Nathan Care

Boone, North Carolina

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SUMMARY

Embedded Systems Engineer with a strong foundation in hardware development and experience in creating low-power data loggers and embedded systems for solar vehicles. Proficient in embedded programming, hardware design, and collaborative problem-solving within engineering teams.

SKILLS

C/C++, Python, I2C, SPI, UART, Embedded Systems, Hardware Development, Debugging, Electronics, Circuit Design, Team Collaboration, Real-time Operating Systems (RTOS), Motor Control Algorithms, Digital Signal Processing, Git, PCB Design

WORK EXPERIENCE

Team Sunergy **Aug 2022 - Present**
Embedded/Electrical Lead *Boone, North Carolina*

- Assisted in the development of a low-power data logger for a solar car, enabling real-time monitoring of the car's battery, solar array, and motors.
- Collaborated to design and implement a robust CAN bus network for seamless communication between the data logger and the car's systems.
- Led the design and development of the car's state machine, dynamically controlling system activation based on the car's current state.
- Worked within a team to design and develop PCBs, including microcontroller and power distribution boards.
- Oversaw the design and implementation of all electrical systems in the car, ensuring optimal performance.

PROJECTS

State Machine

- Developed a state machine in C/C++ using an STM32 microcontroller, integrating data from various components including MPPTs, BMS, and motor controllers.

CAN Logger & Telemetry Recorder

- Developed a CAN bus logger and telemetry system using a Raspberry Pi, creating a user interface for real-time data display and transmission via XBee RF transceiver.

CS Home Assistant

- Created Project Nebula, a custom-built Home Assistant in Python with an SQL database, featuring text-to-speech and speech-to-text capabilities.

EXTRACURRICULARS

ASCII (Appalachian Society of Computer, Informatics, and Innovation)

Robotics Club

Solar Vehicle Team
Electrical/Embedded Lead

Hackathon

- Placed 2nd in Hackathon.

EDUCATION

Appalachian State University **Aug 2020 - May 2026**
Bachelor of Science in Computer Science