

Tamara Silbergleit Lehman

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Research Interests

- Computer architecture, datacenter architecture
 - Cache and memory systems architecture
 - Security, hardware support for security, safe execution environment, secure memory.
 - Democracy and technology, elections security
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Education

- **PhD - Computer Engineering** 2013 - 2019
Duke University, Durham, NC
Advisers: Benjamin C. Lee and Andrew Hilton
Thesis Title: Design Strategies for Efficient and Secure Memory.
 - **Master of Engineering - Computer Engineering** December 2013
Duke University, Durham, NC
 - **Bachelor of Science - Industrial Engineering** December 2007
Minor in Business Administration
University of Florida, Gainesville, FL
Magna Cum Laude
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Professional Experience

- **Assistant Professor** 2019-Present
 - *Electrical, Computer and Energy Engineering, University of Colorado Boulder*
 - *Courtesy appointment in the department of Computer Science*
 - Currently advising 5 PhD. students, graduated 3 PhD students, and graduated 2 Master students with thesis.
 - Conduct and lead research at the intersection of computer architecture and security and issues surrounding democracy and technology. Develop and teach courses in computer engineering.
 - **Expert Evaluator** March 2025
 - *Bessemer Venture Partners*
 - One-time appointment to evaluate a specific technology.
 - **Visiting Professor** November 2024
 - *Facultad de Ciencias Exactas, Ciencia de la Computación*
 - *Universidad de Buenos Aires (UBA).*
 - Temporary appointment to be able to count class taught into their bachelor of science degree.
 - *Ciudad de Buenos Aires, Argentina.*
 - **Graduate Technical Security Intern** Summer 2015 and 2016
 - *Security and Privacy Research, Intel Labs, Hillsboro, OR*
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- Research development, studies with a cycle accurate simulator.
- **Software Engineer Intern** Summer 2013
 - *Software Development Unit, Cisco Systems. Research Triangle Park, NC*
 - Software testing, configuration automation development, virtualization technologies.
- **Manager Domestic Postage Optimization** 2008 - 2012
 - *Product Management, DHL Global Mail. Weston, FL*
 - Strategic decision making, data analysis and database management.

Honors and Awards

- Max S. Peters Faculty Service Award Nomination 2026
- Member of the Faculty Leadership Advancement Group (FLAG) 2025-2026
- NSF CAREER Award 2025
- NDSS Best Poster Award 2025
- RIO Faculty Fellow, University of Colorado Boulder 2024-2025
- WICArch Early-Career Fellowship 2024
- IEEE Computer Society Technical & Conference Activities Board Rising Star Service Award 2024
- Outstanding Mentor for the Discovery Learning Apprenticeship, University of Colorado Boulder 2022
- DARPA Riser, University of Colorado Boulder 2022
- Outstanding Service for Inclusion and Diversity, University of Colorado Boulder 2022
- Outstanding Service in the Department, Duke University 2019
- ISPASS Best Paper Award 2018
- SRC Techcon Best In Session Award 2017
- MICRO Top Picks Honorable Mention 2016
- Charles Rowe Vail Memorial Outstanding Graduate Teaching Award 2015
- Member of the Golden Key International Honor Society 2006 - 2007
- President's Honor Roll 2006

Publications

Student designations: * doctoral student, † master student, and ‡ undergraduate student. Underlined names indicate CU Boulder students. * indicates equal contributions.

Conference Publications

- C14 **Leveraging Compilation Information for Securing Processors Against Unexpected Transient Memory Accesses**
Ange Ishimwe*, Sam Mcdiarmid Sterling‡, Zack Mckevitt† and **Tamara Silbergleit Lehman**
International Conference on Compiler Construction (CC), 2026. **33% Acceptance Rate**
- C13 **THORN-ML: Transparent Hardware Offloaded Resilient Networks for RDMA based Distributed ML Workloads** Maziyar Nazari*, Daniel Noland*, Giulio Sidoretti, Erika Hunhoff, **Tamara Lehman**, Eric Keller. International Symposium on Cloud Computing (SoCC), November 2025. **26.7% Acceptance Rate**
- C12 **CASM: A Generalizable and Accessible Security Metric to Evaluate Security of Cache Architectures** Phaedra Curlin* and **Tamara Silbergleit Lehman** International Symposium on Workload Characterization (IISWC), October 2025. **42% Acceptance Rate**
- C11 **CommTox: Community Context-Aware Perceived Toxicity Classification**
Rhett Hanscom**, Ayan Chowdhury*†, Shivakant Mishra, Qin Lv and **Tamara Silbergleit Lehman**. International Conference on Advances in Social Network Analysis and Mining (ASONAM), 2025. **25% Acceptance Rate**
- C10 **A Midsummer Night’s Tree: Efficient and High Performance Secure SCM**
Samuel Thomas*, Kidus Workneh, Jac McCarty, Joseph Izraelevitz, **Tamara Silbergleit Lehman** and R. Iris Bahar. International Conference on Architectural Support for Programming Languages and Operating Systems (ASPLOS), April 2024. **12% Acceptance Rate**
- C9 **SpecCheck: A Tool for Systematic Identification of Vulnerable Transient Execution in gem5**
Zachary McKeivitt†, Ashutosh Trivedi, **Tamara Silbergleit Lehman**. International Conference on Parallel Architectures and Compilation Techniques (PACT), October 2023. **27% Acceptance Rate**
- C8 **Eliminating Micro-Architectural Side-Channel Attacks using Near Memory Processing**
Casey Nelson†, Joseph Izraelevitz, R. Iris Bahar, **Tamara Silbergleit Lehman**. IEEE International Symposium on Secure and Private Execution Environment Design (SEED), September 2022. **70% Acceptance Rate**
- C7 **Acuerdo: Fast Atomic Broadcast over RDMA**
Joseph Izraelevitz, Gaukas Wang, Rhett Hanscom*, Kayli Silvers, **Tamara Silbergleit Lehman**, Gregory Chockler, Alexey Gotsman. International Conference on Parallel Processing (ICPP), September 2022. **32% Acceptance Rate**
- C6 **Analyzing Behavioral Changes of Twitter Users After Exposure to Misinformation**
Yichen Wang*, Richard Han, **Tamara Silbergleit Lehman**, Qin Lv, Shivakant Mishra. Foundations of Open Source Intelligence and Security Informatics (FOSINT-SI), November 2021. **21% Acceptance Rate**
- C5 **A New Foe in GPUs: Power Side-Channel Attacks on Neural Network**
Hyeran Jeon, Nima Karimian, **Tamara Silbergleit Lehman**. International Symposium on Quality Electronic Design (ISQED), April 2021. **36% Acceptance Rate**
- C4 **Analyzing Twitter Users’ Behavior Before and After contact by Russia’s Internet Research Agency**
Upasana Dutta*†, Rhett Hanscom**, Jason Shuo Zhang, Richard Han, **Tamara Silbergleit Lehman**,

Qin Lv, Shivakant Mishra. ACM Conference on Computer-Supported Cooperative Work and Social Computing (CSCW), October 2021. **24% Acceptance Rate**

C3 Understanding How Readers Determine the Legitimacy of Online News Articles in the Era of Fake News

Srihaasa Pidikiti†, Shuo Zhang, Richard Han, **Tamara Silbergleit Lehman**, Qin Lv, Shivakant Mishra. Foundations of Open Source Intelligence and Security Informatics (FOSINT-SI), December 2020. **21% Acceptance Rate**

C2 MAPS: Understanding Metadata Access Patterns in Secure Memory

Tamara Silbergleit Lehman, Andrew D. Hilton and Benjamin C. Lee. IEEE International Symposium on Performance Analysis of Systems and Software (ISPASS).

Belfast, Northern Ireland.

Best Paper Award, April 2018. **30% Acceptance Rate**

C1 PoisonIvy: Safe Speculation for Secure Memory

Tamara Silbergleit Lehman, Andrew D. Hilton and Benjamin C. Lee

49th International Symposium on Microarchitecture (MICRO).

Taipei, Taiwan.

IEEE Micro Top Pick Honorable Mention, October 2016. **19% Acceptance Rate**

Journal Articles

J5 Coeus: Secure Similarity-Aware Data Integrity Verification for Secure Memories

Kazi Abu Zubair, Rahaf Abdullah, David Mohaisen, **Tamara Silbergleit Lehman** and Amro Awad. Transactions on Dependable And Secure Computing, 2025. **12% Acceptance Rate**.

J4 A Survey of Hardware-Based AES SBoxes: Area, Performance, and Security

Phaedra Curlin★, Jeff Heiges‡, Calvin Chan, **Tamara Silbergleit Lehman**. ACM Computing Surveys (CSUR), April 2025. **25% Acceptance Rate**.

J3 Baobab Merkle Tree: Memoized Counters for Efficient Secure Memory

Samuel Thomas★, Kidus Workneh, Ange-Thierry Ishimwe★, Zachary McKeivitt†, Phaedra Curlin★, Joseph Izraelevitz, R. Iris Bahar and **Tamara Silbergleit Lehman**. IEEE Computer Architecture Letters (CAL), March 2024. **25% Acceptance Rate**

J2 Do Twitter Users Change Their Behavior after Exposure to Misinformation? An In-depth Analysis

Yichen Wang, Richard Han, **Tamara Silbergleit Lehman**, Qin Lv, Shivakant Mishra. Social Network Analysis and Mining (SNAM) Springer Journal, November 2022. **30% Acceptance Rate**

J1 Understanding How Readers Determine the Legitimacy of Online Medical News Articles in the Era of Fake News

Srihaasa Pidikiti†, Shuo Zhang, Richard Han, **Tamara Silbergleit Lehman**, Qin Lv, Shivakant Mishra. Disease Control Through Social Network Surveillance Springer Book Chapter, May 2022.

Patents

P5 Di5Guise: 5G privacy with vSIM (pending)

Shirin Ebadi, Eric Robert Keller, Jan Zacharia Moolman★ and **Tamara Silbergleit Lehman**

Submitted to CU Venture Partners on May 2025

P4 Efficient and Dynamic Secure Memory Implementation for the RISC-V ISA (pending)

Jan Zacharia Moolman★ and **Tamara Silbergleit Lehman**

Submitted to CU Venture Partners on May 2025

P3 Individual Activity Profiles (pending)

Dennis Capone,Oscar Rhoades, Stefan Tschimben, James H Curry, Nicolas Patrick Ammann, Isabella

Grace Bates, Rucha Khairnar, **Tamara Silbergleit Lehman** and Keith Gremban
Submitted to CU Venture Partners on December 2024

P2 **Group Activity Profiles** (pending)

Michael Huffman, Armen Davis, Jake McGrath, Alexandra Arons Siegel, Dennis Capone, Joanna Crosby, Stefan Tschimben, Isabella Grace Bates, **Tamara Silbergleit Lehman**, Keith Gremban and James H Curry.

Submitted to CU Venture Partners on December 2024

- P1 **Cryptographic Cache Lines for A Trusted Execution Environment** granted on Feb. 2018
Siddhartha Chhabra, Francis X. McKeen, Carlos V. Rozas, Saeedeh Komijani and **Tamara Silbergleit Lehman**
United States Patent 9,904,805

Workshops and Posters

- W16 **Decoupling the Device and Identity in Cellular Networks with vSIM** February 2025
Shirin Ebadi, Zach Moolman*, **Tamara Silbergleit Lehman**, and Eric Keller
Network and Distributed System Security Symposium (NDSS) Posters
San Diego, CA. **Best Poster Award**
- W15 **Extending RISC-V Keystone to Include Efficient Secure Memory** November 2024
Zach Moolman* and **Tamara Silbergleit Lehman**
Workshop on Computer Architecture Research on RISC-V (CARRV)
Austin, TX
- W14 **Evaluating Rowhammer Impact on Neural Network Accuracy** November 2024
Ishita Mehta†
PACT Student Research Competition (SRC)
Long Beach, CA. **2nd Place**
- W13 **An ASIC Implementation of an Open-Source AES Engine** July 2023
Phaedra Curlin*, Calvin Chan and **Tamara Silbergleit Lehman**
Young Fellows of Design and Automation Conference (DAC)
San Francisco, CA
- W12 **SMAD: Efficiently Defending Against Transient Execution Attacks** March 2023
Ange Thierry Ishimwe* and **Tamara Silbergleit Lehman**
Young Architect at ASPLOS
Vancouver, Canada
- W11 **GPU Rowhammer Impact on Deep Learning Models** October 2022
Alexander Juenemann‡, **Tamara Silbergleit Lehman**
Workshop on Hardware and Architectural Support for Security and Privacy
Chicago, IL
- W10 **An ASIC Implementation of an Open-Source AES Engine** October 2022
Phaedra Curlin*, Calvin Chan, Andrew Fisher and **Tamara Silbergleit Lehman**
Career Workshop for Inclusion and Diversity in Computer Architecture
Chicago, IL
- W9 **Zero Trust Architecture for Radio Astronomy & Research Organizations** October 2022
Sylvia Llosa*, Georgiana Weihe, Eloise Morris, Kevin Gifford, **Tamara Silbergleit Lehman** and Stefan Tschimben
SecDev
Atlanta, GA
- W8 **Security as a First-Class Design Constraint in Computer Architecture** October 2022
Tamara Silbergleit Lehman

DARPA Forward, Risers
Fort Collins, CO

- W7 **SecureRPI: A Comparison Study of HW and SW Security on IOT Devices** October 2022
Sylvia Llosa*, Georgiana Weihe, Stefan Tschimben, Eloise Morris, Kevin Gifford and **Tamara Silbergleit Lehman**
AIAA
Boulder, CO
- W6 **VulnerabiliTree: A Taxonomy of HW and SW Comp. Attacks for Heuristic Defense** October 2021
Sylvia Llosa*, Ange-Thierry Ishimwe*, Tamara Silbergleit Lehman
Workshop on Hardware and Architectural Support for Security and Privacy
Virtual Workshop
- W5 **Automatic Transient Execution Attack Detection** October 2021
Zack McKeivitt†, Ashutosh Trivedi, Tamara Silbergleit Lehman
Workshop on Hardware and Architectural Support for Security and Privacy
Virtual Workshop
- W4 **VulnerabiliTree: A Taxonomy of HW and SW Comp. Attacks for Heuristic Defense** October 2021
Sylvia Llosa*, Ange-Thierry Ishimwe*, Tamara Silbergleit Lehman
Career Workshop for Inclusion and Diversity in Computer Architecture
Virtual Workshop
- W3 **Investigating the Potential for NDP to Reduce Secure Memory Overheads** January 2021
Casey Nelson†, **Tamara Silbergleit Lehman** and R. Iris Bahar
Boston Area Architecture Workshop (BARC). Virtual.
- W2 **Partial Recovery of Secure Non-Volatile Main Memories** January 2021
Samuel Thomas*, **Tamara Silbergleit Lehman**, Joseph Izraelevitz, and R. Iris Bahar
Boston Area Architecture Workshop (BARC). Virtual.
- W1 **Classifying and Mitigating Side-Channel Vulnerabilities between VMs** September 2019
Jinpeng Miao*, Dwight Brown, Abdulrahman Alaraj, **Tamara Silbergleit Lehman** and Daniel Massey
Poster at ACSAC 2019. San Juan, Puerto Rico.

Invited Talks and Academic Presentations

- T26 **How to get your CAREER proposal funded.** May 2026
Tamara Silbergleit Lehman
Invited talk at the NSF CISE CAREER Workshop
- T25 **Secure, Efficient and High Performance Computing:
A Computer Architecture Perspective** November 2025
Tamara Silbergleit Lehman
Invited talk at the department seminar at University of Illinois Chicago (UIC)
- T24 **Secure, Efficient and High Performance Computing:
A Computer Architecture Perspective** March 2025
Tamara Silbergleit Lehman
Invited talk at the SysRead group at Brown University
- T23 **Secure, Efficient and High Performance Computing:
A Computer Architecture Perspective** March 2025
Tamara Silbergleit Lehman
Invited talk at Boston University

- T22 **Secure, Efficient and High Performance Computing:
A Computer Architecture Perspective** January 2025
Tamara Silbergleit Lehman
Invited talk at the Graduate Seminar for Electrical Engineering and Computer Science at the University of California Merced
- T21 **Secure, Efficient and High Performance Computing:
A Computer Architecture Perspective** October 2024
Tamara Silbergleit Lehman
Invited talk at the Computer Science Colloquium at the University of California Santa Cruz
- T20 **Freshman Seminar: Computer Engineering** November 2020, October 2022, October 2024
Tamara Silbergleit Lehman
University of Colorado Boulder, guest Lecture. Online.
- T19 **Secure 5G communications** August 2024
Tamara Silbergleit Lehman
Qualcomm Colorado office. Longmont, Colorado
- T18 **Secure 5G communications and metrics** June 2024
Tamara Silbergleit Lehman
Vail Computer Elements Workshop. Vail, Colorado
- T17 **Secure, Efficient and High Performance Computing:
A Computer Architecture Perspective** January 2024
Tamara Silbergleit Lehman
Invited talk at the Computer Science Colloquium at the University of Colorado Boulder
- T16 **Keynote: Secure, Efficient and High Performance Computing:
A Computer Architecture Perspective** June 2023
Tamara Silbergleit Lehman
Opening Keynote Speaker at International Conference on Engineering Applications of Neural Networks (EANN). Leon, Spain
- T15 **Securing 5G Communications with GHOST** August 2023
Tamara Silbergleit Lehman and Keith Gremban
Invited seminar at The Federal Communications Commission (FCC)
- T14 **Security as a First-Class Design Constraint** October 2022
Tamara Silbergleit Lehman
Invited seminar at Colorado School of Mines.
- T13 **My Path to Becoming a Computer Engineer** August 2021
Tamara Silbergleit Lehman
Invited talk at SciGirls Code camp.
- T12 **Design Strategies for Efficient and Secure Memory, and Beyond** April 2021
Tamara Silbergleit Lehman
Invited talk at TCP Seminar. Online.
- T11 **Design Strategies for Efficient and Secure Memory** November 2020
Tamara Silbergleit Lehman
Invited talk at AMD Research Tech Talk Seminar. Online.
- T10 **Data Science Companion Group: Investigating IRA Behavior in Twitter** November 2020
Tamara Silbergleit Lehman
University of Colorado Boulder, guest Lecture. Online.
- T9 **Misinformation on Social Media** October 2020
Tamara Silbergleit Lehman and Shivakant Mishra
Colorado Matter, Colorado Public Radio (CPR). Radio Interview.

- T8 **The Influence of Russian Social Media Bots** September 2020
 Tamara Silbergleit Lehman and Shivakant Mishra
 Colorado Matter, Colorado Public Radio (CPR). Radio Interview.
- T7 **Preparing Future Engineering Faculty Panel** September 2020
 Tamara Silbergleit Lehman
 Duke University, invited panelist. Online
- T6 **Secure Memory Systems** October 2019
 Presentation for the ECEE Industrial Advisory Board
 Tamara Silbergleit Lehman
 University of Colorado Boulder. Boulder, CO.
- T5 **MAPS: Understanding Metadata Access Patterns in Secure Memory** April 2018
 Tamara Silbergleit Lehman
 Presentation at ISPASS 2018. Belfast, Northern Ireland.
- T4 **PoisonIvy: Safe Speculation for Secure Memory** September 2017
 Tamara Silbergleit Lehman
 Presentation at SRC Techcon 2017. Austin, TX.
Best In Session Award
- T3 **PoisonIvy: Safe Speculation for Secure Memory** October 2016
 Tamara Silbergleit Lehman
 Paper Presentation at MICRO 2016. Taipei, Taiwan.
- T2 **Datacenter Simulation Methodologies Tutorial** December 2014, June 2015
 Tamara Silbergleit Lehman, Qiuyun Wang, Seyed Majid Zahedi and Benjamin C. Lee
 Presentation at 47th International Symposium on Microarchitecture (MICRO). Cambridge, UK.
 Presentation at 42nd International Symposium on Computer Architecture (ISCA). Portland, OR.
- T1 **Secure Memory Caching Strategies** April 2015
 Tamara Silbergleit Lehman
 Poster at CRA-W Grad Cohort Workshop. San Francisco, CA.

Funding

Grants Awarded

- G13 **CAREER: Security as a First-Class Design Constraint in Comp. Arch.** March 2025 - Feb 2030
 Sole Principal Investigator.
 National Science Foundation
 Total Award: \$615,792
- G12 **Spaceborne Low-Energy AI Computing (SLEAC)** October 2024 - May 2028
 Co-Principal Investigator with Calvin Chan as Principal Investigator
 National Security Technology Accelerator (NSTXL)
 Total Award (Lehman's portion) - CU Boulder's Portion: \$800,000 (\$406,561)
- G11 **Collaborative Research: SHF: Small: Towards Robust Deep Learning Computing on GPUs - REU Supplement** August 2024 - July 2025
 Sole Principal Investigator
 National Science Foundation
 Total Award: \$20,000
- G10 **Conv. Accel.: 5G Hidden Operations through Securing Traffic (GHOST) Phase 2** Aug 2023 - Jul 2025
 Co-Principal investigator with Keith Gremban, Alexandra Siegel and Eric Keller from University of

Colorado Boulder, and Salvador D'Itri from Federated Wireless.

National Science Foundation

Total Award (Lehman's portion): \$4,983,234 (\$275,000)

G9 Travel: NSF Student Travel Grant for 2023 Intl Symp. on Comp. Archi. (ISCA) Jun 2023 - May 2024

Sole Principal Investigator.

National Science Foundation

Total Award: \$25,000

G8 CNS Core: Small: Transparent Network Acceleration (TNA) May 2023 - Apr 2025

Co-Principal investigator with Eric Keller.

National Science Foundation

Total Award (Lehman's portion): \$599,928 (\$300,000)

G7 Standard Security Metric Definition for Hardware Design Dec 2022 - May 2025

Sole Principal investigator.

Office of Naval Research

Total Award: \$240,785

G6 Convergence Accelerator Track G: 5G Hidden Operations through Securing Traffic (GHOST)

Aug 2022 - Jul 2023

Co-Principal investigator with Keith Gremban, Alexandra Siegel and Eric Keller from University of Colorado Boulder, and Salvador D'Itri from Federated Wireless.

National Science Foundation

Total Award (Lehman's portion): \$749,186 (\$75,000)

G5 Open Source Cryptographic Hardware Jan 2022 - Sep 2022

Sole Principal Investigator.

Sandia Labs

Total Award: \$50,000

G4 Collaborative Research: SHF: Small: Towards Robust Deep Learning Computing on GPUs - REU Supplement August 2022 - July 2023

Sole Principal Investigator

National Science Foundation

Total Award: \$16,000

G3 Collaborative Research: SHF: Small: Towards Robust Deep Learning Computing on GPUs 2021-2024

Co-Principal investigator with Hyeran Jeon (University of California Merced) and Nima Karimian (San Jose State University)

National Science Foundation, Software and Hardware Foundations Program.

Total Award (Lehman's portion): \$511,991 (\$176,000)

G2 SWIFT: LARGE: Passive and Active Spectrum Sharing (PASS) Sep 2020- Aug 2023

Co-Principal investigator with Kevin Gifford.

National Science Foundation SWIFT Program.

Total Award (Lehman's portion): \$1.45M (\$380,000)

G1 In-Kind Contribution of Equipment 2021

Ampere Computing, donated to Tamara Silbergleit Lehman

Total Amount: \$32,000

Teaching Experience

- **ECEN2360 Programming of Digital Systems** - University of Colorado Boulder Spring 2025
Instructor of Record
Updating course material, instructing, and grading.
- **gem5 Bootcamp** - Universidad de Buenos Aires (UBA) November 2024
Instructor of Record along with Prof. Jason Lowe-Power (UC Davis)
Create, design and instruct the course. Jointly developed with Professor Jason Lowe-Power (UC Davis), Professor Elba Garza (University of Washington), and Professor Estaban Mocskos (UBA)
- **ECEN5593 Adv. Computer Architecture** - University of Colorado Boulder Spring 2021-2025
Instructor of Record
Developing the course, instructing, grading, guiding discussions.
Average Instructor FCQ Scores: 4.3/5.0
- **ECEN3593 Computer Organization** - University of Colorado Boulder Fall 2020-2024
Instructor of Record
Revamping course material, instructing, grading. *Average Instructor FCQ Scores: 4.5/5.0*
- **ECEN1100 Exploring ECE** - University of Colorado Boulder Fall 2023
Instructor of Record
Seminar organization, grading, guiding discussions.
Average Instructor FCQ Scores: 4.3/5.0
- **ECEN5793 Secure Computer Architectures** - University of Colorado Boulder Fall 2019, 2022
Instructor of Record
Developing the course, instructing, grading, guiding discussions. Designed the course.
Average Instructor FCQ Score: 4.5/6.0
- **ECE553 Compiler Construction** - Duke University Spring 2015,2017
Teaching assistant
Grading and office hours.
Overall Evaluation Score: 4.5/5.0 and 4.7/5.0
- **ECE552 Advanced Computer Architecture** - Duke University Fall 2016
Teaching assistant
Grading and office hours.
Overall Evaluation Score: 3.5/5.0

Research Advising

PhD. Students

- Blake Cragen, Doctorate Student 2025-Present
Thesis Topic: Acceleration technologies
Computer Science Department, University of Colorado Boulder
- Mateo Cantagallo, Doctorate Student 2025-Present
Thesis Topic: Task-oriented computing paradigm
Computer Science Department, University of Colorado Boulder
- Victor Jimenez Rugama, Doctorate Student, Co-Advised with Prof. Eric Keller 2025-Present
Thesis Topic: Artificial Intelligence Acceleration Technologies
Computer Science Department, University of Colorado Boulder
- Ian Barnaby, Doctorate Student, Co-Advised with Prof. Calvin Chan 2024-Present
Thesis Topic: Low-Energy and Secure Space Computation
Electrical, Computer and Energy Department, University of Colorado Boulder

- Phaedra Curlin, Doctorate Candidate 2022-Present
Thesis Topic: Microarchitectural Security Metrics
Electrical, Computer and Energy Department, University of Colorado Boulder
- Ange-Thierry Ishimwe, PhD. 2020-2026
Thesis Title: "Defending Against Transient Execution Attacks Efficiently"
Electrical, Computer and Energy Department, University of Colorado Boulder
Defended in Spring 2026
- Rhett Hanscom, PhD. 2020-2025
Thesis Title: "Toxicity Tracking: Measurement, Community Dynamics, and Political Influence in Online Discourse"
Computer Science Department, University of Colorado Boulder
Defended in Fall 2025
- Samuel Thomas PhD., Co-Advised with Prof. R. Iris Bahar 2020-2025
Thesis Title: "Towards a Practical Secure Memory for Modern Deployment"
Tenure-Track Assistant Professor at Pomona College in July 2025
Computer Science Department, Brown University
Defended in Spring 2025

Master Students

- Ayan Chowdhury, M.S. 2024-2025
Independent Study, Graduate Research Assistant
Project Title: "Online Social Media Community Toxicity Classifier"
Computer Science Department, University of Colorado Boulder
- Zachary McKeivitt, M.S. with Thesis 2022-2023
Graduate Research Assistant
Thesis Title: "Automatic Transient Execution Attack Detection"
Computer Science Department, University of Colorado Boulder
- Casey Nelson, M.S. with Thesis 2021-2022
Graduate Research Assistant
Project Title: "Eliminating Micro-architectural Side-Channel Attacks"
Computer Science Department, Brown University
- Srihaasa Pidikiti, M.S. with Thesis 2020-2021
Graduate Research Assistant
Thesis Title: "A Sociological Approach to User Privacy in the Internet of Things and Smart City Environments"
Computer Science Department, University of Colorado Boulder
- Upasana Dutta, M.S. 2020-2021
Graduate Research Assistant
Project Title: "Investigating the Internet Research Agency Impact"
Computer Science Department, University of Colorado Boulder
- Sylvia Llosa, M.S. 2021-2023
Completed a course-based masters.
Electrical, Computer and Energy Department, University of Colorado Boulder

Undergraduate Students

- *Andrew Ajamian* 2025
Summer Program for Undergraduate Research (SPUR)

- Project Title: "Investigating Security Metrics for Microarchitecture"
Electrical, Computer and Energy Engineering Department, University of Colorado Boulder
- *Victor Jimenez Rugama* 2025
Europe-Colorado Program Undergraduate Thesis
Thesis Title: "Neural Processing Units to Accelerate Mathematical Models: A Case Study on a Dynamic Stochastic General Equilibrium Model"
Universitat Politècnica de Catalunya, UPC
 - *Sean Kadkhodayan* 2024-2025
SPUR and Independent Study
Project Title: "Acceleration of Dynamic Spatial Integrated Assessment Model"
Electrical, Computer and Energy Engineering Department, University of Colorado Boulder
 - *Ishita Mehta* 2024
Undergraduate Research Assistant
Project Title: "Evaluating Impact of Rowhammer Attacks on Neural Networks"
Computer Science Department, University of Colorado Boulder
 - *Suhana Zeutzius* 2023-2024
Discovery Learning Apprenticeship (DLA) Program
Project Title: "Investigating Cache Efficiency for Secure Memory Systems"
Computer Science Department, University of Colorado Boulder
 - *Nicholas Cisne* 2023-2024
DLA Program
Project Title: "Extending the gem5 Simulator to Include Return Stack Buffer Modeling"
Electrical, Computer and Energy Engineering Department, University of Colorado Boulder
 - *Andrew Johnson* 2023
SPUR
Project Title: "Establishing A Standard Security Benchmark Suite"
Denver Metro Community College
 - *Yatharth Brahmhatt* 2023
SPUR
Project Title: "Establishing A Standard Security Benchmark Suite"
Computer Science Department, University of Colorado Boulder
 - *Leo Ge* 2023
SPUR
Project Title: "Establishing A Standard Security Benchmark Suite"
Electrical, Computer and Energy Engineering Department, University of Colorado Boulder
 - *Adam Richling* 2023-2024
SPUR and Undergraduate Research Assistant
Project Title: "Investigating Eviction Policies for Secure Memory Systems"
Computer Science Department, University of Colorado Boulder
 - *Samuel McDiarmid-Sterling* 2023-2025
SPUR and Undergraduate Research Assistant
Project Title: "Investigating Standard Access Patterns of Typical Applications"
Electrical, Computer and Energy Engineering Department, University of Colorado Boulder
 - *Kasper Seglem* 2022-2023
DLA Program
Project Title: "Evaluating Vulnerabilities in Non-Volatile Memory Systems"
Electrical, Computer and Energy Engineering Department, University of Colorado Boulder
 - *Jack Blackburn* 2022-2023
DLA Program

- Project Title: "Securing a 5G untrusted network"
Electrical, Computer and Energy Engineering Department, University of Colorado Boulder
- *Alexander Juenemann* 2022-2023
SPUR and Undergraduate Research Assistant
Project Title: "Simulating Hardware Security in Processor Simulators"
Computer Science Department, University of Colorado Boulder
 - *Tucker Travins* 2022-2023
Independent Study and Undergraduate Research Assistant
Project Title: "Simulating Rowhammer Attacks"
Electrical, Computer and Energy Engineering Department, University of Colorado Boulder
 - *Albert Vilardell Barnosell* 2021-2022
Europe-Colorado Program Undergraduate Thesis
Thesis Title: "Virtualization of programmable switches on top of an FPGA board"
Universitat Politècnica de Catalunya, UPC
 - *Pranav Subramanian* 2021-2022
DLA Program
Project Title: "Open Source FPGA Implementation for Programmable Switches"
Electrical, Computer and Energy Engineering Department, University of Colorado Boulder
 - *Reiko Matsuda-Dunn* 2021
Independent Study
Project Title: "Efficiently Defending Against Spectre Attacks"
Electrical, Computer and Energy Engineering Department, University of Colorado Boulder
 - *Zachary McKeivitt* 2020-2022
DLA Program and Senior Thesis
Project/Thesis Title: "A Security Debugger for Microarchitecture"
Computer Science Department, University of Colorado Boulder
 - *Ailish Skinner* 2021
Independent Study
Project Title: "Spectre Attacks on In-Order Processors"
Computer Science Department, University of Colorado Boulder
 - *Alex Han-Begler* 2020
Independent Study
Project Title: "Analysis of Social Media Impact of the IRA Botnet"
Computer Science Department, University of Colorado Boulder

Student Committees and Single Project Interactions

- Mazyar Nazari, PhD. 2025
PhD Defense Committee
Computer Science Department, University of Colorado Boulder
- Manan Doshi 2024
Master Student Independent Study
Computer Science Department, University of Colorado Boulder
- Yichen Wang, PhD. 2021-2022
Comprehensive Exam and PhD Defense Committee
Computer Science Department, University of Colorado Boulder
- Claire Savard, PhD. 2019-2020, 2022, 2024
Independent Study, Comprehensive Exam and PhD. Defense Committee
Computer Science and Physics Department, University of Colorado Boulder

- Marcelo De Abranches, PhD. 2020, 2022
Preliminary Exam, Comprehensive exam, and PhD. Defense Committee
Electrical, Computer and Energy Department, University of Colorado Boulder
- Gregory Cusack, PhD. 2020, 2022
Preliminary Exam, Comprehensive exam, and PhD. Defense Committee
Electrical, Computer and Energy Department, University of Colorado Boulder
- George Hodgkins, PhD. 2022,2024, 2025
Preliminary Exam, Comprehensive Exam and PhD Defense Committee
Electrical, Computer and Energy Department, University of Colorado Boulder
- Jack Wampler, PhD. 2022, 2023
Comprehensive exam and PhD. Defense Committee
Electrical, Computer and Energy Department, University of Colorado Boulder

Service

Internal

- **Faculty Mentor to Assistant Professor Ramin Ayanzadeh** 2024-Present
University of Colorado Boulder, CS
- **School Of Computing Steering Committee** 2024-2025
University of Colorado Boulder, CS
- **ECEE Graduate Committee** 2024-2025
University of Colorado Boulder, ECEE
- **ECEE Undergraduate Committee** 2024-2025
University of Colorado Boulder, ECEE
- **Distinguished Speaker and ECEE Speaker Series Host:** 2024
 - Professor Margaret Martonosi (CS, Princeton University)
 - Professor Onur Mutlu (CS, ETH Zurich)
 - Professor Jakub Szefer (ECE, Northwestern University)
 - Professor Tsung Wei Huang (ECE, University of Winsconsin Madison)
- **ECEE Executive Committee** 2022-2024
University of Colorado Boulder, ECEE
- **Faculty and Staff Recruitment, Retention and Recognition Committee** 2020-2024
University of Colorado Boulder, ECEE
- **Computer Engineering Search Committee** 2022-2023
University of Colorado Boulder, ECEE
- **Participated in the Research Impact Fellows Program** 2021
University of Colorado Boulder, CEAS
- **College Diversity ECEE Ad-Hoc Search Committee Chair** 2021
University of Colorado Boulder, ECEE
- **College Diversity Search Committee** 2021
University of Colorado Boulder, CEAS
- **CU/CMU Joint Instructor Search Committee** 2021
University of Colorado Boulder, ECEE

- **Faculty Search Oversight Committee** 2020-2022
University of Colorado Boulder, ECEE
- **College Level Ad-Hoc Budget Committee** 2020
University of Colorado Boulder, ECEE
- **Faculty Search Committee** 2019-2020
University of Colorado Boulder, ECEE
- **Curriculum Committee** 2019-2020
University of Colorado Boulder, ECEE

External

- **Member of Review Panel** 2025
National Science Foundation (NSF), Office of Advanced Cyberinfrastructure (OAC)
- **Reserve Program Committee Member** 2025
International Conference on Object-Oriented Programming Systems, Languages, and Application (OOP-SLA)
- **Program Committee Member** 2025
Workshop on DRAM Security (DRAMSec)
- **External Textbook Reviewer** 2024
Machine Learning Systems - Principles and Practices of Engineering Artificially Intelligent Systems
Textbook written by Professor Vijay Janapa Reddi
- **Organizing Committee Member** 2019-2024
Annual Career Workshop for Inclusion and Diversity in Computer Architecture (CWIDCA)
- **Organizing Committee Member, Finance Chair** 2024
International Symposium on Computer Architecture (ISCA)
- **Poster Session Judge** 2023
PACT Student Research Competition (SRC)
- **Organizing Committee Member, Travel Award Chair** 2023
International Symposium on Computer Architecture (ISCA)
- **Program Committee Member** 2023
Young Architect Workshop (YArch)
- **Long Term Mentor** 2022, 2023, 2024
Computer Architecture Long Term Mentoring Program (CALM)
- **Organizing Committee Member, Finance Chair** 2022
International Symposium on Computer Architecture (ISCA)
- **Member of Review Panel** 2022
National Science Foundation (NSF), Graduate Research Fellows Program (GRFP)
- **Program Committee Member** 2022, 2023, 2024, 2025, 2026
International Conference on Architectural Support for Programming Languages and Operating Systems (ASPLOS)
- **Program Committee Member** 2023, 2025
International Symposium in Computer Architecture (ISCA)
- **Program Committee Member** 2023, 2025
International Symposium on Microarchitecture (MICRO)
- **Program Committee Member** 2023, 2024, 2025
International Symposium on High Performance Computer Architecture (HPCA)

- **Program Committee Member** 2022
IEEE International Symposium on Secure and Private Execution Environment Design (SEED)
- **Organizing Committee Member, Finance Chair** 2021
IEEE International Symposium on Secure and Private Execution Environment Design (SEED)
- **External Reviewer** 2021, 2022
International Symposium on Microarchitecture (MICRO)
- **External Reviewer** 2020,2021, 2022
International Symposium on Computer Architecture (ISCA)
- **Program Committee Member** 2021, 2022
IEEE International On Workload Characterization (IISWC)
- **Program Committee Member and Judge** 2021, 2022
MICRO Student Research Competition (SRC)
- **Organizing Committee Member, Workshop and Tutorials Co-Chair** 2021
International Conference on Architectural Support for Programming Languages and Operating Systems (ASPLOS)
- **Organizing Committee Member, Publication Chair** 2021,2022
International Symposium on High Performance Computer Architecture (HPCA)
- **Review Panel** 2021, 2022
National Science Foundation (NSF), Secure and Trustworthy Cyberspace (SATC)
- **Program Committee Member** 2020
Hardware and Architectural Support for Security and Privacy (HASP)
- **Program Committee Member** 2020,2021
International Conference on Computer Design (ICCD) Security Track
- **Reviewer** 2018, 2020, 2021, 2022, 2023
Computer Architecture Letters (CAL)
- **External Reviewer** 2019
International Conference on Embedded Software (EMSOFT)
- **Vice-President** Academic year 2018-2019
GWIS Research Triangle, Durham, NC
Lead and organize events to promote diversity in graduate studies in STEM fields.
- **Treasurer and Vice-President** Academic year 2015-2016, 2018-2019
CRA-W Duke University Chapter, Durham, NC
Organize workshops and seminars to promote diversity in computer science and engineering.