Nicolas Miller

nbmiller2@crimson.ua.edu|215.805.6224|linkedin.com/in/nick-miller3|NickMillerPortfolio.info|Tequesta, FL

EDUCATION:

The University of Alabama – College of Engineering — Tuscaloosa, AL
Bachelor of Science in Electrical Engineering — **Expected Dec 2025**
Major: Electrical Engineering; Minor: Mathematics

- Specialization: Power Systems
- Honors: Sigma Pi Values Award, Innovation Award – Capstone Design

EXPERIENCE:

Lusco Technologies — Tuscaloosa, AL
Hardware Engineering Assistant — Aug 2024 – May 2025

- Built a real-time financial data terminal using the Orange Pi, enabling sub-250ms streaming for 100+ tickers by integrating Python back-end scripts with a Command line interface dashboard
- Diagnosed and resolved remote terminal unit system issues (Wi-Fi instability, thermal throttling) by configuring OpenWrt and optimizing polling logic, improving uptime reliability by 40%
- Collaborated with the founding engineer to streamline hardware layout and debug I/O issues, contributing to a manufacturable and serviceable pre-production model

PROJECTS:

Hydrogen Fuel Cell Generator

- Designed and assembled a hydrogen electrolysis system to demonstrate clean energy generation principles, powering a DC load with zero emissions
- Produced and stored over 100 mL of hydrogen gas via water electrolysis using a 12V DC supply, enabling multiple 20-minute power cycles for a small fan and LED load
- Integrated a 0.5W PEM fuel cell into the system to convert hydrogen into electricity, achieving stable output of 0.6V and validating low-power renewable energy conversion

Machine Learning YOLO Microplastic Detection — Tuscaloosa, AL
Team Captain — Jan 2025 – Present

- Increased detection accuracy of microplastic fibers by 80% by leading the integration of a YOLOv8 object detection model trained on synthetic image data and real-time camera input
- Achieved 90%+ model validation accuracy on test data via augmented training with varied lighting, microfiber orientation, and bundled fiber scenarios
- Led a 4-person interdisciplinary team and delegated tasks across machine learning, mesh filtration, image preprocessing, and final detection and verification modules

SKILLS:

- **Electrical Systems**: Single/three-phase systems, Per-Unit Analysis, Transformer Modeling, Fault Analysis, Transmission/Distribution Systems, Basic Understanding of SCADA Systems
- **Engineering Software**: MATLAB, PowerWorld, ETAP, PSpice
- **Programming Languages**: C, C++, Assembly, Python
- **Lab & Hardware Tools**: Oscilloscopes, Function Generators, Delta/Y Power Systems, Power Benches
- **Technical Analysis**: Circuit Simulation, System Modeling, Transient Response, Load Flow Studies, Root Cause Analysis (RCA)

CERTIFICATIONS:
OSHA 10-Hour General Industry, FE Electrical and Computer Exam (Scheduled), Project Management Professional (PMP) – (Application Approved, Exam To Be Scheduled), ETAP Certificate (Udemy),
Lean Six Sigma: White, Yellow, Green (Completed); Black Belt (In Progress)