Ali Hussein

(979) 661-3385 | ali.hussein24@tamu.edu | linkedin.com/in/AliHussein | Alihussein.Tech

Objective

Seeking hardware engineering internship opportunities in digital design, RTL development, and digital verification, with hands-on experience in Verilog, FPGA prototyping, and computer architecture.

Education

Texas A&M University – College Station, TX **May 2027**
BS in Computer Engineering | Minor: Mathematics *GPA: 3.1*

- Coursework: Digital logic and computer architecture; data structures & algorithms; C/C++ systems programming; circuit analysis & electronics.

Blinn College – Bryan, TX **December 2024**
Engineering Coursework *GPA: 3.92*

- Completed 52 credit hours of foundational engineering/math; earned Chancellor's List and Dean's List.

Skills

Languages:	Verilog, C/C++, Python, ARMv8 Assembly, HTML, CSS
Hardware/RTL:	Digital Logic, FSMs, FPGA Prototyping (Vivado), Computer Architecture, Cache/Memory Systems
EDA / Simulation Tools:	Vivado, Multisim, LTspice, GTKWave
Debug / Dev Tools:	Linux/Unix, Git, VS Code, `gdb`
Lab & Test Equipment:	Oscilloscope (MSOX3024T), Multimeter, Power Supply, Function Generator, Analog Discovery 2
Platforms:	ZYBO Z7-10, Raspberry Pi 4

Projects

LRU Cache Simulator

- Developed a configurable set-associative cache simulator reporting hit and miss statistics from memory traces.
- Designed an $O(1)$ LRU replacement policy with a hash map and doubly linked list to study miss-rate tradeoffs.

Single-Cycle ARMv8 CPU (Team Project)

- Contributed to design and integration of a single-cycle ARMv8 datapath covering fetch, decode, register file, ALU, memory, and write-back stages.
- Coordinated control-unit logic for R-type, load/store, and branch behavior through directed instruction testing and control/datapath tracing.

Motion Sensor Alarm (Team Project)

- Worked with a teammate to design an infrared-based motion and presence alarm activating a buzzer through comparator thresholding.
- Shared responsibility for circuit assembly, threshold calibration, and testing under varying ambient light conditions.

Banking Authentication Program

- Developed a C++ command-line banking authentication program supporting credential verification and robust input error handling.
- Debugged program defects through `gdb` breakpoints and step-through execution against automated test scripts.

Digital Combination Lock

- Created a 4-bit combination lock on the ZYBO Z7-10 with onboard switches as input code and LEDs indicating lock status.
- Verified correct on-board behavior by testing Verilog compare logic and documenting required waveforms and screenshots.

Experience

Academic Coach/Tutor, Blinn College – Bryan, TX **November 2023 - Present**

- Tutored 50+ Blinn/TAMU students in physics and math; delivered 100+ one-on-one and group sessions.
- Collaborated with students to create tailored study plans and explanations, improving exam readiness and conceptual understanding.

Team Leader, McDonald's – College Station, TX **January 2023 - August 2024**

- Led shift operations for a cross-functional team serving 300+ customers while training 20+ employees and coordinating peak-hour coverage.
- Resolved 20 - 50 customer issues per shift while maintaining throughput and team coordination.

Activities

Institute of Electrical and Electronics Engineers (IEEE) – Texas A&M Student Branch

- Participate in technical workshops and industry talks focused on electronics and computing topics (hands-on build sessions, professional development, and networking events).
- Apply workshop concepts to coursework/projects by practicing debugging workflows and design fundamentals relevant to digital systems and verification.

Society for Collegiate Leadership & Achievement (SCLA)

- Member of a leadership and career-readiness honor society; participate in structured professional development resources.
- Complete career-prep modules/certifications and portfolio-building activities aligned with internship readiness.