Michael Danley

EDUCATION

Duke University **Durham, NC**
B.S.E. in Electrical and Computer Engineering | B.S in Computer Science *Expected: May 2029*

GPA: 4.0/4.0 **| SAT:** 1550/1600 | **ACT:** 34/36
Skills: Java, C++, Python, Circuit Analysis, PCB Design, CAD, CAM, Fusion 360, KiCAD, VS Code, Github, Soldering, 3D Printing, Laser Cutting, CNC Manufacturing

EXPERIENCE

Duke AERO **Durham, NC**
Avionics Engineer, Liquid Propulsion Engineer *August 2025 – Present*

- For the avionics team, currently developing live video transmission for 25-26 IREC 30K SRAD rocket competition
- Researching RF communication standards at various frequencies—including 1.3 GHz, 2.4 GHz, and 5.8 GHz—while testing and iterating both analog and digital video solutions for the final rocket design
- For the liquid propulsion team, currently developing valve interface and sensor sampling PCB for propulsion test platform
- Implemented design techniques to minimize buck converter noise generation, crosstalk, and coupling

Project ORCA **Durham, NC**
Electrical Design Lead *August 2025 – Present*

- Designed electrical circuitry for marine research system that emulates real-time environmental light intensity inside incubation vessels, developing two-part IP54-compliant solution with ESP32-based sensor module utilizing dual VEML7700 lux sensors and Raspberry Pi Zero 2 chamber module for LED modulation
- Implemented RS-485 differential serial communication protocol over RJ45 twisted-pair cabling to achieve reliable long-distance data transmission with superior EMI immunity, capable of maintaining long distance signal integrity
- Worked with the rest of the engineering team (software, documentation, construction, etc.) and met with the client to discuss design criteria and iterate ORCA design

FIRST Tech Challenge Robotics **Greensboro, NC**
Team Captain *August 2021 – May 2025*

- Reorganized team structure and implemented agile project management methodologies to improve workflow efficiency, coordination between subsystems, and iterative design processes.
- Also served as Programming Lead (2023) and Mechanical Design Lead (2024) for FTC team 5795 Back to the Drawing Board, managing cross-functional team development and competition strategy across multiple disciplines
- Programmed a custom control system that won the 1st place programming award (1st Control) at the FTC State Competition
- Mentored students in Java programming fundamentals and CAD modeling, developing training materials and hands-on workshops to build technical capabilities across both the team and other teams

ECG Rocketry **Greensboro, NC**
Co-Founder & President *August 2023 – May 2025*

- Co-founded and led the ECG Rocketry club as Vice President (2023) then President (2024-2025), organizing weekly meetings and coordinating multiple competition teams including TechRise, Cubes in Space, and The American Rocketry Challenge
- Served as Design Lead for TARC Team 834 Rocket Racoons, developing model rocket designs using OpenRocket modeling software to optimize aerodynamic performance
- Managed procurement of rocket components and materials, led hands-on build meetings teaching members CAD modeling, OpenRocket simulation techniques, and model rocket construction methods, and coordinated competition travel logistics

INDEPENDENT PROJECTS

Urban Scooter Project **Durham, NC**
Project Lead *August 2025 – Present*

- Leading design and development of ultra-portable lightweight scooter prototype using advanced materials including carbon fiber and aluminum to achieve 30% size reduction when collapsed
- Managing team through fabrication phase and coordinating funding applications while conducting iterative FEA analysis in Fusion 360 to optimize structural components for weight reduction and safety