Morgan Huberty

Email | LinkedIn | Website - https://mhubert3.github.io/

Education

Johns Hopkins University *Expected May 2027*

Bachelor of Science in Computer Engineering

Relevant Coursework: Data Structures, Computer Fundamentals, Signals & Systems, FPGA Lab, Mastering Electronics
Honors: Childhood Cancer Canada STEM Biomedical Survivor Scholarship (2024)

Hardware Projects

Serial UART Communication Interface *VHDL*

- Implemented RS-232 serial transceiver with configurable baud rate for asynchronous bidirectional communication
- Interfaced with FTDI USB-UART bridge and verified timing/protocol compliance on hardware

I²C Serial Communication Interface *VHDL*

- Implemented an I²C master with start/stop conditions, ACK/NACK handling, and open-drain SDA/SCL signaling
- Tested data transfer with a PIC microcontroller and debugged timing behavior using incremental hardware validation

Software Systems & Architecture Projects

Cache Simulator C , *C++*

- Simulated a configurable set-associative cache (size, block, LRU/FIFO, write policies) that outputs hit/miss, cycle counts from benchmark traces

Key/Value Store *C++*

- Built a Redis-like in-memory K/V store with custom message serialization, multithreaded server (auto-commit & transactions with table-level locking), client utilities, and unit tests

Big Integers *C++*

- Implemented a BigInt class (vector<uint64_t> magnitude, bool sign) supporting arbitrary-precision add, sub, mul, div, bit ops, and hex/dec conversion, with comprehensive unit tests

DTMF Single Decoder *MATLAB*

- Decoded DTMF digit sequences using FFT-based tone detection and envelope segmentation

Experience

#iVoted Impact Concerts at SNF Agora Institute *May 2025 - Present*

Data Science Researcher

- Analyzed music-listener and voter-demographic datasets (RedistrictingDataHub, Geocorr APIs) to inform #iVoted interventions
- Built projection dashboard for voter registrations using Python, Excel, and tracked data from #iVoted interventions

National Society of Black Engineers *September 2023 - Present*

Vice President; previous Finance Chair

- Managed financial planning for chapter activities with $9K annual budget, including fundraising and sponsorship efforts
- Organized network of previous member alumni to maintain relations increase financial support for chapter
- Developed marketing materials to promote member engagement and outreach by leveraging digital platforms

Skills

Programming Languages: SystemVerilog, VHDL, C/C++, Python (NumPy, Matplotlib, Pandas), MATLAB, Bash

Tools: LTSpice, Xilinx Vivado, Git, Linux (Ubuntu), Docker, Vercel, Excel (VLOOKUP, Charts, Graphs)

Familiarity with x86-64 Assembly, RTL Design, Digital Verification, Protocol Implementation