

Samien Rahman

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EDUCATION

University of Texas at Austin

Expected May. 2027

Bachelor of Science, Electrical and Computer Engineering | GPA: 3.7

- **Relevant Coursework:** *Computer Architecture, Digital Logic Design, Embedded Systems + Lab, Data Structures, Algorithms, Linear Algebra, Circuit Theory, Signals and Systems, Differential Equations*

SKILLS

Programming Languages: Verilog, Embedded C, C++, Python, ARM32 Assembly, Java

Embedded Systems: JTAG, I2C, SPI, UART, GPIO, Timers, Interrupts

Hardware and Electronics: HDL, PCB Design, Oscilloscope, Micro Soldering

Tools and Platforms: Vivado, UEFI/SBIOS, ARM Cortex-M, Linux, Segger Ozone, EDK2, Git, KiCAD

EXPERIENCE

Embedded Firmware Engineering Intern

May. 2025 – August 2025

Lutron Electronics Company

Austin, TX

- Engineered redundancy communication protocol over GPIO, increasing reliability in daisy-chained system
- Utilized JTAG via J-Link for low-level debugging and memory inspection on ARM Cortex-M3 microcontrollers
- Designed serial protocol via interrupt-driven bit-banging in bare-metal C to redirect backup signals
- Reverse-engineered legacy firmware to maintain backward-compatible message routing

BIOS Firmware Engineering Intern

Jan. 2025 – May 2025

Advanced Micro Devices

Austin, TX

- Developed UEFI firmware drivers in C (EDK2) to capture in-band debug telemetry data and transmit to BMC
- Wrote PEI module to collect hardware registers, preserving critical error telemetry via Hand-Off Blocks
- Implemented DXE driver to retrieve and process error telemetry to preserve data for post-reboot analysis
- Created four drivers for EDK2 Redfish Client to transmit captured data to BMC via DMTF Redfish protocol

PROJECTS

Pipelined LC-3b Microarchitecture Simulator | *Computer Architecture, Pipelining, C* Aug. 2024 – Dec. 2024

- Wrote cycle-accurate five-stage pipelined LC-3b CPU simulator (Fetch, Decode, Execute, Memory, Writeback)
- Designed and integrated pipeline control logic, including hazard detection, stall insertion, and branch resolution
- Verified correction through simulation of assembly test programs

Wireless Split Ergonomic Keyboard | *Circuit Design, PCB Design*

Aug. 2023 – Jun. 2024

- Developed compact, reversible PCB layout using KiCAD, reducing manufacturing prices by 15%
- Interfaced Bluetooth using custom ZMK shield
- Programmed ZMK firmware to be deployed on Seeeduino Xiao nrf52840 development board

Astro Party Video Game | *C, C++, PCB Design, ARM32, Git*

Apr. 2024 – May 2024

- Interfaced buttons, ADC, DAC, and an LCD screen to recreate Astro Party game on MSPM0+ microcontroller
- Implemented IO drivers in C and ARM assembly for LCD display over SPI and ADC
- Configured IO interfaces using GPIO for buttons, ADC slide potentiometer, DAC speaker, and LCD screen
- Leveraged edge interrupts and GPIO inputs for physics calculations in game engine

Home Lab | *Linux, Python, Apache2, HTML/CSS, Git*

Dec. 2023 – Jan 2024

- Repurposed old computer hardware into robust Ubuntu Linux server, managing over 10 services at once
- Programmed Python scripts to convert Markdown and LaTeX notes into suitable files for HTML conversion
- Securely managed terabytes of photography by self-hosting cloud storage, enabling photo sharing with clients