Jacob Menachery

Ellicott City, MD 21043 | (443) 900-4200 | jmenac0932@vt.edu

https://github.com/KidInASquid | https://www.linkedin.com/in/jacob-menachery

Education

Virginia Tech, Blacksburg, VA | B.S. in Electrical Engineering GPA: 3.0 | Fall 2024 - Fall 2027 (expected)

Howard High School, Ellicott City, MD | GPA: 4.4 (Weighted) | Graduated May 2024

Skills

Programming: Python, C++, Java, Embedded C, VHDL/Verilog

Manufacturing: CNC machining, Sintering & Deposition 3D printing, PCBs

Software: KiCAD, Etap, AutoCAD, Revit, Autodesk Fusion 360, Solidworks, MATLAB, MS Power Automate, Bluebeam

Experience

Low Voltage Lead - VT SolarCar August 2024 – Present

- **CAN Bus Distribution Board (Fall 2024):** Created a PCB to distribute 12V, CANH, and CANL from a single input to six automotive-grade connectors. Designed in KiCad and tested for power and signal reliability.
- **CAN-Based Steering Wheel Controller (Spring 2025):** Engineered an STM32-based embedded CAN device to consolidate steering wheel functions (e.g., indicators, cruise control). Replaced traditional wiring with a four wire CAN interface.
- **Battery Management System (Fall 2025):** Creating a new Battery Management System for the car. The system will monitor voltage, current and temperature, and directly interface with our existing CAN System from last year.
- **Battery Chemistry Research (Fall 2025):** researched and tested a variety of different battery chemistries for the new regulations trying to optimize our design for weight and cost.
- Authored complete documentation including schematics, firmware, and user manuals on GitHub.

Undergrad Research Assistant - NEEC Phased Radio Array Project September 2025 – Present

Advisor: Prof. Brad Davis - Virginia Tech Hume Center for National Security

- Developed array control and beamforming code, enabling configurable phase and amplitude control across array elements.
- Wrote visualization software to generate beam pattern plots, supporting system validation and performance analysis.
- Designed and iterated on PCBs for array modules, building upon prior-generation designs to improve modularity and integration.
- Collaborated closely with faculty and researchers in a secure research environment, integrating firmware, hardware, and signal processing workflows.

Electrical Engineering Intern – KCI Technologies, Fulton MD June 2025 – August 2025

- Worked in a team of engineers in a Building Design firm based in the Maryland/Virginia area.
- Learned about the process of conducting Arc-Flash studies in Etap and extracting necessary safety labels and data for each site.
- Gained experience with industry standards and common practices in Etap, Revit and AutoCAD.
- Created automations using Python scripts to help automate processes and manage project folders

First Robotics - 17394 Howard Robotics September 2021 - May 2024

- **Captain & President (2023-2024):** Led team operations, mentored members.
- Designed, tested, and optimized systems and strategies for each year's competition.
- Fostered teamwork and collaborative problem-solving.
- Hands-on experience with CNC milling and CO2 laser engraving.
- Developed functional prototypes from the research stage to final benchmarking.