Israel Escobar-Camacho

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Security Clearance Level: Secret

Education

Carnegie Mellon University — Pittsburgh, PA
B.S. in Electrical & Computer Engineering — *Sep 2020 – May 2024*

Relevant Coursework: Computer Systems and Hardware-Software Interfaces, Introduction to Computer Systems, Introduction to Embedded Systems, Logic Design and Verification, Computer Architecture, Introduction to Computer Security, Structure and Design of Digital Systems

Skills

Languages: C/C++, Bash, Python, Intel Quartus, Java, TCL Scripting, SystemVerilog, RISC-V, x86-64, ARMv7-M

Software: Git/Github, Altera Quartus Prime, GDB, Intel Pin, Linux, UNIX, Windows, MacOS X, Autocad Eagle Matplotlib, Cadence Genus

Hardware: Manual Pick-And-Place Operator, Ociliscope, Logic Analzyer, Multimeter, Arduino, ARM Cortex M4

Work Experience

Motorola Solutions Inc. — Schaumburg, IL
Embedded Software Engineer II — *July 2024 – Current*

- Applied reverse engineering tactics, self-guided research, and critical thinking to provide customer-focused solution
- Utilized Radio Frequency traffic, JTAG, and company standard tools to debug embedded systems
- Depended on AES, HMAC-SHA256, and ARC4 knowledge to solve niche problems
- Documented future improvements, solutions, and self-guided findings to support team efforts

Intel — Hillsboro, OR
Pre-silicon IP Validation Intern — *May 2023 – August 2023*

- Developed and refactored dynamic Python scripts for new infrastructures to support my team efforts
- Self-taught architectural and design knowledge from documentation to apply Simulation Validation practices
- Communicated with my team daily for support, status reports, and extending my knowledge

Carnegie Mellon University — Pittsburgh, PA
Teacher Assistant for Principals of Imperative Computation — *May 2022 – June 2022*

- Supported collaborative learning during lab and instruct recitations varying from 4 to 15 students
- Taught topics ranging from data structures, correctness in C, to big-O time efficiency
- Held office hours to support students 1-on-1, including review sessions for larger groups

Research Experience

Carnegie Mellon Univ. Department of Electrical & Computer Engineering — Pittsburgh, PA
Undergraduate Researcher — *Janurary 2023 – May 2023*

- Dealt with TCL, Python, and bash scripting with the Cadence tool-set for synthesizing Fast-Fourier Transform designs and exploring the design space
- Utilized Matplotlib for our power consumption, critical path, and area analysis
- Worked on ISCAS files and SOP simplification/optimizations through python scripting

Projects

Real-Time Kernel — Fall 2023

- Developed a multi-threaded Real Time Operating System with a enforced fixed priority scheduler for a STM32 processor
- Utilized GDB to step through-out ARM instructions and C code for debugging
- Used MMIO to build upon the UART and I2C for communication between arduino, LEDs, and other components

Virtual Memory Performance Analysis — Fall 2023

- Implemented Virtual Memory translator, a 2-layer Cache, and TLB simulation in C++ code
- Used Intel Pin to run these translation on simulated computer processes given by SPEC2017
- Utilized results, specially picked with Pin, to analyze the power consumption, space, and hit/miss rate
- Reported our discoveries and our implementation in documentation and made data-driven claims