Harrison Williams

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Education

Virginia Tech — Blacksburg, VA
PhD., Computer Science — 2019 – 2024 (Expected)
Dual B.S., Electrical & Computer Engineering — 2015 – 2019

Publications

Failure Sentinels: Ubiquitous Just-in-time Intermittent Computation via Low-cost Hardware Support for Voltage Monitoring

International Symposium on Computer Architecture (ISCA), 2021.

Harrison Williams, Michael Moukarzel, and Matthew Hicks.

Forget Failure: Exploiting SRAM Data Remanence for Low-overhead Intermittent Computation

Architectural Support for Programming Languages and Operating Systems (ASPLOS), 2020.

Harrison Williams, Xun Jian, and Matthew Hicks.

Research Experience

Graduate Research Assistant — 2019 – Present
Virginia Tech — *Blacksburg, VA*

- Designed a custom board for power-adaptive energy buffering using variable capacitor banks on batteryless systems.
- Designed low-power, variable-resolution integrated voltage supervision circuits.
- Developed software libraries enabling high-performance execution on batteryless embedded systems using Flash-based microcontrollers.

Undergraduate Research Assistant — 2017 – 2019
Virginia Tech — *Blacksburg, VA*

- Worked with faculty and other undergraduate students to develop a system to detect recycled microcontrollers and processors based on memory decay.
- Built hardware and software systems to rapidly age microcontrollers and collect/analyze memory startup statistics.

Work Experience

Technical Intern — Summers 2017, 2018
Raytheon Missile Systems — *Tucson, AZ*

- Member of verification team supporting programs in the configurable digital logic department.
- Developed tests for combinational logic and state machines.
- Designed software abstractions for simulating communication interfaces across missile hardware stack.

Teaching

Graduate Teaching Assistant — 2019
Virginia Tech — *Blacksburg, VA*

- Teaching Assistant for CS 4264: "Principals of Computer Security", an undergraduate class on the foundation of building, using, and managing secure systems.
- Developed and graded homework and projects, graded tests.
- Held office hours and helped students with completing projects and understanding class material.

Recognition

NSF Graduate Research Fellowship Program 2021
Honorable Mention

Skills

Programming Languages

Experienced: Python, C, MSP430 Assembly

Familiar: C++, x86 Assembly, Verilog

Software

Experienced: Git, LTSpice, Modelsim, Windows, Ubuntu

Familiar: MATLAB, Vivado