Paul Bessler

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EDUCATION

The University of Texas at Austin Expected Graduation: May 2025

Bachelor of Science in Electrical & Computer Engineering, Business Minor — *Cumulative GPA: 3.86 | University Honors*

Relevant Coursework: Computer Architecture, Algorithms, Operating Systems, Embedded Systems, Multicore Computing

EXPERIENCE

Embedded Software Engineering Intern — June 2023 – Aug. 2023
Keysight Technologies, Next Gen CPU Driver Team — *Colorado Springs, CO*
- Added graphing and data collection capabilities to the Oscilloscope debugging tool which increased debugging efficiency
- Exposed driver-level actions by making additions to the front end, API, and back end to improve testing workflow
- Gained proficiency in Agile using the Atlassian tool suite and full-stack development using WPF, C#, and C++

Vice President (formerly Student Technician) — June 2022 – Present
Texas Inventionworks, UT Austin — *Austin, TX*
- Managed 50+ staff members to coordinate shifts, training, and tours for 500+ students
- Provided training, advice, and consultation to students and faculty on engineering projects
- Operated and repaired a variety of manufacturing machines including 3D printers and laser CNC machines

Vice President (formerly Corporate Liaison) — May 2022 – Present
IEEE, UT Austin — *Austin, TX*
- Led a team of 17 officers to coordinate workshops, socials, and corporate events with 60+ attendees
- Consolidated and maintained the organization's relationships with external corporate contacts
- Organized corporate sponsorship planning and event logistics for 20+ events throughout the year

Research Intern — June 2022 – July 2022
Summer REU Program, UT Austin — *Austin, TX*
- Reviewed several research papers to quickly understand the background of the project and field
- Modeled stochastic computing using a Boltzmann Machine with Magnetic Tunnel Junctions using Python
- Solved NP-hard combinatorial optimization problems using MTJs to reduce computational time and energy
- Created and presented a research poster based on the resulting data (Available on LinkedIn)

Undergraduate Research Assistant — Jan. 2022 – Sep. 2023
Integrated Nano Computing Lab, UT Austin — *Austin, TX*
- Developed neuromorphic computing systems using Domain Wall-Magnetic Tunnel Junctions (DW-MTJs)
- Simulated devices in a spiking neural network and Boltzmann machine using Python
- Graphed and interpreted resulting data to develop insights on functionality and future improvement

PROJECTS

LC-3b | *Micro-Architecture, ISA, State Diagrams, Interrupts, Exceptions, Virtual Memory, C* — Jan. 2023 – Mar. 2023
- Implemented the functionality of the LC-3b according to the ISA and micro-architecture
- Expanded functionality by integrating interrupt, exception, and virtual memory support into the micro-architecture
- Developed proficiency with ISA, micro-architecture, and data path design

ECEBay | *Java, MongoDB, JavaFX, Multithreading, Socket Programming, and GSON* — Nov. 2022 – Nov. 2022
- Developed full-stack app for various clients to bid on auction items hosted through a server simultaneously
- Incorporated cryptography techniques for storing user and bid information in a MongoDB database

Machine Access Control | *PyPortal ESP32 Controller, Micro Python Environment* — Aug. 2022 – May 2023
- Led the development of a machine access system to be used in the engineering maker space
- Developed a state machine to improve the efficiency of the UI and backend
- Integrated card reader, AWS, and I2C communication to verify student and staff credentials

TM4C 2048 | *TI TM4C Micro-controller, C++, Eagle, UART Communication* — April 2022 – May 2022
- Designed and soldered a custom PCB, also employed interrupts, I/O register access, and memory management
- Utilized 128x160p LCD, headphone jack, sound buzzer, slide pot, joystick, IR receiver & transmitter, DAC, and ADC

TECHNICAL SKILLS

Languages: C/C++, C#, Java, Python, Assembly, HTML/CSS, WPF
Developer Tools: Git, Bitbucket, Jira, Jenkins, Visual Studio, Eclipse, MongoDB, Eagle, LTspice
Hardware: 3D Printing, Laser CNC, Soldering, Oscilloscope, Multimeter, Function Generator

ACCOMPLISHMENTS

Publication: Probabilistic Computing & MTJs: https://ieeexplore.ieee.org/document/9998481
Scholarships: Samsung Scholarship, HITEC Foundation, IEEE Leadership Scholarship, Rey Feo Scholarship, NSF Research Grant
Organizations: Institute of Electrical & Electronic Engineers, Society of Hispanic Professional Engineers, Texas Rock Climbing