

# Benjamin Datsko

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## EDUCATION

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### 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](https://datsko.dev)]

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### 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

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### 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

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**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).