Tamara Silbergleit Lehman

ECOT 353
Boulder, CO 80309 tamara.lehman@colorado.edu

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

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

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 8 PhD. students, graduated one PhD student and two Master students with thesis and three course-based.
  - 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*

  - 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.

In the Computing field conferences are the preferred method for publishing but journal articles are still competitive. Conferences are always peer-reviewed and highly selective.

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), August 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 McKevitt†, 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

Conference Publications Under Review

CR9 **SoK: All You Ever Wanted to Know About Cache Security Metrics**
Phaedra Curlin⋆ and **Tamara Silbergleit Lehman**.
(under review) Security and Privacy, May 2026. 25% Acceptance Rate.

CR8 **Characterizing and Optimizing Cache Placement for Secure Memory Metadata**
Samuel Thomas⋆, Blake Cragen⋆, R. Iris Bahar, **Tamara Silbergleit Lehman**. (under review) IEEE International Symposium on Performance Analysis of Systems and Software (ISPASS), 2026. 28% Acceptance Rate

CR7 **DESPACITO: Why Neural Processing Units Can Be Slower Than You Think**
Victor Jimenez⋆, Alessandro Peri, Eric Keller, and **Tamara Silbergleit Lehman**. (under review) IEEE International Symposium on Performance Analysis of Systems and Software (ISPASS), 2026. 28% Acceptance Rate

CR6 **Trickle-Down Toxicity: Understanding the Top-Down Effect of US Presidential Language on Political Subreddit Discourse**
Rhett Hanscom⋆, Ayan Chowdhury†, **Tamara Silbergleit Lehman**, Qin Lv. (under review) ACM Web Science Conference, 2026 (WebSci). 32% Acceptance Rate

CR5 **Di5GUISE: disassociating profiles to improve privacy using vSIM in 5G networks**
Shirin Ebadi*, Zach Moolman*⋆, **Tamara Silbergleit Lehman**, Eric Keller. (under review) Privacy Enhancing Technologies Symposium (PETS), 2026. 30% Acceptance Rate

CR4 **SCPC: Securing Cross-Process Collision-Based Transient Attacks**
Mujahid Al Rafi*, Ange-Thierry Ishimwe*⋆, Xinwei Zhou, Luanzheng Guo, Andres Marquez, **Tamara Silbergleit Lehman**, Hyeran Jeon. (under review) International Symposium on Computer Architecture (ISCA), 2026 20% Acceptance Rate

CR3 **CAPULET: Cache Pooling Metadata Caches in Secure Disaggregated Memory Systems**
Samuel Thomas⋆, R. Iris Bahar, **Tamara Silbergleit Lehman**. (under review) Design Automation Conference (DAC), 2026. 22% Acceptance Rate

CR2 **AUTOPRUNE: A stochastic candidate pruning strategy for Souper**
Ange-Thierry Ishimwe⋆, Raghuveer Shivakumar, Heewoo Kim, **Tamara Silbergleit Lehman** and Joseph Izraelevitz. (under review) IEEE International Symposium on Performance Analysis of Systems and Software (ISPASS), 2026. 28% Acceptance Rate

CR1 **Characterizing Metadata Placement for Secure Disaggregated Memory Systems**
Samuel Thomas⋆, R. Iris Bahar, **Tamara Silbergleit Lehman**. (under review) ACM SigMetrics, 2026. 20% 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 McKevitt†, 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.

Journal Articles Under Review

JR1 **Characterization of Toxicity Across Social Media Platforms**
Rhett Hanscom⋆, Shivakant Mishra, Qin Lv and **Tamara Silbergleit Lehman**. (under review) ACM Computing Surveys (CSUR), 2025. 25% Acceptance Rate.

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 McKevitt†, 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 Intnl 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): $ 491,408 ($160,000)

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

Grants Pending

GP3 **SecCo: Secure Co-design for Secure and Efficient Microarchitectures** Submitted July 2025
Sole Principal Investigator
Young Investigator Program, Office of Naval Research
Pending Total Award: $745,458

GP2 **VINES: Track 1: EPN:Enhanced Privacy Networks** Submitted August 2025
Principal Investigator, with co-PI Eric Keller
National Science Foundation Verticals-enabling Intelligent Network Systems program
Pending Total Award (Lehman's portion): $1,498,407 ($749,203)

GP1 **Col. Res.:SaTC2.0:RES:Efficient Secure Memory for Het. Sys.** Submitted September 2025
Principal Investigator with Co-Principal Investigators R. Iris Bahar (Colorado School of Mines) and Samuel Thomas (Pomona College)
National Science Foundation
Pending Total Award (Lehman's Portion): $1,199,500 ($471,309)

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 2021-2026
  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 2020-2025
  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, 2025
  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

- Jan (Zach) Moolman, Graduate Research Assistant 2023-2025
  Thesis Topic: Secure Computing for Mobile and Embedded Devices
  Electrical, Computer and Energy Department, University of Colorado Boulder
- 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 McKevitt, 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- 2026
  Summer Program for Undergraduate Research (SPUR) & Undergraduate Thesis Advisor
  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* 2024-2026
  Undergraduate Research Assistant & Undergraduate Thesis Advisor
  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 Brahmbhatt* 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 McKevitt* 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 Socil Media Impact of the IRA Botnet"
  Computer Science Department, University of Colorado Boulder

Student Committees and Single Project Interactions

- Maziyar 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

- **Graduate student recruitment at Grace Hopper Conference** 2025
  University of Colorado Boulder, ECEE & CS
- **Computer Engineering Teaching Faculty Search Committee** 2025-2026
  University of Colorado Boulder, ECEE
- **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-Present
  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

- **Expert Reviewer** 2026
  ACM Computing Survey (CSUR)
- **General co-Chair** 2026
  IEEE International Conference on Workload Characterization (IISWC)
- **Member of Review Panel** 2025
  National Science Foundation (NSF), Directorate for Computer and Information Science and Engineering (CISE)
- **Program Committee Member** 2023, 2025, 2026
  International Symposium in Computer Architecture (ISCA)
- **Program Committee Member** 2026
  International Conference on Supercomputing (ICS)
- **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 (OOPSLA)
- **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, 2026
  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, 2026
  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.