CRISTIAN GEORGE

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EDUCATION

M.S. Computer Engineering, Iowa State University, GPA: 3.87/4.00 2021 - 2022

Thesis: Towards the Reverse Engineering of Neural Network Structures on Heterogeneous Shared-Cache Systems

Relevant Coursework: Computer Systems Architecture, Graphics Processing & Architecture, Machine Learning, Embedded Systems Design, Real-Time Systems, Cyber-Physical Systems Networking, and Reverse Engineering.

B.S. Computer Engineering, Iowa State University, GPA: 3.82/4.00 2017 - 2021

Minor in Cybersecurity

Member of Eta Kappa Nu and Tau Beta Pi

EXPERIENCE

Hardware Verification Engineer June 2022 - Present

IBM *Remote*

- Developed components for a functional verification environment written in C++ using constrained random verification techniques. The targeted circuit is responsible for data communication and coherency between the POWER processor cores and connected PCIe, CXL, and OpenCAPI devices.
- Efficiently adapted to a legacy Perl-based verification environment and delivered technical features related to end-of-test memory states for a cryoCMOS circuit responsible for analog signal controls.
- Optimized regression workflow of the aforementioned legacy environment to allow for automated test submission and enable coverage reporting.
- Collaborated closely with hardware designers and other verification engineers to quickly triage and resolve any test failures that occurred at both the unit and sub-chip levels of the circuit design.

Graduate Teaching Assistant - Computer/Graphics Architecture Jan 2021 - May 2022

Iowa State University *Ames, IA*

- Led laboratory exercises for a graphics architecture course where students implement the simple graphics pipeline onto a Xilinx FPGA and develop the corresponding driver code necessary to utilize openGL on their designs.
- Guided students through the fundamentals of VHDL in an undergraduate computer architecture course where students implement a MIPS-based hardware scheduled processor as a capstone project.
- Updated the simulation framework used by students as a directed-testing verification environment to support the Linux operating system and ensured correct functionality across student-accessible systems. The simulation framework allowed students to run MIPS assembly code on their processors and compare their simulation results to a golden model.

Firmware Development Intern June 2020 - Aug 2021

IBM *Remote*

- Developed firmware functions involving various communications protocols such as RSI, I2C, and QSPI utilizing the custom logic provided by the hardware design team on a Xilinx Ultrascale+ device.
- Implemented the accompanying hardware abstraction layer (HAL) functions for the aforementioned firmware and updated previously implemented HAL functions to utilize a completely new and more performant API architecture.
- Designed system management test to be used in a system-wide regression testing system stability as part of a CI/CD pipeline for new code releases.
- Engaged and contributed to a performant and agile firmware development team through a fully remote work environment.

Embedded Security Intern May 2019 - Aug 2019

John Deere *Urbandale, IA*

- Analyzed and identified points of vulnerability on an embedded telematics device capable of 4G communications.
- Utilized security-by-design principles to implement changes at the operating system level.
- Collaborated alongside the Software Engineering team to discuss progress and ensure system stability of security changes through both software and field testing.

SKILLS

Programming Languages: C++, C, Python, Perl, VHDL, Verilog, MATLAB
Tools & Services: Git, Xilinx Vivado, Cadence Virtuoso, Modelsim, GDB, SPICE, Ghidra, Microsoft Office
Languages: Spanish (Fluent)

AWARDS & LEADERSHIP

Teaching Excellence Award Spring 2022

- Chosen as a recipient at Iowa State University for my contributions as a teaching assistant during the Spring 2022 semester.

ECSEL Scholar & Peer Mentor Jan 2020 - May 2021

- Developed lesson plans, planned social events, and provided mentorship to other scholars by providing on-campus and technical resources.