AKSHITHA SRIRAMAN

Curriculum Vitae — November 2022

Assistant Professor,
Carnegie Mellon University
Department of Electrical and Computer Engineering
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BIOGRAPHY

My work bridges computer architecture & software systems, demonstrating the importance of that bridge in enabling efficient, sustainable, equitable web services via solutions that span the compute stack.

Modern web services require data centers that scale to hundreds of thousands of servers, i.e., *hyperscale*. The key challenge in enabling hyperscale web services arises from two important trends. First, over the past few years, there has been a radical shift in hyperscale computing due to an unprecedented growth in data, users, and web service software functionality. Second, modern hardware can no longer support this growth in hyperscale trends due to a steady decline in hardware performance scaling. To enable the new hyperscale era, hardware architects must become more aware of hyperscale software requirements and software researchers can no longer expect unlimited hardware performance scaling. In short, systems researchers can no longer follow the traditional approach of building each layer of the systems stack separately. Instead, they must rethink the synergy between the software and hardware worlds from the ground up. My work establishes such a synergy to enable efficient, sustainable, and equitable hyperscale web services. My solutions have been deployed on real hyperscale systems and serve billions of users, saving millions of dollars and meaningfully reducing the global carbon footprint.

My research has been recognized with the 2022 ACM SIGARCH/IEEE CS TCCA Outstanding Dissertation Award Honorable Mention, the 2022 ACM SIGOPS Dennis M. Ritchie Doctoral Dissertation Award Honorable Mention, the 2021 David J. Kuck Dissertation Prize, the 2021 ProQuest Distinguished Dissertation Award, a Meta Systems Research Award, and an IEEE Micro Top Picks distinction. I was awarded a Facebook Fellowship and was named a 2019 Rising Star in EECS.

EDUCATION

Ph.D., Computer Science and Engineering 2015 - 2021
University of Michigan
Advisor: Prof. Thomas F. Wenisch
Dissertation title: Enabling Hyperscale Web Services

M.S., Embedded Systems 2013 - 2015
University of Pennsylvania
Advisor: Prof. Joseph Devietti

B.E., Electronics and Communication 2008 - 2012
Visvesvaraya Technological University

AWARDS AND HONORS

- ☐ **Meta Systems Research Award** 2022
- ☐ **Intel Faculty Award** 2022
- ☐ **ACM SIGOPS Dennis M. Ritchie Doctoral Dissertation Award Honorable Mention** 2022
  Awarded to the most outstanding PhD dissertation in the field of software systems
- ☐ **ACM SIGARCH/TCCA Outstanding Dissertation Award Honorable Mention** 2022
  Awarded to the most outstanding PhD dissertation in the field of computer architecture

- ☐ **ProQuest Distinguished Dissertation Award** 2021
  Awarded to the most exceptional scholarly work by a PhD student across all schools at U. Michigan
- ☐ **David J. Kuck Dissertation Prize** 2021
  Awarded to the most impactful PhD dissertation submitted to U. Michigan CSE
- ☐ **Facebook Fellowship** 2020 - 2022
  $200,000 towards tuition, stipend, and travel
- ☐ ***Accelerometer* selected as an IEEE Micro Top Pick** 2020
  Awarded to the top 12 computer architecture papers of 2020
- ☐ **ASPLOS Best Presentation Award** 2020
  Best presentation out of 86 presentations
- ☐ **Selected to attend the Heidelberg Laureate Forum** 2020
- ☐ **CSE Graduate Student Honors (University of Michigan)** 2020
  Won the "best student research" award in the hardware discipline
- ☐ **Named a "Rising Star" in Electrical Engineering & Computer Science (EECS)** 2019
- ☐ **Facebook Fellowship Finalist (Distributed Systems)** 2019
  Recognized as the first runner-up
- ☐ **Best of Wild & Crazy Ideas (ASPLOS)** 2019
  Chair's Choice Award
- ☐ **Cross-layer Computing Summer School Student Scholarship** 2018
  20 winners nation-wide
- ☐ **Anita Borg Grace Hopper Scholarship** 2017
- ☐ **Rackham Merit Ph.D. Fellowship** 2015
  $140,000 towards tuition, stipend, and travel
- ☐ **CIS Full Tuition Scholarship (University of Pennsylvania)** 2014
  $55,000 towards tuition, stipend, and travel
- ☐ **Award for academic excellence (Visvesvaraya Technological University)** 2012
  Ranked 5th (out of ∼10,000 students) in the state
- ☐ **"Power Player" awards at Microsoft (India)** 2012

STUDENT AWARDS AND HONORS

- ☐ K&L Gates Presidential Fellowship, Sara Mahdizadeh Shahri 2023
- ☐ Carnegie Institute of Technology Dean's Fellowship, Sara Mahdizadeh Shahri 2022
- ☐ Carnegie Institute of Technology Dean's Fellowship, Jaylen Wang 2022
- ☐ ACM Student Research Competition Bronze Medal (MICRO), Hilbert Chen 2022
- ☐ NSF Graduate Research Fellowship (GRFP), Mihailo Rancic 2021
- ☐ Carnegie Institute of Technology Dean's Fellowship, Mihailo Rancic 2021

RESEARCH GRANTS AND CONTRACTS AWARDED

Overall, within my first year as a faculty member, my group raised $802K in research funding ($1.56M including student fellowships and $2M total amount of funding). This sum excludes start-up funding.

- ☐ *Meta Systems Research Award*, "Optimizing Orchestration Overheads for Scale-Out Workloads": $225,000 gift, Award period: 2022–2025 [1]. PI: Akshitha Sriraman
- ☐ *Intel Faculty Award, Arch SRS Research*, "Data-Centric Hardware Architectures for Data Centers": $375K, Award period: 2022–2025 [2]. PI: Akshitha Sriraman
- ☐ *Meta Systems Research Award*, "Enabling Efficient Hyperscale Web Systems": $50K gift, Award period: 2022–2023. PI: Akshitha Sriraman
- ☐ *Intel "Transformative Server Architecture" Award*, "Data-Driven Super-Wide Server Architecture Design for Emerging Datacenter Applications": $150K ($600K total), Award period: 2022–2025. PI: Baris Kasikci, co-PIs: Akshitha Sriraman, Heiner Litz, Daniel Jimenez
- ☐ *Google Cloud Computing Grant*, "Re-thinking Hardware Architectures for Data Center Applications": $2K, Award period: 2022–2023. PI: Akshitha Sriraman

PROFESSIONAL EXPERIENCE

Assistant Professor, **Carnegie Mellon University**, Pittsburgh, PA — Jan 2022 -

Visiting Researcher, **Google**, Pittsburgh, PA — Sep - Dec 2021
Managers: Dr. Hank Levy and Dr. David Culler
Identifying new hardware design and optimization opportunities for hyperscale web services

Research Assistant, **University of Michigan**, Ann Arbor, MI — Sep 2015 - Aug 2021
Advisor: Prof. Thomas F. Wenisch
Enabling hyperscale web services

Research Scientist, **Facebook Research**, Birmingham, MI — Sep 2019 - Apr 2020
Manager: Vijay Balakrishnan
Designing custom hardware for diverse microservice functionalities

Research Intern, **Facebook Research**, Menlo Park, CA — May - Aug 2019
Manager: Abhishek Dhanotia
Developed Accelerometer, an analytical model for hardware acceleration

Research Engineer, **Facebook Research**, Ann Arbor, MI — Sep - Dec 2018
Manager: Murray Stokely
Developed SoftSKU, a strategy to maintain hardware fungibility despite microservice diversity

Research Intern, **Facebook Research**, Menlo Park, CA — May - Aug 2018
Manager: Abhishek Dhanotia
Characterized Facebook's production microservices' system-level and architectural bottlenecks

Research Intern, **Microsoft Research**, Redmond, WA — May - Aug 2017
Manager: Dr. Ed Nightingale
Developed a bare-metal hypervisor from scratch (including a virtualized MMU) to serve as a defense-in-depth security mechanism for Microsoft Azure Sphere; demonstrated two security attacks and defenses

Research Intern, **Intel Labs**, Santa Clara, CA — Jun - Aug 2015
Manager: Dr. Gilles Pokam
Low-overhead run-time tool to detect and mitigate different kinds of cache misses

Performance Engineer, **Microsoft**, India — Jul 2012 - Jun 2013
Manager: Tajdar Salam
Performance analysis of Windows server platforms

[1] Funding for the second and third year is contingent on research progress made during the previous year
[2] Funding for the second and third year is contingent on research progress made during the previous year

Research Intern, **Hindustan Aeronautics Limited**, India Jan - Mar 2012
Manager: Mohan Rao
Real-time "rotation-per-minute"-based flight warning system for military helicopters/airplanes

PEER-REVIEWED CONFERENCE/JOURNAL PUBLICATIONS

☐ Shixin Song, Tanvir Ahmed Khan, Sara Mahdizadeh Shahri, **Akshitha Sriraman**, Niranjan K Soundararajan, Sreenivas Subramoney, Daniel A. Jimnez, Heiner Litz, Baris Kasikci
Thermometer: Profile-Guided BTB Replacement for Data Center Applications. In proceedings of the 49^{th} International Symposium on Computer Architecture (**ISCA 2022**). June 2022.
Acceptance rate: 67/400 = 16.8%
First Branch Target Buffer replacement technique to achieve near-ideal BTB performance by using program context information to inform BTB replacement decisions

☐ Tanvir Ahmed Khan, Nathan Brown, **Akshitha Sriraman**, Niranjan Soundararajan, Rakesh Kumar, Joseph Devietti, Sreenivas Subramoney, Gilles A Pokam, Heiner Litz, Baris Kasikci
Twig: Profile-Guided BTB Prefetching for Data Center Applications. In proceedings of the 54^{th} IEEE/ACM International Symposium on Microarchitecture (**MICRO 2021**). Oct 2021.
Acceptance rate: 94/430 = 21.8%
First instruction prefetching technique to achieve near-ideal BTB performance by using program context information to inform BTB prefetching decisions

☐ **Akshitha Sriraman**, Abhishek Dhanotia
Understanding Acceleration Opportunities at Hyperscale. In **IEEE Micro**, May-June 2021.
Issue: **Top Picks** in Computer Architecture from Conferences in 2020.
Acceptance: Top 12 computer architecture papers in 2020
Provides key insights on which hyperscale overheads are worth accelerating, and analytically models hardware acceleration benefits to help make well-informed hyperscale hardware investments

☐ Tanvir Ahmed Khan, Dexin Zhang, **Akshitha Sriraman**, Joseph Devietti, Gilles A Pokam, Heiner Litz, Baris Kasikci
Ripple: Profile-Guided Instruction Cache Replacement for Data Center Applications. In proceedings of the 48^{th} International Symposium on Computer Architecture (**ISCA 2021**). Jun 2021.
Acceptance rate: 76/406 = 18.7%
A novel profile-guided technique that uses program context information to inform the underlying I-cache replacement policy about efficient replacement decisions

☐ Tanvir Ahmed Khan, **Akshitha Sriraman**, Joseph Devietti, Gilles Pokam, Heiner Litz, Baris Kasikci
I-SPY: Context-Driven Conditional Instruction Prefetching with Coalescing. In proceedings of the 53^{rd} IEEE/ACM International Symposium on Microarchitecture (**MICRO 2020**). Oct 2020.
Acceptance rate: 66/422 = 15.6%
First instruction prefetching technique to achieve near-ideal I-cache performance by conditionally prefetching instructions only when the program context is known to lead to misses

☐ **Akshitha Sriraman**, Abhishek Dhanotia
Accelerometer: Understanding Acceleration Opportunities for Data Center Overheads at Hyperscale. In proceedings of the 25^{th} International Conference on Architectural Support for Programming Languages and Operating Systems (**ASPLOS 2020**). Mar 2020. Acceptance rate: 86/476 = 18.1%
IEEE Micro Top Picks
Best Presentation Award
Received the "Artifact Available" and "Artifact Functional" ACM badges
Analytically models hardware acceleration benefits at hyperscale, and is currently used by hyperscale enterprises (e.g., with developing their encryption accelerator), to make well-informed hardware investments; the acceleration opportunities identified brought about the new Intel IPU

☐ **Akshitha Sriraman**, Abhishek Dhanotia, Thomas F. Wenisch
SoftSKU: Optimizing Server Architectures for Microservice Diversity @Scale. In proceedings of the 46^{th} International Symposium on Computer Architecture (**ISCA 2019**). Jun 2019.
Acceptance rate: 62/365 = 16.9%
Approach and automated tool to improve hyperscale microservice performance on cheap commodity hardware; SoftSKU has been evaluated across real-world global data centers, serving billions of users, and has influenced changes in Intel's Alder Lake (Golden Cove and beyond) server designs

☐ Amirhossein Mirhosseini, **Akshitha Sriraman**, Thomas F. Wenisch
Enhancing Server Efficiency in the Face of Killer Microseconds. In proceedings of the 25^{th} International Symposium on High-Performance Computer Architecture (**HPCA 2019**). Feb 2019.
Acceptance rate: 46/233 = 19.7%
Solves the infamous "killer microsecond" problem via a new server architecture that schedules latency-insensitive batch threads when a latency-critical microservice awaits a microsecond-scale access

☐ **Akshitha Sriraman**, Thomas F. Wenisch
μTune: Auto-Tuned Threading for OLDI Microservices. In proceedings of the 13^{th} USENIX Symposium on Operating Systems Design and Implementation (**OSDI 2018**). Oct 2018.
Acceptance rate: 47/264 = 17.8%
Identifies new, important insights in the age-old research area of software threading, paving the way to redesign threading models for hyperscale systems

☐ **Akshitha Sriraman**, Thomas F. Wenisch
μSuite: A Benchmark Suite for Microservices. In proceedings of the 13^{th} International Symposium on Workload Characterization (**IISWC 2018**). Sep - Oct 2018. Acceptance rate: 17/47 = 36.1%
First benchmark suite of end-to-end web services composed of microservices, facilitating future microservice research

☐ Liang Luo, **Akshitha Sriraman**, Brooke Fugate, Shiliang Hu, Gilles Pokam, Chris J. Newburn, Joseph Devietti
LASER: Light, Accurate Sharing dEtection and Repair. In proceedings of the 22nd International Symposium on High Performance Computer Architecture (**HPCA 2016**). Mar 2016.
Acceptance rate: 53/240 = 22.0%
Novel low-overhead run-time tool that detects cache contention-induced performance bugs and mitigates them using dynamic binary re-writing

PEER-REVIEWED WORKSHOP PUBLICATIONS & POSTERS

☐ Sahana Rangarajan, Sara Mahdizadeh Shahri, Jaylen Wang, Pratyush Patel, **Akshitha Sriraman**
Designing Equitable Data Center Scheduling Systems. Career Workshop for Inclusion & Diversity in Computer Architecture (**CWIDCA**). Oct 2022.
Introduces equity as a first-order design metric in modern data center scheduling systems

☐ Zefeng Wang, Sara Mahdizadeh Shahri, Vyas Sekar, Assane Gueye, **Akshitha Sriraman**
Designing Web Systems for Rural Communities. Career Workshop for Inclusion & Diversity in Computer Architecture (**CWIDCA**). Oct 2022.
Introduces a new way to build web applications such that they are resilient to the stringent device and network constraints that rural communities face

☐ Lillian Pentecost, Marco Donato, **Akshitha Sriraman**, Gu-Yeon Wei, David Brooks
Analytically Modeling NVM Design Trade-Offs. Non-Volatile Memories Workshop (**NVMW**). Mar 2020.

☐ Radhika Ghoshal, Yu-Shun Hsiao, **Akshitha Sriraman**, David Brooks
Efficient Event Notification Paradigms for Hyperscale Microservices. Young Architect Workshop

held in association with the International Conference on Architectural Support for Programming Languages and Operating Systems (**YArch - ASPLOS**). Mar 2020.

- ☐ **Akshitha Sriraman**, Abhishek Dhanotia, Thomas F. Wenisch
  Optimizing Server Architectures for Microservice Diversity. Career Workshop for Women and Minorities in Computer Architecture held in association with the International Symposium on Microarchitecture (**CWWMCA - MICRO**). Oct 2019.

- ☐ **Akshitha Sriraman**
  Unfair Data Centers for Fun and Profit. In proceedings of the Wild And Crazy Ideas session held in association with the International Conference on Architectural Support for Programming Languages and Operating Systems (**WACI - ASPLOS**). Apr 2019.
  Received the Best of WACI, Chair's Choice Award

- ☐ **Akshitha Sriraman**, Thomas F. Wenisch
  Performance-Efficient Notification Paradigms for Disaggregated OLDI Microservices. In proceedings of the Workshop on Resource Disaggregation held in association with the International Conference on Architectural Support for Programming Languages and Operating Systems (**WORD - ASPLOS**). Apr 2019.

- ☐ Amirhossein Mirhosseini, **Akshitha Sriraman**, Thomas F. Wenisch
  Hiding the Microsecond-Scale Latency of Storage-Class Memories with Duplexity. Non-Volatile Memories Workshop (**NVMW**). Mar 2019.

- ☐ **Akshitha Sriraman**, Thomas F. Wenisch
  Auto-Tuned Threading for OLDI Microservices. Career Workshop for Women and Minorities in Computer Architecture held in association with the International Symposium on Microarchitecture (**CWWMCA - MICRO**). Oct 2018.

- ☐ **Akshitha Sriraman**, Thomas F. Wenisch
  A Benchmark Suite for Microservices. Workshop on Architectures and Systems for Big Data held in association with the International Symposium on Computer Architecture (**ASBD - ISCA**). Jun 2018.

- ☐ **Akshitha Sriraman**, Thomas F. Wenisch
  Performance Characterization of a Taxonomy of Threading Models. Career Workshop for Women and Minorities in Computer Architecture held in association with the International Symposium on Microarchitecture (**CWWMCA - MICRO**). Oct 2017.

- ☐ **Akshitha Sriraman**, Sihang Liu, Sinan Gunbay, Shan Su, Thomas F. Wenisch
  Deconstructing the Tail at Scale Effect Across Network Protocols. Workshop on Duplicating, Deconstructing and Debunking, held in association with the International Symposium on Computer Architecture (**WDDD - ISCA**). Jun 2016.

SELECTED PRESS

- ☐ *The Michigan Engineer News Center* Aug 2022
  CSE alum Akshitha Sriraman's dissertation recognized by SIGARCH/TCCA
  https://cse.engin.umich.edu/stories/cse-alum-akshitha-sriramans-dissertation-recognized-by-sigarch-tcca

- ☐ *The Michigan Engineer News Center* Mar 2022
  CSE alum Akshitha Sriraman receives ProQuest Distinguished Dissertation Award
  https://cse.engin.umich.edu/stories/cse-alum-akshitha-sriraman-receives-proquest-distinguished-dissertation-award

- ☐ *The Michigan Engineer News Center* Nov 2021
  Akshitha Sriraman awarded David J. Kuck Dissertation Prize for work on hyperscale web services

https://cse.engin.umich.edu/stories/akshitha-sriraman-awarded-david-j-kuck-dissertation-prize-for-work-on-hyperscale-web-services

☐ *Intel IT Peer Network* Aug 2021
The IPU: A New, Strategic Resource for Cloud Service Providers
https://itpeernetwork.intel.com/ipu-cloud/gs.bwz5m5

☐ *The Six Five Summit* June 2021
Why You Have Been Thinking About the Future of the Data Center All Wrong
https://thesixfivesummit.com/session/why-you-have-been-thinking-about-the-future-of-the-data-center-all-wrong/

☐ *Facebook Engineering* May 2020
Accelerometer & SoftSKU: Improving hardware platform performance for diverse microservices
https://engineering.fb.com/data-center-engineering/accelerometer-and-softsku/

☐ *Engineering Jobs* May 2020
Accelerometer, SoftSKU for diverse microservices
https://engineeringjobs4u.co.uk/accelerometer-softsku-for-diverse-microservices

☐ *TechXplore* Apr 2020
Analytical model predicts exactly how much a piece of hardware will speed up data centers
https://techxplore.com/news/2020-04-analytical-piece-hardware-centers.html

☐ *The Michigan Engineer News Center* Apr 2020
Analytical model predicts exactly how much a piece of hardware will speed up data centers
https://news.engin.umich.edu/2020/04/analytical-model-predicts-exactly-how-much-a-piece-of-hardware-will-speed-up-data-centers/

☐ *Debug Lies News* Apr 2020
Researchers from Facebook have designed a way to measure exactly how much a hardware accelerator would speed up a datacenter
https://debuglies.com/2020/04/08/researchers-from-facebook-has-designed-a-way-to-measure-exactly-how-much-a-hardware-accelerator-would-speed-up-a-datacenter/

☐ *The Michigan Engineer News Center* Jan 2020
Facebook Fellowship for improving high-demand web services
https://cse.engin.umich.edu/stories/facebook-fellowship-for-improving-high-demand-web-services

☐ *The Michigan Engineer News Center* Oct 2019
Two CSE grad students selected for Rising Stars in EECS Workshop
https://cse.engin.umich.edu/stories/two-cse-grad-students-selected-for-rising-stars-in-eecs-workshop

☐ *Real World Technologies* June 2019
Facebook Workload Analysis
https://www.realworldtech.com/forum/?threadid=185536curpostid=185539

INVITED SEMINAR TALKS

Re-thinking Hardware Architectures for Data Center Applications from the Ground-up

☐ *UC Santa Cruz*, Santa Cruz, CA Oct 2022

☐ *UC Berkeley*, Berkeley, CA March 2022

☐ *Intel Labs*, India March 2022

☐ *Crossroads Seminar at Carnegie Mellon University*, Pittsburgh, PA Feb 2022

Enabling Hyperscale Web Services

☐ *Google*, Seattle, WA Jul 2021

☐ *University of Washington (CSE)*, Seattle, WA Apr 2021

☐ *University of Michigan (CSE)*, Ann Arbor, MI Apr 2021

☐ *University of Illinois Urbana-Champaign (CS)*, Champaign, IL Apr 2021

☐ *University of British Columbia (CS)*, Vancouver, Canada Apr 2021

☐ *Microsoft Research*, Bangalore, India Apr 2021

☐ *University of Wisconsin-Madison (CS)*, Madison, WI Mar 2021

☐ *Brown University (CIS)*, Providence, RI Mar 2021

☐ *Georgia Institute of Technology (CS & ECE)*, Atlanta, GA Mar 2021

☐ *École polytechnique fédérale de Lausanne (EFPL) (CS)*, Lausanne, Switzerland Mar 2021

☐ *University of Chicago (CS)*, Chicago, IL Mar 2021

☐ *University of Toronto (CS)*, Toronto, Canada Mar 2021

☐ *Microsoft Research*, Redmond, WA Mar 2021

☐ *Carnegie Mellon University (ECE)*, Pittsburgh, PA Feb 2021

☐ *Cornell University (CIS)*, Ithaca, NY Feb 2021

☐ *University of Pennsylvania (CIS)*, Philadelphia, PA Feb 2021

☐ *University of Texas, Austin (CS & ECE)*, Austin, TX Feb 2021

☐ *University of California, Los Angeles (CS)*, Los Angeles, CA Jan 2021

☐ *University of Waterloo (CS)*, Waterloo, Canada Jan 2021

Understanding Hyperscale Web Services

☐ *New York University*, NYC, NY Dec 2020

☐ *Cornell University*, Ithaca, NY June 2020

☐ *École polytechnique fédérale de Lausanne (EFPL)*, Switzerland May 2020

☐ *University of Wisconsin*, Madison, WI Mar 2020

☐ *Google*, Madison, WI Mar 2020

☐ *Yale University*, New Haven, CT Jan 2020

☐ *Harvard University*, Cambridge, MA Dec 2019

☐ *University of Pennsylvania*, Philadelphia, PA Dec 2019

☐ *Google*, Sunnyvale, CA Jul 2019

☐ *Brown University*, Providence, RI Apr 2019

☐ *University of Rhode Island*, Kingston, RI Apr 2019

μSuite & μTune: Auto-Tuned Threading for OLDI Microservices

☐ *Meta*, Menlo Park, CA Apr 2022

☐ *University of California Los Angeles*, Los Angeles, CA Mar 2019

☐ *Indian Institute of Science*, Bangalore, India Jan 2019

☐ *Microsoft Research*, Bangalore, India Jan 2019

☐ *Intel Labs*, Bangalore, India Jan 2019

☐ *University of California San Diego*, San Diego, CA Oct 2018

☐ *University of Southern California*, Los Angeles, CA Oct 2018

☐ *University of Texas, Austin*, Austin, TX Sep 2018

Accelerometer: Understanding Acceleration Opportunities at Hyperscale

☐ *Juniper Networks*, CA July 2022

☐ *ASPLOS*, Switzerland March 2020

☐ *Meta HQ*, CA Aug 2019

SoftSKU: Optimizing Server Architectures for Microservice Diversity @Scale

☐ *International Symposium on Computer Architecture (ISCA)*, Phoenix, AZ Jun 2019

☐ *Facebook HQ*, Menlo Park, CA Dec 2018

Unfair Data Centers for Fun and Profit
Workshop on Wild and Crazy Ideas (WACI), Providence, RI Apr 2019

Performance-Efficient Notification Paradigms for Disaggregated OLDI Microservices
Workshop on Resource Disaggregation (WORD), Providence, RI Apr 2019

μTune: Auto-Tuned Threading for OLDI Microservices

☐ *Symposium on Operating Systems Design and Implementation (OSDI)*, Carlsbad, CA Oct 2018

☐ *Career Workshop for Women & Minorities in Computer Architecture*, Japan Oct 2018

μSuite: A Benchmark Suite for Microservices

☐ *International Symposium on Workload Characterization (IISWC)*, Raleigh, NC Oct 2018

☐ *Workshop on Architectures and Systems for Big Data (ASBD)*, Los Angeles, CA June 2018

☐ *Intel VEC retreat*, Ann Arbor, MI June 2018

☐ *CRA-Women Grad Cohort Workshop*, Washington D.C. Apr 2017

☐ *Intel VEC retreat*, Santa Clara, CA Dec 2016

☐ *ARM retreat*, Ann Arbor, MI Nov 2016

Hypervisor-Based Defense-In-Depth for Microsoft Azure Sphere
Microsoft Research, Redmond, WA Aug 2017

Deconstructing the Tail at Scale Effect Across Network Protocols
Workshop on Duplicating, Deconstructing and Debunking (WDDD), Seoul, Korea Jun 2016

4C'sONS Haswell: 4C's - ONline cache profiling on Server platforms
Intel Labs, Santa Clara, CA Aug 2015

PROFESSIONAL SERVICE AND SCIENTIFIC LEADERSHIP

Program Committee Chair

☐ ASPLOS Wild and Crazy Ideas (WACI) 2023

Program Committee Member

☐ International Symposium on Computer Architecture (ISCA) 2023

☐ Architectural Support for Programming Languages & Operating Systems (ASPLOS) 2022, 2023

☐ Symposium on Operating Systems Principles (SOSP) 2023

☐ IEEE Micro Top Picks 2022

☐ EuroSys 2022

☐ International Symposium on Microarchitecture—Student Research Competition (SRC) 2021

☐ Eurosys Doctoral Workshop (EuroDW) 2021

☐ ACM Symposium on Cloud Computing (SoCC) 2020

☐ Young Architect Workshop (YArch-ASPLOS) 2020, 2021

Journal Reviewer

☐ ACM Transactions on Computer Systems (TOCS) 2021 - Present

☐ ACM Transactions on Architecture and Code Optimization (TACO) 2018 - 2020

External Review Committee Member

☐ International Symposium on Microarchitecture (MICRO) 2021

☐ Architectural Support for Programming Languages and Operating Systems (ASPLOS) 2021

Artifact Evaluation Committee Member

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

☐ Symposium on Operating Systems Principles (SOSP) 2019

Conference Shadow Program Committee Member

☐ EuroSys 2018 - 2019

☐ Architectural Support for Programming Languages and Operating Systems (ASPLOS) 2017

Invited Reviewer

☐ ACM SIGMETRICS 2019

☐ International Symposium on Microarchitecture (MICRO) 2016

Invited Contributor

☐ National Science Foundation (NSF) Visioning Workshop on "Redefining the Future of Computer Architecture from First Principles" 2022

Invited Panelist

☐ National Science Foundation (NSF) Visioning Workshop on "Redefining the Future of Computer Architecture from First Principles" 2022

☐ uArch Workshop at the International Symposium on Computer Architecture (ISCA) 2021

Workshop Co-organizer

☐ Young Architect Workshop (YArch) at ASPLOS 2022, 2020

☐ JOBS Workshop at MICRO 2022, 2020

☐ Career Workshop for Women & Minorities in Computer Architecture at MICRO 2019

Technical Blog Editor

☐ SIGOPS Blog 2020 - Present

Session Chair

☐ ACM Symposium on Cloud Computing (SoCC) 2020

Web and Publicity Chair

☐ International Symposium on Low Power Electronics and Design (ISLPED) 2018 - 2020

☐ Architectural Support for Programming Languages & Operating Systems (ASPLOS) 2022, 2020

☐ Young Architect Workshop (YArch-ASPLOS) 2020

☐ International Symposium on Microarchitecture (MICRO) 2019

Ph.D. Admissions Committee

☐ Carnegie Mellon University, Electrical & Computer Engineering Department 2021 - 2023

☐ University of Michigan, Computer Science Department 2019

Faculty Candidate Hiring Committee (Student-Run Interviews)

☐ University of Michigan, Computer Science Department 2020

Student Organizer

☐ IEEE Micro Top Picks 2018

☐ University of Michigan Ph.D. prospective student visit day 2018

☐ Explore Grad Studies in CSE Workshop, University of Michigan 2016

TEACHING

Modern Computing Systems at Carnegie Mellon (18-847B), Graduate Fall 2022

Data Center Computing at Carnegie Mellon (18-847C), Graduate Spring 2022

Invited guest lecture on hyperscale computing
CS 146/246: Computer Architecture at Harvard University, Cambridge, MA Nov 2019

Invited guest lecture on cache coherence protocols
CIS 501: Computer Architecture at the University of Pennsylvania, Philadelphia, PA Apr 2015

RESEARCH ADVISING

Ph.D.

Mihailo Rancic 2021 - Present
Sara Mahdizadeh Shahri 2022 - Present
Jaylen Christopher Wang 2022 - Present
Pratyush Patel (co-advised by Tom Anderson at UW) 2022 - Present

Master's

Sahana Rangarajan 2022 - Present
Syeda Rizvi 2022 - Present
Zefeng Wang 2022 - Present
Zibo Gong 2022 - Present

Undergraduate

Deepanjali Mishra 2021 - Present

Hilbert Chen 2021 - Present
Sriram Devata 2021 - Present

OUTREACH ACTIVITIES

Women In Computer Architecture (WICArch) Vice Chair 2022 - Present
Leading efforts in improving the community for women studying and working in computer architecture

Women In Computer Architecture (WICArch) Webinar Series Lead 2018 - Present
Organizing monthly webinars for women in computer architecture

WICArch Mentoring Series Co-organizer 2018 - Present
Organizing a mentorship program for female students in computer architecture

Superhero Network Senior Member 2021 - Present
Co-founded the superhero network to create a safe environment for women in the CS research community

Middle School Outreach Co-organizer, Ann Arbor, MI 2017 - 2019
Created the "Middle School Outreach" program to get middle school students from underserved groups interested in CS early on; designed curriculum, trained and hired instructors, secured funding, etc

Middle School Teacher, Scarlett Middle School, Ann Arbor, MI 2018 - 2019
Taught computer science basics to middle school students from underserved groups

Ensemble of CSE Ladies Officer, University of Michigan, Ann Arbor, MI 2018 - 2019
Co-ordinated activities for a female graduate student support organization

CS Kickstart Hackathon Co-organizer, University of Michigan, Ann Arbor, MI Sep 2016
Workshop aimed at improving gender diversity in CSE through increased female enrollments

Girls Encoded Co-organizer (along with Prof. Reetuparna Das), Ann Arbor, MI Mar 2016
Workshop aimed at getting high school female students interested in computer science

REFERENCES

References available upon request.