Thomas Bailey

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Looking to leverage skills in embedded systems, digital design, and software development for a co-op position in computer engineering, contributing to innovative, impactful projects. **Available 2025.**

EDUCATION

Rochester Institute of Technology, *Rochester, NY* **Bachelor Science, Computer Engineering, '27**

EXPERIENCE

Computer Engineering Co-op, ***MIDI Product Development, Smithtown, NY*** **January 2025-May 2025**
- Developed and tested embedded systems using Python, C, and Linux.
- Designed and built PCB boards using KiCad for product prototypes.
- Created technical presentations and documentation using Microsoft Office (Excel, PowerPoint, Word).
- Assisted in prototyping and product development through hardware and software integration.

Junior Technician, ***RIT Information & Technology Services*** **November 2022-May 2023**
- One-on-one customer meetings, discussing software/hardware/networking issues, responsibility for devices.
- Problem solving to determine the proper issue based on customer explanations, as well as to diagnose the proper solution.

Golf Pro Caddie, ***Philadelphia Cricket Club, Militia Hill, PA*** **May-August 2022, 2023**
- Effective communication and rapport-building, attention to detail and precision.
- Adaptability to deliver top-notch service, equipment maintenance, course management and strategy.

PROJECTS

MIPS Microprocessor | VHDL, Xilinx Vivado **January 2024-May 2024**
- Designed a pipelined MIPS processor in VHDL, integrating ALU, Register File, and multi-stage (Fetch, Decode, Execute, Memory, Writeback) pipeline for efficient instruction processing.
- Utilized FPGA hardware to build and design a full MIPS Processor in VHDL.
- Behavioral, Synthesis, and Implantation timing simulations were also demonstrated using Vivado.

Embedded Systems Servo Control Solution | ARM Assembly, C, KL05Z, UART **October 2022-May 2023**
- Engineered a high-precision servo positioning system using PWM and mixed language programming (C/Assembly) on the ARM Cortex-M0+ based KL05Z microcontroller.
- Implemented real-time digital-to-analog (DAC) and analog-to-digital (ADC) conversions for accurate servo control, achieving 5 distinct positions with 10-bit resolution.
- Implemented interrupt-driven UART for efficient I/O with assembly-level optimizations.
- Leveraged TPM (Timer/PWM Module), DAC, and ADC, for low-level hardware control and embedded system design.

Ball Color Sorting Puzzle Project | Python, Turtle Graphics **November 2022**
- Developed an interactive simulation in Python, enabling users to sort colored balls into specific containers using stack-based data structures for efficient object management.
- Animated the puzzle logic using Python's Turtle module to provide real-time visual feedback.
- Used custom stack operations to handle dynamic data interactions and optimize puzzle-solving processes.

Flower City Fundraising Charity Website | Java, Angular, Scrum **September 2023-January 2024**
- Implemented Maven API and Angular CLI with Java and HTML to create a company webpage.
- Featured donation capabilities, event scheduling/sign-ups, admin/user accounts, and a checkout cart.
- Worked in a team of 5, followed a SCRUM style plan, with a group GitHub.

SKILLS

Programming Languages: Python, VHDL, Assembly, C, Java, HTML/CSS
Software: LTspice, ModelSim, VSCode, Keil uVision, PyCharm, IntelliJ, Altera Quartus II, GitHub, Xilinx Vivado, MobaXterm, Microsoft Office Skills
Tools: Microcontrollers, FPGA, Breadboard, Oscilloscope, Signal Generator, Multimeter, Scrum, Agile
Other: Digital Circuit Design/Testing, Memory/Hierarchy, Embedded Systems, PWM Signal Generation, Finite State Machines, Transistors, Proficient Communication

EXTRA-CURRICULARS

Meal Preparation Event Organizer, Caring For Friends **November 2022**
- Organized a group meal cooking and packaging event partnering with a Philadelphia-based nonprofit.