Margeaux Corrigan

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EDUCATION

Brown University, *Sc. B. Electrical Engineering*, 4.0/4.0 GPA — Providence, RI | **Expected Graduation May 2029**
Relevant Courses**:** Ordinary Differential Equations, Functional Programming, Statics & Dynamics, Data Structures & Algorithms
University High School, 4.0/4.0 GPA — Irvine, CA | Class of 2025
Irvine Valley College – Dual Enrollment, 4.0/4.0 GPA — Irvine, CA | 2025
University of Cambridge & University of Oxford Programs (In-Person) — Cambridge & Oxford UK | 2020-2023

TECHNICAL SKILLS

Programming: Ada (embedded), C/C++, Python (NumPy, Pandas, Matplotlib), MATLAB, Java, Racket, HTML/CSS
Embedded Systems: Bare-metal firmware (RP2040, STM32); register-level peripheral configuration; I2C/SPI driver development. Sensor integration (SHT3x, BMP390, LSM9DS1), SPI flash (W25Q128), data logging, and hardware bring-up.
Engineering: CAD (SolidWorks, Fusion 360), FEA (SolidWorks), CAM, Wiring & Soldering, 3D printing, Sheet metal fabrication

RESEARCH

Incoming at Interactive 3D Vision & Learning Lab (IVL), *Paid Researcher* — Providence, RI | Summer 2026
Advisor: Srinath Sridhar, Assistant Professor | Brown University

- Planned work on investigating multi-camera capture and calibration systems using C++ and embedded hardware

INDUSTRY EXPERIENCE

AdaCore, *Technical Mentorship* — Providence, RI | April 2026 - Present
Mentor: Oliver Henley, UX Engineer | AdaCore

- Developed bare-metal Ada firmware for STM32G431 using register-level coding (RM0440/SVD), without HAL abstraction
- Parsed ARM SVD/XML files to map peripheral registers and translate hardware specifications into Ada drivers
- Built working toolchain (Alire, OpenOCD, CMSIS-DAP) from scratch; progressed from Ada syntax to hardware bring-up

Persistence Labs, *Strategy Intern* — Charleston, SC | May 2024 – October 2025

- Facilitated beta testing with high school control groups, collected feedback across 10+ iterations to identify usability issues
- Synthesized testing results into reports and presented findings to the founder/CEO, guiding UI and product design decisions
- Collaborated with AI engineers to communicate user insights, ensuring development aligned with user experience goals

MIG3 Inc., *Technical Assistant* — Irvine, CA | May 2022 – August 2025

- Provided technical support for office applications, improving staff workflow efficiency with troubleshooting and guidance
- Developed an Excel data management system with formulas, organization, and reporting tools to streamline operations

LEADERSHIP & ACTIVITIES

Brown Rocketry Club, *Avionics Team Lead* — Providence, RI | September 2025 – Present

- Contributed to Brown Rocketry's first-ever IREC acceptance as sole avionics developer on the competing payload
- Designed avionics electrical architecture and wiring diagrams for power distribution, sensor interfaces, and flight systems
- Performed FEA on avionics bay components and developed CAM-based manufacturing plans in Fusion 360
- Secured annual industry sponsorship by leading partner outreach and presenting club technical work to external stakeholders

Brown Space Engineering, *Antenna Team Member* — Providence, RI | September 2025 – Present

- Leading antenna specification for the communications subsystem, including Nitinol dipole and copper patch designs
- Establishing feed architecture, impedance matching strategy, and EMC constraints on adjacent and connected hardware

AI & Robotics Ethics Society, *Research Team Member* — Providence, RI | September 2025 – Present

- Designing a survey and assessment to evaluate the effectiveness of Brown's Socially Responsible Computing curriculum
- Collaborating with the Computer Science Department and teaching assistants to collect and analyze student feedback

Project Amplify, *Founder & Director* — Irvine, CA | May 2024 – September 2025

- Founded a summer AI literacy program across 3+ districts, designed and taught curriculum from scratch
- Taught students to train basic image recognition AI using Python, introducing coding and model evaluation with Pandas/NumPy

ENGINEERING PROJECTS

Rocket Payload Sensor System, *Sole Designer* — RP2040, Ada | February 2026 – April 2026

- Designed and implemented bare-metal Ada firmware for an RP2040-based multi-sensor rocket payload, mentored by AdaCore
- Deployed payload on a live high-power rocket launch; firmware logged continuously, validating system under real G-loads
- Integrated BMP390, & LSM9DS1 over I2C at 100 Hz in testing; implemented register-level config and data acquisition
- Implemented W25Q128 SPI flash driver for onboard data logging; validated full write/erase/read-back pipeline on hardware
- Resolved hardware bugs including I2C addressing, SPI full-duplex clocking, UART data loss, and power sequencing

Temperature-Controlled Fan with LED Display, *Class Project* — Arduino | September 2024

- Designed embedded system reading temperature sensor input and controlling fan state using Arduino firmware
- Built and debugged hardware circuit integrating sensor, display module, and microcontroller control logic

AWARDS & GRANTS

Brown UTRA Research Award, Summer 2026 | Taco Bell Ambition Accelerator Grant, April 2024