LUKE NELSON

419 Hamilton Place, Ann Arbor, MI 48104
(734) 892-6993, lukenels@umich.edu, lukednelson.com, github.com/ldnelson16

EDUCATION

University of Michigan College of Engineering   **Ann Arbor, MI**
Bachelor of Engineering in Computer Science, Minor in Economics   *Graduation: May 2025*
GPA: 4.00/4.00
Course Highlights: Computer Organization • Data Structures and Algorithms (Python/C++) • FPGA/Logic Design •
Principles of Matlab and C++ • Intro to Autonomous Electric Systems • Discrete Mathematics •
Multivariable and Vector Calculus • Differential Equations • Linear Algebra

SKILLS AND ASSETS

Proficiency in Programming/HDL Languages: C++, Python, Verilog, C, JavaScript, HTML5/CSS3, MATLAB, R, Julia
Software/Hardware: Git/GitHub, Visual Studio Code, Node Project Manager, SQL, React, Linux, FPGA, Raspberry Pi
Skills:
- Proficient in low-level software development, focusing on system programming, operating system internals, device drivers, and embedded systems development.
- Experienced in using Verilog and hardware description languages (HDLs) for designing and developing hardware components, including FPGA and ASIC designs, as well as simulation and verification using ModelSim and Synopsys.
- Skilled in using Python for automation, simulation, data processing, verification, and validation purposes.
- Fluent in C++ and C with a focus on building efficient, high-performance, low latency software solutions.

WORK EXPERIENCE

Keysight Technologies   **Novi, MI**
Network Test / R&D Engineer   *December 2023 - Present*
- Automated Automotive Ethernet Testing: Developed scripts and frameworks to automate test processes utilizing Novus test platforms and external devices (generally IoT's), simulating real-world automotive Ethernet scenarios.
- Enhanced Link Layer Security for Automotive Networks: testing and automating processes at the OSI model's Data Link Layer, specifically implementing and validating enhanced security protocols for in-vehicle communication networks.

COLLABORATIVE PROJECT EXPERIENCE

CANTOR - Coding and Trading Club   **Ann Arbor, MI**
Natural Language Processing Team Programmer   *August 2023 - Present*
Applied advanced data collection, preprocessing, and machine learning techniques to derive key insights from financial news, designed user-friendly interfaces, and deployed stock analyzers and market predictor tools for enhanced decision-making across diverse financial markets.

SPARK Motorcycle Electric Racing   **Ann Arbor, MI**
Software Engineer, Data Sub-Team Programmer   *January 2023 - Present*
- Designing and programming a comprehensive diagnostic and data display system, enabling riders and technicians to monitor critical performance metrics such as battery health, motor temperature, and power consumption.
- Developing and integrating a real-time telemetric front-end enabling SPARK's electric motorcycle to communicate its diagnostic data for remote access by users through a web app.

Autonomous Electric Systems   **Ann Arbor, MI**
Programmer   *August 2022 - December 2022*
- Developed a Python PID script to seamlessly integrate three-dimensional LiDAR sensor data, enhancing the precision of an autonomous quadcopter's navigation within a challenging cave environment. Ensured seamless obstacle avoidance, autonomous navigation, and proficient grid mapping in an Unreal Editor environment.

INDIVIDUAL PROJECTS / PORTFOLIO

Website - www.lukednelson.com
C++ Euchre Game Simulation Project
- Implemented object-oriented C++ programming using Abstract Data Types, Derived Classes, Inheritance, and Polymorphism to create a dynamic Euchre game simulation with support for both AI and Human players.

The Atlas Project - github.com/ldnelson16/atlas
- Utilized Selenium-based web scraping to gather and analyze academic data from the University of Michigan's ATLAS platform, workload balance and optimizations, & personalized elective recommendations through a user-friendly GUI.

ORGANIZATIONS / ACCOLADES

Eta Kappa Nu - ECE Honor Society	*Sep 2023 - Present*
CANTOR - Coding and Trading at UMICH	*Sept 2023 – Present*
SPARK Electric Racing	*Nov 2022 – Present*
Eagle Scout, Senior Patrol Leader, BSA Troop 1537	*June 2020 - May 2022*