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, 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 two testbeds: a mass evacuation and a worker-AGV interaction testbed in VR. Optimized navigation system by 30%. Built a synthetic agent system with Behavior Trees to simulate worker behavior and crowd interactions with an autonomous vehicle in industrial environments.
- Leveraged Remote Procedure Calls for server-client 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 a dynamic UI display and data recording

Level 9 Communications, Sanford, FL (REMOTE)
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*
- Reprogrammed and reduced downtime for welding machines 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 (97% 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*
- Conducted Interviews with the recruitment and management division, organizing events each semester for 120 active members.

TECHNICAL SKILLS

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