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 Jun 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.
- Modernized the simulation framework used as a directed-testing verification environment for students to support the Linux operating system. The simulation framework allowed students to run MIPS assembly code on their processors and compare the results to that of a correct implementation providing cycle-level event tracing.

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
Programs & Services: Git, Vivado Design Suite, Cadence Virtuoso, Modelsim, 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.