Zachary D. Sisco

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Education

University of California, Santa Barbara — Santa Barbara, CA
PhD Computer Science — Co-advisors: Jonathan Balkind & Ben Hardekopf — 2019 – Present

Wright State University — Dayton, OH
MS Computer Science — Co-advisors: Adam Bryant & John M. Emmert — 2018
Thesis: *Verifying Data-Oriented Gadgets in Binary Programs to Build Data-Only Exploits*

Ohio University — Athens, OH
BS Mathematics — 2014

Experience

Computing Teaching Fellow, College of Creative Studies, UCSB — 2024 – 2025
Research Mentor, Research Mentorship Program, UCSB — Summer 2024
Intern, Galois, Inc. — Summer 2023
Graduate Student Researcher, UCSB — 2020 – 2023
Graduate Research Assistant, Wright State University — 2016 – 2018
Programmer Analyst, Motorists Insurance Group — 2013 – 2016

Fellowships & Awards

PhD Student of the Year, UCSB CS Department — 2024
Neal Fenzi – Resonant Founder Fellowship, Resonant, Inc. — 2024
2nd Place Award, PLDI Student Research Competition — 2022

Refereed Publications

Conference and Journal Papers

Control Logic Synthesis: Drawing the Rest of the OWL
Zachary D. Sisco, Andrew David Alex, Zechen Ma, Yeganeh Aghamohammadi, Boming Kong, Benjamin Darnell, Timothy Sherwood, Ben Hardekopf, Jonathan Balkind
Architectural Support for Programming Languages and Operating Systems, Volume 4 (ASPLOS), 2024

Loop Rerolling For Hardware Decompilation
Zachary D. Sisco, Jonathan Balkind, Timothy Sherwood, Ben Hardekopf
Programming Language Design and Implementation (PLDI) 2023

A Semantics-Based Approach to Concept Assignment in Assembly Code
Zachary D. Sisco, Adam R. Bryant
International Conference on Cyber Warfare and Security (ICCWS) 2017

Modeling Information Flow for an Autonomous Agent to Support Reverse Engineering Work
Zachary D. Sisco, Patrick P. Dudenhofer, Adam R. Bryant
Journal of Defense Modeling and Simulation, 2017

Workshop Papers

There and Back Again: A Netlist's Tale With Much Egraphin'
Gus Henry Smith, **Zachary D. Sisco**, Thanawat Techaumnuaiwit, Jingtao Xia, Vishal Canumalla, Andrew Cheung, Zachary Tatlock, Chandrakana Nandi, Jonathan Balkind
Workshop on Languages, Tools, and Techniques for Accelerator Design (LATTE) 2024

On the Generality of Matrix Multiplication
Andrew Alex, **Zachary D. Sisco**, Jonathan Balkind
Programming Languages for Architecture (PLARCH) 2023

Semi-Automated Translation of a Formal ISA Specification to Hardware
Harlan Kringen, **Zachary Sisco**, Jonathan Balkind, Timothy Sherwood, Ben Hardekopf
Programming Languages for Architecture (PLARCH) 2023

A Position on Program Synthesis for Processor Development
Zachary D. Sisco, Jonathan Balkind, Timothy Sherwood, Ben Hardekopf
Workshop on Languages, Tools, and Techniques for Accelerator Design (LATTE) 2022

Invited Talks

IEEE Council on EDA, Guangzhou Chapter, HKUST (Guangzhou), China — August 2024
Languages, Systems, and Data Seminar, UC Santa Cruz — May 2024
CIRCT Group, LLVM — May 2023
PLSE Lab, University of Washington — February 2023

Teaching

Instructor of Record

Intermediate Python Programming, UCSB — Summer 2024
Object-Oriented Design & Implementation, UCSB — Fall 2022
Problem Solving with Computers II, UCSB — Summer 2022
Problem Solving with Computers I, UCSB — Summer 2021, Winter 2021
Automata & Formal Languages, UCSB — Summer 2020

Lead Teaching Assistant

Techniques of Computer Science Teaching, UCSB — Fall 2023, Fall 2022
Tutorial on "Leading Computer-based Labs", UCSB — Fall 2022

Teaching Assistant

Programming Laboratory, UCSB (College of Creative Studies) — Fall 2024
Computer Architecture, UCSB — Winter 2023
Automata & Formal Languages, UCSB — Spring 2020
Advanced Applications Programming, UCSB — Winter 2020, Fall 2019
Machine Learning, Wright State University — Fall 2017
Operating System Internals and Design, Wright State University — Fall 2017

Academic Service

Artifact Evaluation Committee, PLDI — 2024
Program Committee, Workshop on Languages, Tools, and Techniques for Accelerator Design — 2024
Organizer, Workshop on Languages, Tools, and Techniques for Accelerator Design — 2023
Tutorial Organizer, "Creating a Compelling and Sustainable Tutorial", ASPLOS — 2023
Student Volunteer, PLDI — 2022
Artifact Evaluation Committee, OOPSLA — 2020