June 2024*

- **Lua , C++** : Custom engine uses Unity-style internal components, Box2D, SDL, and Lua as scripting language
- Integrated OpenVR SDK and OpenGL (GLSL) library for 3D support and simple VR environment generation

OpenMI: Machine Learning Student Organization *August 2022 - April 2024*
ZoeDAM: Zero-Shot Monocular Depth Perception Model

- Improved depth estimation performance from ZoeDepth's original paper RMSE 0.270 to 0.206 by following Depth Anything's approach with ZoeDepth's encoder-decoder. Unlabeled pseudo-depth labels were used to train the model.

Full Stack Web Application *October 2023 - December 2023*

- **JS, Flask, React, AWS:** Built a scalable Instagram clone with an information retrieval engine using tf-idf, PageRank.
- Created a REST API that returns results, posts, and comments in JSON format for real-time data interaction

Zeta Pi Professional Tech Fraternity *April 2023 - Present*

- Conduct Interviews, part of a small committee organizing events each semester for 60 active members.

TECHNICAL SKILLS

Languages: C++, C, JavaScript, Python, C#, Lua, GoLang, Cuda **|** Dev Tools: Git, Jira, Docker, MySQL, VTune Profiler **|** Japanese (Fluent)