Micah Weston

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Education

Northeastern University   Boston, MA | Aug 2023
Candidate for Bachelor of Computer Engineering and Computer Science   GPA: 4.00

Honors: University Honors Program, Dean's List (all semesters)
Activities: NU Computer Architecture Research Lab, NU Baja SAE, NU Sound, Competitive Programming Club, IEEE Eta Kappa Nu
Courses: Algorithms, Computer Architecture, Object-Oriented Design, Computer Systems, Fund. of Digital Design and Computer Organization, Embedded Design, Fund. of Networks, Fund. of CS 2, Discrete Structures, GPU Programming Basics with CUDA

Professional Experience

MORSE Corp | *C++ Software Engineer*   Cambridge, MA | July – Dec 2021
- Developed C++ software for a bare-metal MCU for aerospace integrated systems
- Integrated improved drivers to reduce halts by 80 percent in time sensitive real-time systems
- Upgraded project repository to Dockerized environment for Jenkins continuous integration pipeline
- Wrote Python code for data analysis scripts and utility software to support embedded systems

Freelance | *Embedded Software Engineer*   Las Vegas, NV | Apr – Aug 2020 & Dec – Jan 2021
- Generated C++ software for a digital color organ running from an ESP32 NodeMCU microcontroller
- Designed and implemented an automatic calibration system that balanced light amplitudes based on audio input
- Optimized software for memory efficiency, implemented improved algorithms for LED color assignment, and removed unnecessary branching in the hot path
- Migrated build process to PlatformIO while keeping backwards compatibility with Arduino IDE
- Generated dynamic color patterns from audio input processed by an FFT library to display through an LED display
- Implemented HTTP API accessible over WIFI that controlled settings and configurations on the color organ
- Instituted a soft Access Point to dynamically configure WIFI connection for the embedded device

Advanced Monitoring Systems | *Embedded Systems Engineer*   Las Vegas, NV | July – Aug 2020
- Improved organization of legacy code base through version control systems and secure online storage
- Validated hardware function and performance for embedded processors that controlled multiple sensors
- Created documentation for hardware/software interfacing and the upload process for embedded software
- Troubleshooted the wire connections for software upload from Atmel ICE programmer

Skills

Programming: C++, Go, C, Python, Haskell, CUDA, Java, Bash, Verilog
Applications: Git, Bash Shell, Vim, JetBrains IDEs, GitHub, GitLab, Bitbucket, Docker, VS Code, Jira, Jenkins
Technical: Linux, Mac, ESP32, SPI, I2C, Arduino, PlatformIO, Soldering, Atmel ICE

Project Experience

NU Computer Architecture Research Lab | *GPU Research Assistant*   Boston, MA | Oct 2019 – Present
- Developing code for a multi-GPU simulator built with the Go programming language
- Integrated support for V3 and V4 AMD GPU code object format to load kernel code into the simulator
- Research Translation Lookaside Buffer (TLB) design to increase hit rate through memory address coalescing
- Implemented the page migration process as an interface supported with unit tests
- Wrote Bash scripts to automate building, executing, and collecting data for hardware simulations

NU Motorsports Baja SAE | *Embedded Software Developer*   Boston, MA | Oct 2019 – Nov 2021
- Implemented team coding style conformance and standardized project structures
- Revived and updated Dynamometer software for updated ESP32 development framework
- Set up online GitHub organization to help coalesce team software for DAQ system and other devices

GPU Programming Basics with CUDA | *Final Project Competition, NUCAR Lab*   Boston, MA | Oct – Nov 2020
- Developed CUDA code for a Histogram Equalization image processing program ran with a Nvidia Kepler GPU
- Increased kernel execution speed by over 10% through use of Hillis-Steele Scan, shared memory, and few concurrent memory accesses
- Improved program speed by 25% through reducing the memory footprint and coalescing the remaining allocations
- Placed second as the only undergrad student in the class competition judged for program accuracy and speed