Benjamin Datsko

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Education

University of Michigan – College of Engineering Ann Arbor, MI

Bachelor of Science and Engineering in Computer Science, Electrical Engineering Minor *Aug. 2021 - Apr. 2025*

- Courses: CS Theory, Computational Linear Algebra, Data Structures and Algorithms, Discrete Mathematics.

Experience [see more at datsko.dev]

Undergraduate Research Scientist Ann Arbor, MI

Michigan Integrated Circuits Laboratory – Flynn Research Group *Aug. 2022 – Present*

- Created low-noise power supply for integrated circuits testing leveraging LiPo battery cells; added comprehensive battery management system into C++-based real-time operating system; achieved signal clarity 2x cleaner than industry-grade power supplies for half the cost.
- Formulated 130,000-parameter computational neural network using PyTorch for real-time object recognition to test model-on-chip RISC-V machine learning accelerator (ASIC). **Pending IEEE journal publication.**
- Overhauled 40-GHz modulated RF signal source using high-resolution DAC, FPGA, and up-converter; leveraged MATLAB to produce circular single-tone, QAM, etc., sequences run on FPGA (configured in SystemVerilog).
- Revised multi-axis high-torque motor control calibration system for over-the-air testing of 64-element 28-GHz digital beamformer with MATLAB and Raspberry Pi. Designed, tested, and assembled two-sided motherboard interfacing with Kintex RF FPGA; implemented beamforming algorithm in VHDL. **Pending IEEE journal publication.**

Strategy/Software Engineer Ann Arbor, MI

University of Michigan Solar Car Team *Aug. 2022 – Present*

- Led project combining the University of Michigan Solar Car's four distinct simulators (C++ race simulator, Java fluid dynamics simulator, Unity vehicle dynamics simulator, and Python weather simulator) into web application.
- Built a React front-end (using OAuth 2.0), four Flask-based simulator APIs, and an EJS REST API for interfacing with MongoDB container (Docker) to link user data to raw simulation output and statistical analysis results.

Gators STR Swim Team Head Coach Oxford, MI

USA Swimming *Apr. 2021 – Sep. 2022*

- Created training regimen and supervised training sessions, providing direct feedback to ∼250 athletes.
- Evaluated the effectiveness of programming through statistical analysis, witnessing growth in 90% of athletes.

Information Technology Intern Flint, MI

Hurley Medical Center - Main Campus *Jun. 2021 – Aug. 2021*

- Devised Shell scripts to automate disk encryption and perform proprietary operating system cloning.
- Performed hardware and software-level maintenance on medical devices, servers, and workstations.

Projects

High-Altitude Payload for UV Radiation Detection | *Arduino, Altium Designer*

- Engineered weather balloon payload system to conduct UV radiation intensity measurements at altitudes of 86,000 feet; data analysis provided crucial insights into long-term ozone degradation trends in southeast Michigan.
- Wrote C firmware based on Super-Loop architecture to gather GPS and sensor data and Python script to parse GPS NMEA strings, extract waypoint data, and plot 42-mile-long flight path (using Google Maps API).

Pathfinding Algorithm Visualizer | *Javascript, Adobe XD*

- Constructed a web application for visualizing four pathfinding algorithms (A*, Dijkstra's, BFS, and DFS) incorporating real-time start/end point editing and obstacle drawing with cursor; written in Vanilla JavaScript.

Microsoft Partner, Realms Contributor | *Java, Adobe Creative Cloud, Blender*

- Developed three licensed games for Minecraft Realms – *The Missing Sandwich*, *Annoying Ghosts*, and *Witchcraft and Wizardry* – utilizing Java, Adobe Creative Cloud, Blender; led team of six; garnered 600,000+ downloads.

Skills

Languages: C, C++, C#, Java, JavaScript, Unix, Python, Django, Swift, Rust, MySQL, NoSQL, Verilog, RTOS.
Technologies: Flask, Git, GraphQL, Kubernetes, LIDAR (feedback control), Machine Learning (OpenCV, PyTorch), Matplotlib, Node, NumPy, React, SCSS, TailwindCSS, WordPress, Azure, GSuite, Microsoft 365, Inventor, Altium.
Extracurriculars: U-M Club Swim Team, U-M Climbing Team, U-M Solar Car Team, U-M Rocketry Club (MASA).