Bryn Morgan

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Education

University of Michigan, *College of Engineering* **Ann Arbor, MI** *(2027)*
BSE in Mechanical Engineering, Minor in Electrical Engineering

- GPA: 3.5/4.0
- Course Highlights: Design and Manufacturing, Electricity and Magnetism, Programming & Data Structures

Relevant Experience

Avionics Hardware Lead @ Michigan Aeronautical Science Association **Ann Arbor, MI** *(2023-Present)*

- Designed, built, and tested:
  - Flight Computer: 4-layer STM32 PCB for valve control, pressure and temperature sensing, power monitoring, GPS and IMU recording, Ethernet, and LoRa radio telemetry
  - Thermocouple Signal Conditioning Board: 16-channel thermocouple converter PCB with integrated CJC
  - Signal Anti-Ghosting Board: 40-channel PCB to reduce signal impedance and improve system-wide sensor accuracy for use with multiplexed NI DAQ cards
- Owned the 80-channel, 200Hz electronic data acquisition and control hardware for MASA's engine hotfire campaign. This included adding hardware and configuring drivers for thermocouples and load cells, as well as live debugging and problem-solving issues with the hardware and drivers in mission-critical scenarios
- Managed the design and integration of a network of distributed custom PCBs for monitoring, control, live video transmission, and telemetry on MASA's next-generation rocket
- Educated and managed a team of 5-8 inexperienced freshmen and sophomores in board development, from ideation to manufacturing on a variety of mission-critical projects on tight timelines and budgets

ISSQUARED Inc. Internship **Chardon, OH** *(July 2023)*

- Prototyped an inventory management database and web app using MySQL and PHP
- Built infrastructure at the IS2 HQ, including whole-building networking and an 8'x16' video wall

International Science and Engineering Fair (ISEF), Physics and Astronomy Category (*May 2023)*

- ISEF Space Science Qualifier & CIA Special Award Winner
  - Designed, built, and tested an inexpensive (<$1000) DSLR-based photometry system, including a fully custom 3D-printed equatorial star tracker. After optimization and creating a processing workflow, the system was able to reliably function with the accuracy of >$1000 systems (~.01 magnitudes)
- National Junior Science and Humanities Symposium Oral Presentation 3rd Place Award in Physical Sciences

LSU Geophysics Internship **Baton Rouge, LA** *(June 2022)*

- Developed a ~50ft^2 CNC-controlled seismic testing chamber with Dr. Juan Lorenzo
- Wrote control software in Python to interface with LinuxCNC and run automated test sequences
- Calibrated and tested the chamber to prepare for experiments, and wrote documentation for future users

Leadership Experience

Eagle Scout, BSA Troop 195 **Chesterland, OH** *(2014-2023)*
Eagle Scout, Senior Patrol Leader, Scribe (Secretary), National Youth Leadership Training, Wilderness First Aid

Additional

- **Skills:** Board Bring-up, Circuit Design, Electronics Systems Architecture, Altium, Project Management, Technical Communication, Python, C++, Navigational Systems, Web Development
- **Hobbies/Interests:** Canoeing, Backpacking, Landscape Photography, Running