

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

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.
Defended March 2019

Master of Engineering - Computer Engineering December 2013
Duke University, Durham, NC
GPA: 3.8 / 4.0

Bachelor of Science - Industrial Engineering December 2007
Minor in Business Administration
University of Florida, Gainesville, FL
GPA: 3.6 / 4.0, 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 4 PhD. Students, 1 Master student, and 4 undergraduate students.
Conduct and lead research on the intersection of computer architecture and security and issues surrounding democracy and technology. Develop and teach courses in computer engineering.

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.

Publications

SoK: An Exploration of Hardware-Based, AES S-box Implementations

Phaedra Curlin, Calvin Chan, **Tamara Silbergleit Lehman**
(under review) International Conference on Cryptographic Hardware and Embedded Systems (CHES),
31% Acceptance Rate TBD

A Comparative Study of User Behavioral Change after Exposure to Misinformation with Different Veracity Levels and Interaction Types

Yichen Wang, Richard Han, Tamara Silbergleit Lehman, Qin Lv, Shivakant Mishra
(under review) ACM Web Science Conference (WebSci), 30% Acceptance Rate

Characterization of Toxicity Across Social Media Platforms

Rhett Hanscom, Shivakant Mishra, Qin Lv and **Tamara Silbergleit Lehman**
(under review) ACM SIGCHI Conference on Computer-Supported Cooperative Work & Social Computing (CSCW), 25% Acceptance Rate TBD

A Midsummer Night's Tree: Efficient and High Performance Secure SCM

Samuel Thomas, Kidus Workneh, Jac McCarty, Joseph Izraelevitz, R. Iris Bahar and **Tamara Silbergleit Lehman**
(under review) International Conference on Architectural Support for Programming Languages and Operating Systems (ASPLOS), 24% Acceptance Rate TBD

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**
(under review) Computer Architecture Letters (CAL), 20% Acceptance Rate TBD

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), 27% Acceptance Rate October 2023

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), 30% Acceptance Rate
Springer Journal November 2022

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), 70%
Acceptance Rate September 2022

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), 32% Acceptance Rate September 2022

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

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

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

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

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

Design Strategies for Efficient and Secure Memory

Tamara Silbergleit Lehman

PhD. Thesis

Duke University, Durham, NC.

May 2019

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

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

Patents

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

Teaching Experience

ECEN5593 Advanced Computer Architecture - University of Colorado Boulder Spring 2021, 2022, 2023
Instructor of Record, remotely and in person
Developing the course, instructing, grading, guiding discussions. *Average Instructor FCQ Scores: 4.3/5.0*

ECEN3593 Computer Organization - University of Colorado Boulder Fall 2020, 2021, 2022
Instructor of Record, remotely and in person
Instructing, grading, guiding discussions.
Average Instructor FCQ Scores: 4.67/5.0

ECEN5793/ECEN5033-002 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

Invited Talks

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

Securing 5G Communications with GHOST August 2023
Tamara Silbergleit Lehman and Keith Gremban
Invited seminar at The Federal Communications Commission (FCC)

Security as a First-Class Design Constraint October 2022
Tamara Silbergleit Lehman
Invited seminar at Colorado School of Mines.

My Path to Becoming a Computer Engineer August 2021
Tamara Silbergleit Lehman
Invited talk at SciGirls Code camp.

- Design Strategies for Efficient and Secure Memory, and Beyond** April 2021
 Tamara Silbergleit Lehman
 Invited talk at TCP Seminar. Online.
- Design Strategies for Efficient and Secure Memory** November 2020
 Tamara Silbergleit Lehman
 Invited talk at AMD Research Tech Talk Seminar. Online.
- Data Science Companion Group: Investigating IRA Behavior in Twitter** November 2020
 Tamara Silbergleit Lehman
 University of Colorado Boulder, guest Lecture. Online.
- Freshman Seminar: Computer Engineering** November 2020, October 2022
 Tamara Silbergleit Lehman
 University of Colorado Boulder, guest Lecture. Online.
- Misinformation on Social Media** October 2020
 Tamara Silbergleit Lehman and Shivakant Mishra
 Colorado Matter, Colorado Public Radio (CPR). Radio Interview.
- The Influence of Russian Social Media Bots** September 2020
 Tamara Silbergleit Lehman and Shivakant Mishra
 Colorado Matter, Colorado Public Radio (CPR). Radio Interview.
- Preparing Future Engineering Faculty Panel** September 2020
 Tamara Silbergleit Lehman
 Duke University, invited panelist. Online
- Secure Memory Systems** October 2019
 Presentation for the ECEE Industrial Advisory Board
 Tamara Silbergleit Lehman
 University of Colorado Boulder. Boulder, CO.

Workshops and Posters

- 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
- SMAD: Efficiently Defending Against Transient Execution Attacks** March 2023
 Ange Thierry Ishimwe and **Tamara Silbergleit Lehman**
 Young Architect at ASPLOS
 Vancouver, Canada
- 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
- 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

- Zero Trust Architecture for Radio Astronomy & Research Organizations** October 2022
 Sylvia Llosa, Georgiana Weihe, Eloise Morris, Kevin Gifford, Tamara Lehman and Stefan Tschimben
 SecDev
 Atlanta, GA
- Security as a First-Class Design Constraint in Computer Architecture** October 2022
 Tamara Silbergleit Lehman
 DARPA Forward, Risers
 Fort Collins, CO
- SecureRpi: A Comparison Study of Hardware and Software Security on Internet of Things Devices** October 2022
 Sylvia Llosa, Georgiana Weihe, Stefan Tschimben, Eloise Morris, Kevin Gifford and Tamara Silbergleit Lehman
 AIAA
 Boulder, CO
- VulnerabiliTree: A Taxonomy of Hardware and Software Computer Attacks for Heuristic Hacking Defense** October 2021
 Sylvia Llosa, Ange-Thierry Ishimwe, Tamara Silbergleit Lehman
 Workshop on Hardware and Architectural Support for Security and Privacy
 Virtual Workshop
- 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
- VulnerabiliTree: A Taxonomy of Hardware and Software Computer Attacks for Heuristic Hacking Defense** October 2021
 Sylvia Llosa, Ange-Thierry Ishimwe, Tamara Silbergleit Lehman
 Career Workshop for Inclusion and Diversity in Computer Architecture
 Virtual Workshop
- Investigating the Potential for Near Data Processing to Reduce Secure Memory Overheads** January 2021
 Casey Nelson, Tamara Silbergleit Lehman and R. Iris Bahar
 Boston Area Architecture Workshop (BARC). Virtual.
- 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.
- 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.

Academic Presentations

- MAPS: Understanding Metadata Access Patterns in Secure Memory** April 2018
 Tamara Silbergleit Lehman
 Presentation at ISPASS 2018. Belfast, Northern Ireland.

PoisonIvy: Safe Speculation for Secure Memory

September 2017

Tamara Silbergleit Lehman

Presentation at SRC Techcon 2017. Austin, TX.

*Best In Session Award***PoisonIvy: Safe Speculation for Secure Memory**

October 2016

Tamara Silbergleit Lehman

Paper Presentation at MICRO 2016. Taipei, Taiwan.

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.

Secure Memory Caching Strategies

April 2015

Tamara Silbergleit Lehman

Poster at CRA-W Grad Cohort Workshop. San Francisco, CA.

Grants

CAREER: Security as a First-Class Design Constraint for Computer Architecture Jul 2024 - Jun 2029

Sole PI.

National Science Foundation

Pending Total Award: \$788,584

ECEE, University of Colorado Boulder

Convergence Accelerator Track G: 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)

ECEE, University of Colorado Boulder

Travel: NSF Student Travel Grant for 2023 International Symposium on Computer Architecture (ISCA)

Jun 2023 - May 2024

Sole PI.

National Science Foundation

Total Award: \$25,000

ECEE, University of Colorado Boulder

CNS Core: Small: Transparent Network Acceleration

May 2023 - Apr 2025

Co-Principal investigator with Eric Keller.

National Science Foundation

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

ECEE, University of Colorado Boulder

Standard Security Metric Definition for Hardware Design

Dec 2022 - Nov 2024

Sole Principal investigator.

Office of Naval Research

Total Award: \$240,785

ECEE, University of Colorado Boulder

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)

ECEE, University of Colorado Boulder

Open Source Cryptographic Hardware

Jan 2022 - Sep 2022

Sole PI, Tamara Silbergleit Lehman

Sandia Labs

Total Award: \$50,000

ECEE, University of Colorado Boulder

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)

ECEE, University of Colorado Boulder

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)

ECEE, University of Colorado Boulder

In-Kind Contribution of Equipment

2021

Ampere Computing, donated to Tamara Silbergleit Lehman

Total Amount: \$32,000

ECEE, University of Colorado Boulder

Internal Service

ECEE Executive Committee

2022-Present

University of Colorado Boulder, ECEE

Faculty and Staff Recruitment, Retention and Recognition Committee

2020-2022

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 Service

Organizing Committee Member, Finance Chair 2024
International Symposium on Computer Architecture (ISCA)

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
Computer Architecture Long Term Mentoring Program (CALM)

Organizing Committee Member, Finance Chair 2022
International Symposium on Computer Architecture (ISCA)

Review Panel 2022
National Science Foundation (NSF), Graduate Research Fellows Program (GRFP)

Program Committee Member 2022, 2023, 2024
International Conference on Architectural Support for Programming Languages and Operating Systems (ASPLOS)

Program Committee Member 2023
International Symposium in Computer Architecture (ISCA)

Program Committee Member 2023
International Symposium on Microarchitecture (MICRO)

Program Committee Member 2023, 2024
International Symposium on High Performance Computer Architecture (HPCA)

Program Committee Member	2022
<i>IEEE International Symposium on Secure and Private Execution Environment Design (SEED)</i>	
Organizing Committee Member	2021, 2022
<i>Annual Career Workshop for Inclusion and Diversity in Computer Architecture (CWIDCA)</i>	
Organizing Committee Member, Finance Chair	2021
<i>IEEE International Symposium on Secure and Private Execution Environment Design (SEED)</i>	
External Reviewer	2021, 2022
<i>International Symposium on Microarchitecture (MICRO)</i>	
External Reviewer	2020, 2021, 2022
<i>International Symposium on Computer Architecture (ISCA)</i>	
Program Committee Member	2021, 2022
<i>IEEE International On Workload Characterization (IISWC)</i>	
Program Committee Member and Judge	2021, 2022
<i>MICRO Student Research Competition (SRC)</i>	
Organizing Committee Member, Workshop and Tutorials Co-Chair	2021
<i>International Conference on Architectural Support for Programming Languages and Operating Systems (ASPLOS)</i>	
Organizing Committee Member, Publication Chair	2021, 2022
<i>International Symposium on High Performance Computer Architecture (HPCA)</i>	
Review Panel	2021, 2022
<i>National Science Foundation (NSF), Secure and Trustworthy Cyberspace (SATC)</i>	
Organizing Committee Member	2021, 2022, 2023
<i>Annual Career Workshop for Inclusion and Diversity in Computer Architecture (CWIDCA)</i>	
Organizing Committee Member	2019, 2020
<i>Annual Career Workshop for Women and Minorities in Computer Architecture (CWWMCA)</i>	
Program Committee Member	2020
<i>Hardware and Architectural Support for Security and Privacy (HASP)</i>	
Program Committee Member	2020, 2021
<i>International Conference on Computer Design (ICCD) Security Track</i>	
Reviewer	2018, 2020, 2021, 2022, 2023
<i>Computer Architecture Letters (CAL)</i>	

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.

Undergraduate Research Advising

<p><i>Suhana Zeutzius</i>, Computer Science Department <i>DLA Program</i></p> <p><i>Nicholas Cisne</i>, Electrical, Computer and Energy Engineering Department <i>DLA Program</i></p> <p><i>Andrew Johnson</i>, Denver Metro Community College <i>SPUR Program</i></p> <p><i>Yatharth Brahmabhatt</i>, Computer Science Department <i>SPUR Program</i></p> <p><i>Leo Ge</i>, Electrical, Computer and Energy Engineering Department <i>SPUR Program</i></p> <p><i>Adam Richling</i>, Computer Science Department <i>SPUR Program, Research Assistant</i></p> <p><i>Samuel McDermid Sterling</i>, Electrical, Computer and Energy Engineering Department <i>SPUR Program, Research Assistant</i></p> <p><i>Kasper Seglem</i>, Electrical, Computer and Energy Engineering Department <i>Discovery Learning Apprenticeship</i></p> <p><i>Jack Blackburn</i>, Electrical, Computer and Energy Engineering Department <i>Discovery Learning Apprenticeship</i></p> <p><i>Alexander Juenemann</i>, Computer Science Department <i>SPUR Program, Research Assistant</i></p> <p><i>Tucker Travins</i>, Electrical, Computer and Energy Engineering Department <i>Independent Study, Research Assistant</i></p> <p><i>Albert Vilardell Barnosell</i>, Electrical, Computer and Energy Engineering Department <i>Europe-Colorado Program</i></p> <p><i>Pranav Subramanian</i>, Electrical, Computer and Energy Engineering Department <i>Discovery Learning Apprenticeship</i></p> <p><i>Reiko Matsuda-Dunn</i>, Electrical, Computer and Energy Engineering Department <i>Independent Study</i></p> <p><i>Zachary McKevitt</i>, Electrical, Computer and Energy Engineering Department <i>Discovery Learning Apprenticeship, Senior Thesis</i></p>	<p>2023</p> <p>2023</p> <p>2023</p> <p>2023</p> <p>2023</p> <p>2023-Present</p> <p>2023-Present</p> <p>2022-2023</p> <p>2022-2023</p> <p>2022-Present</p> <p>2022-2023</p> <p>2021-2022</p> <p>2021-2022</p> <p>2021</p> <p>2020-2022</p>
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Ailish Skinner, Computer Science Department 2021
Independent Study

Alex Han-Begler, Computer Science Department 2020
Independent Study

Graduate Research Advising

Zachary Moolman, Electrical, Computer and Energy Department 2023-Present
Doctorate Student

Phaedra Curlin, Electrical, Computer and Energy Department 2022-Present
Doctorate Student

Ange-Thierry Ishimwe, Electrical, Computer and Energy Department 2020-Present
Doctorate Student

Rhett Hanscom, Computer Science Department 2020-Present
Doctorate Student

Sylvia Llosa, Electrical, Computer and Energy Department 2021-2023
Doctorate Student

Zachary McKevitt, Computer Science Department 2022-2023
Master Thesis

Yichen Wang, Computer Science Department 2021-2022
Comprehensive Exam, Defense Committee Member

Srihaasa Pidikiti, Computer Science Department 2021
Master Thesis Defense

Daniel Trahan, Electrical, Computer and Energy Department 2020-2021
Doctorate Student

Jinpeng Miao, Computer Science Department 2020-2021
Doctorate Student

Claire Savard, Computer Science Department 2019-2020, 2022
Independent Study, Comprehensive Exam Committee

Marcelo De Abranches, Electrical, Computer and Energy Department 2020, 2022
Preliminary Exam Committee, Comprehensive exam, Defense Committee Member

Gregory Cusack, Electrical, Computer and Energy Department 2020, 2022
Preliminary Exam Committee, Comprehensive exam, Defense Committee Member

George Hodgkins, Electrical, Computer and Energy Department 2022

Preliminary Exam Committee

Jack Wampler, Electrical, Computer and Energy Department <i>Comprehensive exam Committee Member</i>	2022
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Honors and Awards

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