RUTH MASSOCK

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Highly motivated professional with a strong background in programming, hardware design, and embedded systems. Experienced in developing both frontend applications and backend systems, with hands-on expertise in hardware-software integration, FPGA design, and system simulation. Recognized for academic excellence, STEM tutoring, and applied engineering projects involving real-time systems and digital logic design.

AREA OF EXPERTISE

- Programming: C, C++, C#, Java, Pascal, Python, MATLAB, HDL, VHDL, Verilog, JavaScript
- Hardware & Systems: Embedded Systems, FPGA Design, Digital Logic, Computer Architecture
- Tools: Quartus, QuestaSim, Code Composer Studio, Visual Studio, Multisim, Git/GitHub
- Web Development: HTML, CSS, JavaScript
- Operating Systems: Windows, Unix, Linux, MacOS, Raspberry Pi OS
- Certifications: Google IT Support

KEY ACHIEVEMENTS

- Dean's List (1x) and President's List (3x) for outstanding academic performance.
- Recipient of the Gadsden Education Foundation-Endowment Fund (2024).
- STEM Tutor at Knack, supporting peers in math, programming, and engineering concepts.

PROJECTS

Frontend Projects

- ***Calculator App:*** Built with HTML, CSS, and JavaScript, featuring real-time input/output. Designed an intuitive, user-friendly interface with interactive buttons for smooth calculations.
- ***Weather App:*** Integrated Open-Meteo API with responsive design and Celsius/Fahrenheit toggle. Added hourly forecast boxes and dynamic visuals for an engaging user experience.
- ***Numbers-to-Words Converter:*** Converted numerical values into words with a clean UI. Supported small and large number conversion with error handling for invalid inputs.

Backend & Systems Projects

- ***Robot Navigation:*** Implemented autonomous maze-solving on TI-RSLK MAX using MSP432 in C. Integrated motor control, sensor feedback, and real-time decision-making for reliable runs.
- ***Joystick-Controlled Stepper Motor:*** Designed motor controller on MSP430 with joystick input. Enabled precise directional and speed control with debugging functionality for optimization.
- ***Socket Programming:*** Built two-way client-server communication in C using multi-threading. Achieved seamless bidirectional messaging with non-blocking I/O for efficiency and reliability.
- ***VGA Controller:*** Designed FPGA-based video controller on DE-1 for dynamic color output. Implemented signal generation for resolution control and integrated HEX display for input feedback.

EDUCATION

Associates in Arts (University Transfer) — **Dec 2023**
Tallahassee State College — **GPA : 4.00**

Bachelor of Science in Computer Engineering — **May 2026**
Florida State University — **GPA : 3.84**

Relevant Coursework: Digital Logic Design, Computer Architecture, Advanced Microprocessors, Microprocessor-Based System Design, Signal and Linear Systems Analysis, VHDL, Statistical Topics for Electrical Engineers, Senior Design Project I and II, Object-Oriented Programming, Data Structures and Algorithms, Unix, Discrete Mathematics, Differential Equations, Computer Networks, Artificial Intelligence, Cybersecurity

ADDITIONAL INFORMATION

- **Languages:** English, French
- **Activities:** FGLSAMP Scholar, IEEE at FAMU/FSU Scholar
- I**nterest:** Embedded systems design, hardware-software integration, Advanced Mathematics