Stephen A. Zekany

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Education

University of Michigan

Ph.D. in Computer Science and Engineering	Sept. 2016 – April 2023
M.S. in Computer Science and Engineering	Jan. 2014 – May 2016
Non-degree Undergraduate in Computer Science	May 2012 – Dec. 2013
B.S. in Physics	Sept. 2004 – Dec. 2008

Research Experience

MTS (Member of Technical Staff) Software Engineer, AMD Research — July 2022 – Present

- Working on a U.S. Government-funded research project to improve programmability of next-generation hardware accelerators and interconnects.

Graduate Student Research Assistant, Wenisch Lab, University of Michigan — 2018 – 2022
Advisors: Thomas Wenisch and Ronald Dreslinski

- Led multiple projects to structure and search data generated from autonomous vehicles, in collaboration with Toyota Research Institute and the Applications Driving Architectures (ADA) Center. Supervised undergraduate assistants working on sub-projects.

Research Engineer Intern, HPC Research Group, ARM — Summer 2017 & 2018
Mentors: Geoff Blake, Luis Peña, and Eric Van Hensbergen

- Improved network packet polling loop structure for OS-bypass version of memcached. Identified constraints of prototype high-performance networking hardware for containerization and VM use.

Research Assistant, Clarity Lab, University of Michigan — 2015 – 2016
Mentors: Michael Laurenzano and Jason Mars

- Helped develop a scheduling algorithm and system for datacenter FPGA reconfiguration (unpublished). Collaborated with two other students to use deep learning to predict frequent execution paths ("hot paths") in SPEC programs at compile time.

Publications

Peer-Reviewed Conference Papers and Journal Publications .....

1. Stephen A. Zekany, Thomas F. Larsen, Ronald G. Dreslinski, and Thomas F. Wenisch. **Finding and Indexing Vehicle Maneuvers from Dashboard Camera Video**. To appear in *IEEE Transactions on Intelligent Transportation Systems (ITS-Transactions), 2022.*

2. Stephen A. Zekany*, Jielun Tan*, James A. Connolly, and Ronald G. Dreslinski. **RISC-V Reward: Building Out-of-Order Processors in a Computer Architecture Design Course with an Open-Source ISA.** *ACM Technical Symposium on Computer Science Education (SIGCSE), 2021.*

3. Stephen A. Zekany, Ronald G. Dreslinski, and Thomas F. Wenisch. **Classifying Ego-Vehicle Road Maneuvers from Dashcam Video.** *IEEE Intelligent Transportation Systems Conference (ITSC), 2019.*

4. Stephen A. Zekany, Daniel Rings, Nathan Harada, Michael Laurenzano, Lingjia Tang, and Jason Mars. **CrystalBall: Statically Analyzing Runtime Behavior via Deep-Sequence Learning.** *IEEE/ACM International Symposium on Microarchitecture (MICRO), 2016.*

Workshop Papers

1. Stephen A. Zekany*, Jielun Tan*, James A. Connolly, and Ronald G. Dreslinski. **Teaching Out-of-Order Processor Design with the RISC-V ISA.** *ISCA Workshop on Computer Architecture Education (WCAE), 2021.*

Non-Academic Work Experience

Research Assistant, Center for Entrepreneurship, University of Michigan Jan. 2017 – April 2017

- Evaluated market potential and industry viability of potential technology transfer projects.

CPU Design Engineer Intern, ARM (Austin, TX) Summer 2015

- Built SystemVerilog interface to preload special purpose register values for verification of ARM Cortex-A76 CPU.

Software Engineer Intern, Boeing (Seattle, WA) Summer 2014

- Worked on supply chain management databases and web applications.

Research Lab Specialist, Psychology Department, University of Michigan June 2010 – May 2014
Sr. Research Technician, Psychology Department, University of Michigan Jan. 2009 – June 2010

- Maintained lab equipment, performed data analysis, wrote software for running experiments and analysis, and supervised undergraduate students in a neuropsychology research lab.

Teaching and Mentoring

Instructor

EECS 370: Intr. to Computer Organization (Undergraduate, University of Michigan) Winter 2020

- Taught a required course with three other faculty and 594 students covering introductory computer architecture concepts including assembly language, combinational and sequential logic, single-cycle datapaths, pipelined processors, and caching algorithms. Met with students in office hours, answered student questions online, managed a team of 18 TAs, and transitioned course online mid-semester due to COVID. Course web page available at https://www.eecs.umich.edu/courses/eecs370/

Teaching Assistant

EECS 470: Computer Architecture (Graduate, University of Michigan) Winter 2015 – Fall 2018

- Assisted in teaching a graduate course on computer architecture of 60 students, covering in-order pipelining, out-of-order pipelining, superscalar processors, caching and memory hierarchies, and compile-time optimizations. Helped students with final team project of developing a fully-synthesizable out-of-order processor in SystemVerilog. Tutored groups who wanted to do advanced features such as multi-core or simultaneous multi-threading. Taught two lab sections each week on SystemVerilog concepts, met with students in office hours, answered student questions online, helped write exams, and graded student projects. Course web page available at https://www.eecs.umich.edu/courses/eecs470/

ALA 223: Entrepreneurial Creativity (Undergraduate, University of Michigan) Fall 2014

- Helped design and teach first semester of an elective course offered as part of the Minor in Entrepreneurship Program. Taught several lectures, met with students in office hours, answered student questions online, and graded student papers and projects.

Outreach

Community Instructor, Ann Arbor Public Schools — January 2018 – June 2018

- Taught an introductory programming course (EECS 183 with modifications) to high school students as part of the Ann Arbor Public Schools Community Resource program. Students watched recorded lectures, worked on assignments, and met with me twice weekly. I graded their work, wrote quizzes and tests, and answered any questions.

Mentorship

Center for Research on Learning and Teaching (University of Michigan) — 2018-2020

- Conducted midterm student feedback sessions for teaching assistants, helped teaching assistants struggling with classroom issues, and taught seminars on applied educational research.

Undergraduate and Graduate Teaching Assistant Orientation (University of Michigan) — 2018-2020

- Instructed several 90-minute sections of 30-90 new teaching assistants (both fall and winter term), including "Effective Lab Classes" and "Teaching Engineering".

Guest Lecturer

EECS 470: Computer Architecture (University of Michigan) — Winter 2019
EECS 599: Introduction to Graduate Studies (University of Michigan) — Fall 2019

Service and Membership

Institutional and Departmental Service

Technical Assistant for the ASPLOS '22 PC Chairs — 2021
Member, CSE DEI Working Group — 2020
President, CSE Graduate Students at U-M (CSEG) — 2019 - 2020
Student-Faculty Liaison, CSE Graduate Students at U-M (CSEG) — 2018 - 2019
Reading Group Moderator, CELab, University of Michigan — 2018 - 2019

Non-Profit Affiliations

Board Member, Friends of the Washtenaw Veterans Treatment Court — 2016 - Present
Scoutmaster, Boy Scout Troop 8 — 2010 - 2018

Reviewing

ACM Technical Symposium on Computer Science Education (SIGCSE), PC member — 2020 - 2021
Innovation and Technology in Computer Science Education (ITiCSE), PC member — 2020 - 2021

Academic Affiliations

ACM: Association for Computing Machinery
IEEE Eta Kappa Nu (IEEE-HKN)

Awards

Lynn Conway Research Award — 2022
Google Cloud Platform Research Grant ($5,000) — 2021
EECS Outstanding GSI Award — 2018
Non-Traditional Graduate Fellowship Award — 2015