

# 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

**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.

**Front Desk/Operations, LAFitness, Montgomeryville, PA, Henrietta, NY**

**June 2023-Present**

- Manage front desk, including member check-ins, and handling conflict resolution.
- Oversee opening and closing procedures, ensuring all facilities are maintained according to company standards and ready for member use, offering a positive gym experience.
- Engage in phone sales strategies to promote gym memberships and special programs.

## 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.