MICHAEL ORSCHELN

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PROFESSIONAL SUMMARY

Computer Engineer with a strong foundation in hardware and software engineering, particularly embedded systems, electronics and computer architecture. Hands-on experience with programming microcontrollers, sensors, digital systems design and developing software solutions. Self-taught full stack engineer, proficient in many modern frameworks and libraries for data automation and API integration. Skilled at understanding and analyzing complex problems to develop and implement innovative solutions. Proven ability to collaborate effectively with cross-functional teams to drive project success. Known for strong people skills and a natural drive to make connections, fostering a cheerful and productive work environment. Committed to continuous learning and professional development, with a passion for integrating technology to create cutting-edge products that make an impact.

- C & C++ Programming
- Embedded Systems
- Hardware Design
- Robotics
- Software Development
- Linux & Unix
- Adaptability
- Team Collaboration
- Problem-Solving

OVERVIEW OF KEY ATTRIBUTES

- **Embedded Systems |** Well-versed in programming and debugging real-time operating systems with platforms such as ARM ST Micro, PIC and Arduino. Strong understanding of memory performance, clocks, CPU architecture, communication protocols (AHB, APB, AXI, UART, SPI, I2C, VGA, Ethernet) and more
- **Software Development |** Versatile in all levels of software including programming using assembly language programming, high-level language programming (C, C++, Python, Java) to design applications and optimize performance with algorithms and artificial intelligence
- **Hardware Design |** Experienced in ASIC, SoC, FPGA RTL design, simulation, and verification in Verilog and VHDL using Xilinx Vivado and Intel Quartus
- **Robotics |** Lead design and integration of localization subsystem for robotics competition by using real time sensor data with ROS and Linux. Experience building custom ROS drivers to interpret sensor data for real-time robot positioning via SLAM. Used Kalman Filter to improve accuracy of yaw, pitch, roll orientation

PROFESSIONAL EXPERIENCE

RLS Solutions | ***Remote*** **July 2024 – Present**
Software Developer

- Streamlined the migration processes of 650+ products and content management system (CMS) data via Python, GraphQL, and Shopify REST API to 100% eliminate manual data entry automating 120+ hours of manual data entry
- Developed web, iOS and Android applications using React JS/Native, working closely with other developers, focusing on backend integration and user interface component modularity, enhancing app functionality

Repario | ***Remote*** **May 2023 – August 2023**
Digital Forensic Intern

- Analyzed digital evidence, from various devices including 9 different forensic tools, for use in litigation
- Collected and automated the processing of 4776.32 GB of forensic data for eDiscovery throughput

SALTO Systems | ***Oiartzun, Gipuzkoa, Spain*** **June 2022 – August 2022**
Project Management Intern

- Identified 3 Apple Wallet cross-functional pain points and revised product roadmap supporting successful launch of new platforms
- Designed onboarding courses delivered to 64 global business units reducing onboard load by 45% thus driving sales performance and growth into new markets
- Supported cross-functional team integration of 3 different product lines, working closely with technical managers from SALTO and Apple Inc to improve business alignment

Charter Capital Management, Inc. | ***Boston, MA*** **May 2021 – June 2021**
Associate Intern

- Developed fully responsive website with analytical tools resulting in a 152% increase in organic search traffic
- Evaluated real estate investment projects using comparative and cash flow analysis supporting 10 acquisitions with total valuation of $233 million
- Reduced market research workload for residential property acquisitions by 75%

PROJECTS

Robotics Localization Lead | ***IEEE SoutheastCon Hardware Competition*** **August 2023 – March 2024**

- Engineered fully autonomous robot with the ability to complete a series of tasks to send supplies to space
- Worked closely alongside 5 team members to integrate the drive train, power, and edge computing subsystems to be used in Robot Operating System (ROS)
- Lead localization subsystem which helped the robot understand its position and orientation by using gyroscope sensor data interfacing with NVIDIA Jetson Nano. A Kalman Filter and other mathematical models improved data accuracy to be within 1 degree for all 3 axes (yaw, pitch, roll)

FPGA-Based Designs | ***Digital System Design*** **August 2023 – December 2023**

- Created a snake game using the Basys3 board featuring VGA interface for display output and pushbutton controls with debouncing routines. Configured onboard oscillator for proper pixel clock to drive VGA signal, ensuring each pixel is displayed at the correct time and within the frame
- Pipelined a multiplier/adder data path to improve performance by adding pipeline registers.
- Designed a UART receiver and transmitter supporting multiple baud rates, pipelining, and overrun detection Implemented status/control registers for managing data and simulation using custom Model Sim test benches

Embedded Light Intensity System | ***Microcomputers*** **November 2022 – December 2022**

- Programmed PIC24 microcontroller to sample analog voltage inputs from a photocell every 50 milliseconds, using a 32-bit timer-driven interrupt to control input sampling and 8-bit light intensity variable

EcoCAR | ***University of Alabama*** **November 2020 – April 2021**

- Utilized MATLAB and Simulink to simulate energy efficiency of the team's modified 2019 Chevy Blazer
- Designed energy consumption plan to test 4 drive cycle variations and proposed strategy to propulsion controls and modeling sub team and all technical team leads

EDUCATION

University of Alabama | Bachelor of Science (BS) Computer Engineering
Minors | Computer Science, Mathematics & Spanish
Coursework | Digital System Design, Electric Networks, Electronics, Linear Algebra, Data Structure & Algorithms

SKILLS

Proficiencies	C++, C, Assembly, Java, Python, Javascript, Typescript, HTML, CSS, GraphQL, MATLAB, Object-Oriented Programming, Verilog, VHDL, Xilinx Vivado, Intel Quartus, FPGA, ASIC, SoC, ROS, Cadence OrCAD, Git, Jira, Docker, Microsoft Office (Word, Excel, PowerPoint), Adobe Photoshop
Frameworks	React, React Native, Chakra-UI, Next.js, TailwindCSS, PyTorch
OS	Linux, Unix, MacOS, iOS, Windows, KaliLinux
Languages	English, Spanish
Other	Bash, x86, ARM, MIPS, Oscilloscopes, JSON, REST API, Agile, Visual Studio Code