

Peter A. H. Peterson

CONTACT INFORMATION

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EXECUTIVE SUMMARY

I am passionate about computer security education research, particularly work related to the development of: 1) useful and reliable tools for security education research and teaching, such as validated assessments that can be used to help quantify student performance, 2) novel, engaging, and hands-on exercises that support active learning, and 3) greater knowledge about how students learn and understand computer security. I also do work in the area of Adaptive Compression—systems that make dynamic compression systems to maximize time, space, or energy efficiency. An unconventional aspect of my academic life relates to supporting and demonstrating to modern audiences a piece of history: a functional and nearly 50-year-old PDP-12 minicomputer. I am also passionate about good teaching, helping students, improving diversity, justice, and equity, and about helping to make UMD the best institution it can be.

ACADEMIC APPOINTMENTS

Assistant Professor of Computer Science **January 2015–present**
Swenson College of Science and Engineering, University of Minnesota Duluth Duluth, Minnesota

Research Scientist **May 2014–December 2014**
University of Southern California Information Sciences Institute Marina Del Rey, California

Research & Teaching Assistant **July 2007–Fall 2013**
University of California, Los Angeles Los Angeles, California

Adjunct Instructor, Computer Science **Spring 2003**
North Park University Chicago, Illinois

EDUCATION

Ph.D. Computer Science **Fall 2013**
University of California, Los Angeles Los Angeles, California
Thesis Topic: *Datacomp: Locally Independent Adaptive Compression for Real-World Systems*

M.Sc. Computer Science **Winter 2009**
University of California, Los Angeles Los Angeles, California
Comprehensive: *Security Exercise Design Using DETER*

Bachelor of Music Education (BME) **May 1999**
North Park University Chicago, Illinois

PROFESSIONAL EXPERIENCE

Director of Information Technology **October 2005–June 2006**
The Yucaipa Companies West Hollywood, California

PC Coordinator **July 1999–June 2005**
North Park University Chicago, Illinois

AWARDS, NOMINATIONS, & HONORS

- UMD Swenson College of Science and Engineering (SCSE) Young Teacher Award Spring 2019
- Student-nominated for Outstanding Faculty of the Year February 2018
- Certificate of Appreciation, UMD Disability Resources May 2015

EXTERNAL
FUNDING

Funded—\$315,984

1. **\$315,984 - NSF #1821788: September 2018—August 2022**

Title: *SaTC: EDU: RUI: Enabling a New Generation of Experts by Finding and Fixing Students' Persistent Misconceptions*

Brief: Identifying misconceptions of security novices by expert survey, and creating a concept inventory to test those misconceptions along with exercises and videos to help remediate them.

Pending—\$877,816

2. **\$816,403 - National Science Foundation - July 2021**

Title: *CAREER: Describing and Quantifying 'Adversarial Thinking' For Cybersecurity*

Brief: Identifying the critical components of "adversarial thinking" (AT) for cybersecurity by expert Delphi panel (consensus process), creating and validating a test for AT, and using the test to evaluate groups and security exercises.

3. **\$61,413 to UMD - National Science Foundation - July 2021**

\$499,998 total in joint work with UMBC and University of Illinois.

Title: *Collaborative Research: SaTC: EDU: Examining Pedagogy in Cybersecurity at Military Academies*

Brief: Assessing the value of more immersive and hands-on security exercises using the Cybersecurity Concept Inventory (CCI) from the CATS project.

Planned—\$100,000

4. **\$100,000 to UMD - National Science Foundation - October 2021**

Planned collaborative SaTC:EDU proposal with Dr. Jelena Mirkovic of USC/ISI in conjunction with their ongoing DeterLab modernization project. Our project will update the security exercises and classroom management tools to work with and benefit from the new Merge testbed framework and thousands of new testbed nodes.

Not Funded—\$2,176,906

5. **\$287,471 to UMD - National Science Foundation - December 2019**

(\$4,993,232 total in joint work with UMBC, UC Davis, UTD, and others)

Title: *Evaluation of the NICE Framework: Nurturing the Cybersecurity Ecosystem for America*

Brief: Broad, multidisciplinary evaluation of NIST's NICE (National Initiative for Cybersecurity Education) workforce framework.

6. **\$296,842 - National Science Foundation - November 2017**

Title: *SaTC: CORE: Small: RUI: Privacy-Preserving Adaptive Compression*

Brief: Creating and evaluating a system to dynamically improve VPN efficiency using compression, without leaking information through compression attacks.

7. **\$1,592,593 - Department of Energy - May 2016**

(joint with UMD engineering departments and local partners)

Title: *DoE Industrial Assessment Center (IAC) Proposal*

Brief: Large multidisciplinary proposal to start an IAC center at UMD to help regional small businesses with energy efficiency and computer security.

INTERNAL
FUNDING

Total—\$14,404

These proposals were internally funded by UMD and support teaching, research, or service activities.

8. **\$1000 - Spring 2019**

Title: *James Riehl Young Teacher's Award*

Brief: Award to support teaching or research.

9. **\$4,000 - November 2017**

Chancellor's Faculty Small Grant

Title: *Adding Active Learning to OS and Security Courses*

Brief: Money to pay undergraduates to develop more immersive, hands-on activities for security and OS courses.

10. **\$3,600 to Women in Computing committee - December 2016**

Student Success & Retention Small Grant

Title: *Circle of Computational Women*

Brief: Money to support activities and multi-tiered mentoring program for the Women in Computing group in our department.

11. **\$2,304 - November 2015**

Chancellor's Small Grant

Title: *Mobile and IoT Energy/Performance Measurement Testbed Pilot*

Brief: Money to support the development of an energy measurement testbed in the LARS lab.

12. **\$3,500 - June 2015 (submitted with Dr. Pete Willemsen)**

UMD Public Engagement Grant

Title: *UMD Cybergames Youth League (UMDCYL)*

Brief: Money to support the development and operation of the UMDCYL middle- and high-school programming outreach activity.

OTHER
FUNDING

PDP-12-related Donations—\$2,500

Individuals and groups in the vintage computing community have donated money and equipment to support our PDP-12 restoration and education project, including:

13. **\$1,000 - December 2017**

From Warren Stearns' family - in memory of Warren.

14. **\$500 - August 2017**

From the "Family of Eight" - to support the PDP-12 and fund student travel to a vintage computing conference.

15. **ASR-33 Teletype and parts (~\$600) - August 2017**

From Warren Stearns - well-known PDP restorer.

16. **4K magnetic core memory unit for PDP-12 (~\$400) - July 2017**

From Dr. Jim Mahaffey - donation to replace missing hardware.

UROP
FUNDING

The UMN Undergraduate Research Opportunity Program (UROP) funds students to work on 1-2 semester research projects with a faculty mentor. Students receive a \$1,500 scholarship and, optionally, money to support the research.

17. **\$1,800 - January 2020.**

Tom Clark - Fault tolerant telemetry system for UMD hybrid motor rocket.

18. **\$1,800 - January 2020.**

Corey Knutson - Procedural generation of capture-the-flag games.

19. **\$1,750 - September 2019.**

Julian Nowaczek - Emulating a 24K core expansion for a PDP-12.

20. **\$1,500 - August 2019.**

Corey Todalen - Malware detection through opcode analysis.

21. **\$1,520 - January 2019.**

Carson Powers - Extending compiler provenance extraction.

22. **\$1,750 - January 2019.**

Jeffery Smith - Robot spatial navigation with noisy, low range sensors.

23. **\$1,800 - January 2019.**

Chandler Swift - Resilient robot control system over unreliable networks.

24. **\$1,750 - January 2019.**

Sadaf Rahman - Deer detection system using ML and computer vision.

25. **\$1,800 - April 2017.**

Dawson Rosell - PDP-12 Restoration and demonstration project.

TEACHING
EXPERIENCE

The typical teaching load at UMD is two classes per semester (with occasional releases). I normally teach Computer Security twice, and Operating Systems and Advanced Computer Security once each.

Regular Courses

Instructor, Computer Security (CS 4332/5332) **Most semesters since Spring 2015**
University of Minnesota Duluth Duluth, Minnesota

Instructor, Advanced Computer Security (CS 5732) **Yearly since 2015**
University of Minnesota Duluth Duluth, Minnesota

Instructor, Operating Systems (CS 4312/5312) **Mostly yearly since 2016**
University of Minnesota Duluth Duluth, Minnesota

Co-instructor, Embedded Systems Security **Fall 2011**
University of California, Los Angeles Los Angeles, California

Instructor, Computer Networking **Spring 2003**
North Park University Chicago, Illinois

Independent Studies

Data Compression (2 students) Fall 2020

Malware Analysis (1 student) Fall 2020

Electronic Music (1 student) Spring 2019

REFEREED
PUBLICATIONS

JOURNALS

1. S. Poulsen, G. Herman G, A.T. Sherman, L. Oliva, P. A. H. Peterson, E. Golaszewski, T. Scheponik, A. Gorti.: "Psychometric Evaluation of the Cybersecurity Concept Inventory." *ACM Transactions on Computing Education (TOCE)*, to appear in 2021.

BOOK CHAPTERS

2. P. A. H. Peterson and C. Lee.: Chapter: "Leaks are Forever: Information Security and Cyber-crime." *Dark Side of Media & Technology: A 21st Century Guide to Media and Technological Literacy* (E. Downs, editor), Peter Lang, publisher. 2019.

CONFERENCES

3. A. T. Sherman, G. L. Herman, L. Oliva, P. A. H. Peterson, E. Golaszewski, S. Poulsen, T. Scheponik, A. Gorti.: "Experiences and Lessons Learned Creating and Validating Concept Inventories for Cybersecurity." *Proceedings of the National Cyber Summit (NCS)*, June 2021.
4. B. Paulsen, C. Sung, P. A. H. Peterson, and C. Wang.: "Debreach: Mitigating Compression Side Channels via Static Analysis and Transformation." *Proceedings of the IEEE/ACM International Conference on Automated Software Engineering (ASE 2019)*, November 2019.
5. S. Offenberger, G. L. Herman, P. A. H. Peterson, A. T. Sherman, E. Golaszewski, T. Scheponik, and L. Oliva.: "Initial validation of the Cybersecurity Concept Inventory: Pilot testing and expert review,." *Proceedings of Frontiers in Education (FIE)*, October 2019.
6. T. Scheponik, E. Golaszewski, G. Herman, S. Offenberger, L. Oliva, P. A. H. Peterson, and A. T. Sherman.: "Investigating crowdsourcing to generate distractors for multiple-choice assessments." *Proceedings of the National Cyber Summit (NCS)*, June 2019.

7. O. Egbue, D. Naidu and P. Peterson.: “The Role of Microgrids in Enhancing Macrogrid Resilience.” *Proceedings of the International Conference on Smart Grid and Clean Energy Technologies (ICSGCE)*, October 2016.
8. P. A. H. Peterson and P. Reiher.: “Datacomp: Locally Independent Adaptive Compression for Real-World Systems.” *2016 IEEE 36th International Conference on Distributed Computing Systems (ICDCS)*, June 2016
9. M. Gray, P. A. H. Peterson and P. Reiher.: “Scaling Down Off-The-Shelf Data Compression: Backwards-Compatible Fine-Grain Mixing.” In *Proceedings of the IEEE International Conference on Distributed Computing Systems (ICDCS)*, June 2012
10. C. Fleming, P. A. H. Peterson, E. Kline and P. Reiher.: “Data Tethers: Preventing Information Leakage by Enforcing Environmental Data Access Policies.” In *Proceedings of the IEEE International Conference on Communications (ICC)*, June 2012
11. P. A. H. Peterson.: “Cryptkeeper: Improving Security with Encrypted RAM.” In *Proceedings of the IEEE Conference on Technologies for Homeland Security (HST)*, November 2010.

ARTICLES

12. E. Golaszewski, A. T. Sherman, L. Oliva, P. A. H. Peterson, M. R. Bailey, S. Bohon, C. Bonyadi, C. Borrer, R. Coleman, J. Flenner, E. Enamorado, M. E Eren, M. Khan, E. Larbi, K. Marshall, W. Morgan, L. Mundy, G. Onana, S. Gomez Orr, L. Parker, C. Pinkney, M. Rather, J. Rodriguez, B. Solis, W. Tete, T. B. Tsega, E. Valdez, C. K. Varga, B. Weber, R. Wnuk-Fink, A. Yonkeu, L. Zetlmeisl, D. Doyle, C. O’Brien, J. Roundy, J. Suess.: “Project-based learning continues to inspire cybersecurity students: the 2018–2019 SFS research studies at UMBC.” *ACM Inroads*, May 2020.
13. A. T. Sherman, L. Oliva, E. Golaszewski, D. Phatak, T. Scheponik, G. L. Herman, D. S. Choi, S. E. Offenberger, P. A. H. Peterson, J. Dykstra, G. V. Bard, A. Chattopadhyay, F. Sharevski, R. Verma, R. Vrecenar.: “The CATS Hackathon: Creating and Refining Test Items for Cybersecurity Concept Inventories.” *IEEE Security & Privacy*, November 2019.
14. A. T. Sherman, P. A. H. Peterson, E. Golaszewski, E. LaFemina, E. Goldschen, M. Khan, L. Mundy, M. Rather, B. Solis, W. Tete, E. Valdez, B. Weber, D. Doyle, C. O’Brien, L. Oliva, J. Roundy, and J. Suess.: “Project-Based Learning Inspires Cybersecurity Students: A Scholarship-for-Service Research Study.” *IEEE Security & Privacy*, May 2019.

WORKSHOPS

15. J. Mirkovic and P. A. H. Peterson.: “Class Capture-the-Flag Exercises.” *USENIX Summit on Gaming, Games and Gamification in Security Education (3GSE)*, August 2014.
16. A. Fujimoto, P. A. H. Peterson and P. Reiher.: “Investigating the Energy Costs of Full Disk Encryption.” In the *Workshop on Energy Consumption and Reliability of Storage Systems (ERSS)*, part of the *2012 International Green Computing Conference (IGCC)*, June 2012.
17. P. A. H. Peterson, D. Singh, W. Kaiser and P. Reiher.: “Investigating Energy and Security Trade-offs in the Classroom With the Atom LEAP Testbed.” In the *4th USENIX Workshop on Cyber Security Experimentation and Test (CSET)*, August 2011.
18. J. Mirkovic, M. Ryan, J. Hickey, K. Sklower, P. Reiher, P. A. H. Peterson, B. H. Kang, M. C. Chuah, D. Massey and G. Ragusa.: “Teaching Security With Network Testbeds.” In the *Proceedings of the ACM SIGCOMM Workshop on Education*, August, 2011.
19. P. A. H. Peterson and P. Reiher.: “Security Exercises for the Online Classroom with DETER.” In the *3rd USENIX Workshop on Cyber Security Experimentation and Test (CSET)*, August 2010.

PRESENTATIONS & DEMONSTRATIONS

20. “Enabling a New Generation of Experts by Finding and Fixing Students’ Persistent Misconceptions.” *Secure and Trustworthy Computing (SaTC) PI Meeting*. National Science Foundation, Alexandria, VA, October 2019.

21. “UMDCYL and Little Python: Teaching Coding by Playing Games.” *2018 Midwest Instructional Computing Symposium (MICS)*, Duluth, MN, April 2018.
22. “Do This and Nothing More: Teaching Adversarial Thinking Without Security.” *2018 Midwest Instructional Computing Symposium (MICS)*, Duluth, MN, April 2018.
23. “Datacomp: Locally Independent Adaptive Compression for Real-World Systems.” *2016 IEEE 36th International Conference on Distributed Computing Systems (ICDCS)*, June 2016.
24. “Class Capture-the-Flag Exercises.” *USENIX Summit on Gaming, Games and Gamification in Security Education (3GSE)*, August 2014.
25. “Investigating the Energy Costs of Full Disk Encryption.” *The 2nd Workshop on Energy Consumption and Reliability of Storage Systems (ERSS)*, San Jose, CA, June 2012.
26. “Scaling Down Off-The-Shelf Data Compression: Backwards-Compatible Fine-Grain Mixing.” *The 32nd Annual IEEE International Conference on Distributed Computing Systems (ICDCS)*, Macau, China, June 2012.
27. “Investigating Energy and Security Trade-offs in the Classroom With the Atom LEAP Testbed.” *The 4th USENIX Workshop on Cyber Security Experimentation and Test (CSET)*, San Francisco, CA, August 2011.
28. “Cryptkeeper: Improving Security with Encrypted RAM.” *The 12th Annual IEEE Conference on Technologies for Homeland Security Technologies (HST)*, Waltham, MA, November 2010.
29. “Security Exercises for the Online Classroom with DETER.” *The 3rd USENIX Workshop on Cyber Security Experimentation and Test (CSET)*, Washington, D.C., August 2010.

WORKS
IN PROGRESS

30. S. Gomez Orr, C. J. Bonyadi, E. Golaszewski, A. T. Sherman, P. A. H. Peterson, R. Forno, S. Johns, J. Rodriguez. “Shadow IT in Higher Education: Survey and Case Study for Cybersecurity.” (In preparation – almost ready for submission.) [Core author and editor (20%).]
31. P. A. H. Peterson, B. Geraci, M. Jindeel, C. Powers, J. Nowaczek, M. Bishop, M. Dark, C. Fleming, J. Mirkovic, B. I. Ngambeki, V. Pournaghshband, P. Reiher, C. Taylor. “Unknown Unknowns: The Commonsense Misconceptions of Security Novices.” (Paper based on Jindeel and Geraci’s theses with input from security experts detailing the security misconceptions identified for our project.) [Primary author (50%).]
32. C. Powers, P. A. H. Peterson. “Analysis of compression ratio distribution by file extension.” Distillation of Powers’ MS thesis investigating the extent to which average compressibility by file extension is a good predictor for adaptive compression systems. (Early draft stage.) [Advisor and editor (25%).]

OTHER
PUBLICATIONS &
PRODUCTS

PERIODICALS

33. Peter A. H. Peterson, Rob G. Jansen.: “The 12th USENIX Workshop on Cyber Security Experimentation and Test (CSET’19).” *USENIX Association’s ;login.*, Winter 2019.
34. Peter A. H. Peterson.: “CSET’18: The 11th USENIX Workshop on Cyber Security Experimentation and Test.” *USENIX Association’s ;login.*, Winter 2018.

WHITE PAPERS & TECHNICAL REPORTS

D. Singh, P. A. H. Peterson, P. Reiher and W. Kaiser.: “The Atom LEAP Platform For Energy-Efficient Embedded Computing: Architecture, Operation, and System Implementation.” December 2010. Available at <http://lasr.cs.ucla.edu/~pedro/docs/leap-aos1.pdf>

INVITED TALKS & GUEST LECTURES

35. Guest lectures in 2016 & 2018 on Computer Security to Dr. Subbaram Naidu’s EE 5533 “Grid-Resiliency, Efficiency and Technology.”
36. Guest lectured on / demonstrated the PDP-12 in 2018 & 2019 (COVID-19 thwarted 2020 & 2021) to Dr. Ted Pedersen’s Computer Architecture class.

MEDIA
APPEARANCES

37. June 21, 2021 - "Push for rural broadband continues," KTOE - Minnesota News Network
38. June 15, 2021 - "Infrastructure Obstacles Stand in the Way of Rural Broadband Expansion," Brownfield Ag News - Mark Dorenkamp
39. January 8, 2020 - "In Case of Iranian Cyber Attack, How to Keep Your Data Secure," KQDS - Arman Rahman
40. December 15, 2017 - "Sen. Klobuchar among lawmakers fighting for net neutrality," KBJR - Michelle Alfini and Jessie Slater
41. November 28, 2017 - "Local experts explain net neutrality's impact on education," - Michelle Alfini
42. August 11, 2017 - "A relic of the past, preserved for the future - UMD student leads restoration of 50-year old computer," Duluth News Tribune
43. August 11, 2017 - "UMD Unveils Antique Computer," KDQS
44. August 8, 2017 - "Crazy Cool Computer," University Marketing and Public Relations
45. April 28, 2017 - "Cloud Computing Security," KBJR - Tony Matt

EDUCATIONAL
MATERIALS

Computer Security Exercises

Multiple hands-on, exploratory security exercises that simulate real-world environments and problems using widely-used open source software and DETERLab, a large, free-to-use public security and education testbed. Still under active development and maintenance, these exercises have been used at over 18 institutions of higher learning in the U.S. and abroad.

Lessons from LARS

A YouTube video channel containing short, student-contributed tutorials on important software tools to help reduce the learning curve in CS classes.

<https://www.youtube.com/playlist?list=PLHnc49MScQBBimi-1UZ2HBxDAuJYIYAWF>

PDP-12 Restoration Project

My lab operates and is restoring / maintaining a functional Digital Equipment Corporation PDP-12 (1969-1972), one of perhaps only five operational examples of this very unique machine (a combination of the PDP-8 and LINC computers). It is available for education, outreach, and research, and we invite students to get involved. We host a blog and a YouTube channel documenting the project.

Blog: <https://umdpdp12.blogspot.com/>

YouTube: <https://www.youtube.com/playlist?list=PLHnc49MScQBBI1VIirpZ1Zjdh91U5Q6-6>

OUTREACH
ACTIVITIES

Organizer and Commissioner 2016—2018

UMD Cybergames Youth League (UMDCYL) – programming competition for Junior and High School students; players write programs to control avatars in classic 80s games, like Pac-Man. The school with the overall best programs wins the league championship for the year. (On hiatus primarily due to COVID-19, but returning in Spring of 2022.)

Merit Badge Counselor, STEM Merit Badge Camp April 2018

Taught scouts core concepts of programming and Computer Science using the UMDCYL framework and other programming languages. Part of a larger STEM-focused merit badge camp hosted at UMD.

Public PDP-12 Demonstration August 11, 2017

Demonstrated the functioning PDP-12 to a large public crowd, including local media. (See "Media Appearances.")

Presenter, UMD SCSE Science Day

2015, 2016

Taught students to program using the UMDCYL game programming system.

STUDENT
RESEARCH
SUPERVISION

Current Students - MS Thesis

1. Julian Nowaczek Graduating Spring 2022
2. Shamim Ehsan Starting Fall 2021

Graduated Students - MS Thesis

1. Carson Powers June 2021
Thesis: *Estimating File Compressibility Using File Extensions*
2. Brandon Geraci January 2021
Thesis: *Developing a Concept Inventory and Active Learning for Common Computer Security Misconceptions*
3. Mazin Jindeel May 2019
Thesis: *I just don't get it: Common Security Misconceptions*
4. Aleksandar Straumann May 2019
Thesis: *Graph Embeddings for the Extraction of Compiler Provenance Features*
5. Dennis Asamoah Owusu June 2018
Thesis: *Modeling Outputs of Efficient Compressibility Estimators*
6. Jonathan Beaulieu June 2018
Thesis: *Adaptive Filesystem Compression for General Purpose Systems*
7. Ankit Gupta December 2017
Thesis: *Length Hiding VPN to Mitigate Compression Side-Channel and Traffic Analysis Attacks*
8. Brandon Paulsen July 2017
Thesis: *Debreach: Selective Dictionary Compression to Prevent BREACH and CRIME*

Graduate Student Thesis Committees

1. Tasiful Islam, TBD – Member
2. Rowan Chevalier-Rood, TBD – Member
3. Carson Powers, June 2021 – **Chair**
4. Brandon Geraci, January 2021 – **Chair**
5. Jackson Houston, May 2020 – Member
6. Aaron Victorin-Vangerud, October 2019 – Member
7. Zachary Patterson, May 2019 – Member
8. Mazin Jindeel, May 2019 – **Chair**
9. Aleksandar Straumann, May 2019 – **Chair**
10. Noah Miller, June 2018 – Member
11. Dennis Asamoah Owusu, June 2018 – **Chair**
12. Jonathan Beaulieu, June 2018 – **Chair**
13. Manikya Swathi Vallabhajosyula, May 2019 – Member
14. Ankit Gupta, December 2017 – **Chair**
15. Brandon Paulsen, July 2017 – **Chair**
16. Ranga Reddy Pallela, July 2015 – Member

Undergraduate Research Supervision

See *UROP Funding*.

PROFESSIONAL REVIEWING & PROGRAM COMMITTEES

Co-chair

- 12th USENIX Workshop on Cybersecurity Experimentation and Test (CSET) 2019
- 11th USENIX Workshop on Cybersecurity Experimentation and Test (CSET) 2018

Program Committee

- USENIX Security Symposium 2021, 2022
- International Workshop on Quality of Service (IWQoS) 2016–2018
- International Workshop on Quality of Service Poster Session (IWQoS) 2015

Reviewer

- Computers and Security (COSE) 2021–present
- National Science Foundation 2020–present
- Special Interest Group in Computer Science Education (SIGCSE) 2019–present
- National Cyber Summit (NCS) 2019
- Frontiers in Education (FIE) 2019

OTHER PROFESSIONAL SERVICE

Advisory Board

- USC/ISI's DeterLab Modernization Project Spring 2020–present

Campus Representative

- USENIX Association – the Advanced Computing Systems Association 2016–present

Computer Science Doctoral Admission Committee

- University of California, Los Angeles 2014–2016

DEPARTMENTAL COMMITTEES

Member

1. UMD Computer Science Tenure-track Search Committee 2021
2. UMD Computer Science Tenure-track Search Committee 2019
3. UMD Computer Science Tenure-track Search Committee 2018
4. Encouraging Women in CS Committee 2015–present
5. UMD Computer Science Masters Admission Committee 2015–present

DEPARTMENTAL SERVICE

1. MinneWIC Conference presenter and research advisor February 2019
2. Research mentor for Women in Computing Research Workshop Fall 2018
3. Summer advising for incoming students Summer 2016–present
4. CS Undergraduate advisor 94 students since January 2015
5. CS Graduate Program faculty 2015–present

INSTITUTIONAL COMMITTEES

Member

1. Swenson College of Science and Engineering Teaching & Learning Committee 2021–present
2. Swenson College of Science and Engineering Executive Committee Spring 2018

INSTITUTIONAL
SERVICE

1. UMN Medical Device Cybersecurity Initiative 2020–present
2. STEM Teaching & Learning Committee Book Group Facilitator Summer 2019
3. Volunteer, Campus Preview October 2016, 2017
4. Outreach activities See “Outreach”

UMN IRB
APPROVAL,
EXEMPTIONS, &
DETERMINATIONS

1. May 2021 - STUDY00012811
Title: “Adversarial Thinking Project – Pilot Testing”
Determination: Not Human Research
2. February 2021 - STUDY00012170
Title: “Powers-Comprestimator” (for Carson Powers’ compression study)
Determination: Not Human Research
3. October 2020 - STUDY00011300
Title: “MCQ Calibration and Validation” (for the misconceptions project)
Determination: Not Human Research
4. May 2020 - STUDY00009791
Title: “CATS – Cybersecurity Assessment Tools – Large Scale Validation”
Determination: Not Human Research
5. March 2020 - STUDY00009266
Title: “DTANM Spring 2020”
Determination: Not Human Research
6. January 2020 - STUDY00008246
Title: “PCGCTF Student / Expert Tests”
Determination: Not Human Research
7. November 2019 - STUDY00008036
Title: “Delphi Study for Adversarial Thinking”
Determination: Exempt (Category 2)
8. November 2019 - STUDY00008048
Title: “Validation Study for the Adversarial Thinking Assessment”
Determination: Exempt (Category 2)
9. August 2019 - STUDY00007345
Title: “Getting Anonymous Expert Feedback” (for the misconceptions project)
Determination: Not Human Research
10. January 2019 - STUDY00005487
Title: “Surveying students for answers to open-ended questions about security misconceptions”
Determination: Not Human Research
11. July 2018 - STUDY00004090
Title: “Finding and Addressing Commonsense Misconceptions in Computer Security”
Determination: Not Human Research

PROFESSIONAL
MEMBERSHIPS

- ACM, ACM SIGCSE (Special Interest Group for Computer Science Education)
- IEEE, IEEE Computer Society
- USENIX (Campus Representative)
- Sigma Xi