Roya Ensafi

Associate Professor

Computer Science & Engineering

University of Michigan

December 28, 2023

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Research Overview

My research broadly lies at the intersection of networking, security and privacy, Internet measurement, and technology policy. I build scalable techniques and systems to protect users' Internet experiences from disruption, surveillance, and digital inequity. My work takes a data-driven approach to detecting and defending against powerful network intermediaries, government threat actors, and technologies and practices that impact users' freedom of expression online.

Positions

– **University of Michigan**
Department of Electrical Engineering and Computer Science,
Computer Science and Engineering Division

Associate Professor   (September 2023–present)
Assistant Professor   (July 2019–2023)
Research Assistant Professor   (July 2017–2019)

– **Princeton University**
Research Fellow, Center for Information Technology Policy   (2015–2017)
Postdoctoral Research Associate, Computer Science   (2015–2017)

– **International Computer Science Institute (ICSI), U.C. Berkeley**
Research Intern and Visiting Researcher   (2014)

Education

– Ph.D. in Computer Science, University of New Mexico, December 2014
Advisor: Jedidiah Crandall
Thesis: Advanced Network Inference Techniques based on Network Protocol Stack Information Leaks
Committee: Stefan Savage, Terran Lane, Michalis Faloutsos

– M.S. in Computer Science and Engineering, University of New Mexico, May 2011

– B.S. in Computer Engineering, Ferdowsi University of Mashhad, Iran, August 2006

Honors and Awards

– **Alfred P. Sloan Research Fellowship** (2023)

– **NSF CAREER** (2023)

– **IRTF Applied Networking Research Prize** (2023) ("recognizes the most groundbreaking results in applied networking, research in Internet standards, and upcoming figures in the field")

- **Morris Wellman Endowed Assistant Professorship** (2023)
  (”awarded to a junior faculty member to recognize outstanding contributions to teaching and research”)

- **Internet Defense Prize, first-place**, awarded by the 31st USENIX Security Symposium for "OpenVPN is Open to VPN Fingerprinting" (2022) ($110,000 award ”celebrates security research contributions to the protection and defense of the Internet”)

- **Distinguished Paper Award** of the 31st USENIX Security Symposium (2022)

- **First place at CSAW'22 Applied Research Competition** (2022) for "VPNalyzer: Systematic Investigation of the VPN Ecosystem"

- **Finalist ACUM Outstanding Advisor Award**(2022) ("recognizes undergraduate and graduate advisors on the University of Michigan Ann Arbor campus who go above and beyond to support students by providing information and advice, supporting their well-being, and fostering their academic and personal success.")

- **Consumer Reports Digital Lab Fellow** (2020)

- **Google Faculty Research Award** (2018)

- **NSF Computer and Network Systems Research Initiation Initiative (CRII)** (2018)

- **IRTF Applied Networking Research Prize** (2016) for "Examining How the Great Firewall Discovers Hidden Circumvention Servers" (2016)

- **Rising Stars Invitee**, CMU/MIT (2016)

- **Distinction Award for Ph.D. Dissertation**, University of New Mexico (2014)

- **Excellence in Graduate Research Award**, Sigma Xi, University of New Mexico (2014)

- **Graduate Student Mentor Award**, University of New Mexico (2013) (“recognizes an outstanding graduate student instructor who has demonstrated excellence in mentoring activities that benefit undergrad/graduate students in their own or other departments.”)

- **MEP Fellowship, School of Engineering Scholarship Programs**, University of New Mexico (2009)

Selected Projects

- **Censored Planet** (2018–present)
  Censored Planet is a platform that provides continuous, global data about Internet censorship practices in countries around the world. It builds on my long line of work developing remote censorship measurement techniques. My group operates several of these systems, curates the data, and publishes continuous datasets about the reachability of thousands of sensitive websites from more than 220 countries. In partnership with Google Jigsaw, we recently launched a cloud-based data analysis pipeline and a visualization dashboard, facilitating use of our data by more than 100 organizations spanning research and human rights advocacy.

- **VPNalyzer** (2020–present)
  VPNalyzer aims to analyze the commercial VPN ecosystem through three parallel efforts: a cross-platform user-facing tool that facilitates rigorous, efficient, and continuous checks of VPNs' security and privacy; large-scale user studies to understand the needs of VPN users; and qualitative studies surveying VPN providers to understand their technical and operational challenges and to uncover dark patterns in their operations, pricing, and marketing. VPNalyzer was awarded the Consumer Reports Digital Lab fellowship, and Consumer Reports journalists have used VPNalyzer data to produce a series of articles read by millions of people.

- **Internet Splinting Project** (2022–present)
  The Internet Splinting Project aims to understand how user Internet connection features such as their location or IP address reputation affect their experience online, what causes this differentiation, and what can be done about it.

Refereed Conference Publications

[1] Fingerprinting Obfuscated Proxy Traffic with Encapsulated TLS Handshakes
D. Xue, M. Kallitsis, A. Houmansadr,R. Ensafi
USENIX Security Symposium, August 2024.

[2] Modeling and Detecting Internet Censorship Events
E. Tsai, R. Sundara Raman, A. Prakash, R. Ensafi,
Network and Distributed System Security Symposium (NDSS), February. 2024.

[3] "All of them claim to be the best": Multi-perspective study of VPN users and VPN providers
R. Ramesh, A. Vyas, R. Ensafi
In *USENIX Security Symposium*, August 2023.

[4] The Use of Push Notification in Censorship Circumvention
D. Xue, R. Ensafi
Free and Open Communications on the Internet (FOCI), July 2023

[5] Network Responses to Russia's Invasion of Ukraine: A Cautionary Tale for Internet Freedom
R. Ramesh⋆, R. Raman⋆, A. Virkud, A. Dirksen, A. Huremagic,
D. Fifield, D. Rodenburg, R. Hynes, D. Madory, R. Ensafi   (⋆ joint first)
USENIX Security Symposium, August 2023.
Acceptance rate: 29%, 422/1444

[6] Detecting DNS Manipulation using TLS Certificates
E. Tsai, D. Kumar, R. Sundara Raman, G. Li, Y. Eiger, R. Ensafi,
Privacy Enhancing Technologies Symposium (PETS), July 2023.
Acceptance rate: 22.3%, 123/563.

[7] Advancing the Art of Censorship Data Analysis
R. Ramesh, A. Virkud, S. Laplante, V. Fortuna, R. Ensafi
Free and Open Communications on the Internet (FOCI), February 2023.

[8] Network Measurement Methods for Locating and Examining Censorship Devices
R. Sundara Raman⋆, M. Wang⋆, J. Dalek, J. Mayer, R. Ensafi   (⋆ joint first authors)
ACM Conference on emerging Networking EXperiments & Technologies (CoNEXT), December 2022.
IRTF Applied Networking Research Prize
Acceptance rate: 18%, 28/151.

[9] TSPU: Russia's Decentralized Censorship System
Diwen Xue, B.Mixon-Baca, ValdikSS,A. Ablove, B. Kujath, J. Crandall, and R. Ensafi
ACM Internet Measurement Conference (IMC), November 2022.
Acceptance rate: 26%, 56/212.

[10] A Large-scale Investigation into Geodifferences in Mobile Apps
R. Kumar, A. Virkud,R. Sundara Raman, A. Prakash, R. Ensafi
USENIX Security Symposium, August 2022.
Acceptance rate: 18%, 256/1414.

[11] OpenVPN is Open to VPN Fingerprinting
D. Xue, R. Ramesh, A. Jain, M. Kallitsis, A. Halderman, J. Crandall, R. Ensafi
USENIX Security Symposium, August 2022.
Distinguished Paper Award — First Place Winner of Internet Defense Prize
Acceptance rate: 18%, 256/1414.

[12] **Investigating the VPN Recommendation Ecosystem**
R. Ramesh, A. Huremagic, C. Sharp, R. Ensafi
The IEEE SPW 6th Workshop on Technology and Consumer Protection (ConPro'22), May 2022.

[13] **VPNalyzer: Systematic Investigation of the VPN Ecosystem**
R. Ramesh,L. Evdokimov,D. Xue, R. Ensafi
Network and Distributed System Security Symposium (NDSS), February 2022.
Acceptance rate: 14.5%, 53/377.

[14] **Throttling Twitter: An Emerging Censorship Technique in Russia**
D. Xue, R. Ramesh, ValdikSS, L. Evdokimov, A. Viktorov,A. Jain, E. Wustrow, S. Basso, R. Ensafi
ACM Internet Measurement Conference (IMC), November 2021.
Recognized as the Highest Scoring Short Paper
Acceptance rate: 27%, 55/197.

[15] **Lost in Transmission: Investigating Filtering of COVID-19 Websites**
A. Vyas, R. Sundara Raman, N. Ceccio, P. Lutscher, R. Ensafi
Financial Cryptography and Data Security (FC), February 2021.
Acceptance rate: 24%, 43/174.

[16] **Censored Planet: An Internet-wide, Longitudinal Censorship Observatory**
R. Sundara Raman, P. Shenoy, K. Kohls, R. Ensafi
ACM Conference on Computer and Communications Security (CCS), November 2020.
Acceptance rate: 14%,121/715.

[17] **Investigating Large Scale HTTPS Interception in Kazakhstan**
R. Sundara Raman,L. Evdokimov, E. Wustrow, A. Halderman, R. Ensafi
ACM Internet Measurement Conference (IMC), October 2020.
Best Paper Nominee
Acceptance rate: 24%, 53/216.

[18] **Characterizing Transnational Internet Performance and the Great Bottleneck of China**
P. Zhu, K. Man, Z. Wang, Z. Qian, R. Ensafi, A. Halderman, H. Duan
ACM SIGMETRICS, May 2020.
Acceptance rate: 20%, 55/280.

[19] **Measuring and Analysing the Chain of Implicit Trust: A Study of Third-party Resources Loading**
M. Ikram, R. Masood, G. Tyson, M. Ali Kaafar, R.Ensafi
ACM Transaction on Privacy and Security (TOPS), March 2020.
Acceptance rate: 24%, 43/174.

[20] **Decentralized Control: A Case Study of Russia**
R. Ramesh, R. Sundara Raman, M. Bernhard, V. Ongkowijaya,
L. Evdokimov, A. Edmundson, S. Sprecher, M. Ikram, R. Ensafi
Network and Distributed System Security Symposium (NDSS), February 2020.
Acceptance rate: 17.4%, 88/506.

[21] **Measuring the Deployment of Network Censorship Filters at Global Scale**
R. Sundara Raman, A. Stoll, J. Dalek, R. Ramesh, W. Scott, R. Ensafi
Network and Distributed System Security Symposium (NDSS), February 2020.
Acceptance rate: 17.4%, 88/506.

[22] The Chain of Implicit Trust: An Analysis of the Web Third-party Resources Loading
M. Ikram, R. Masood, G. Tyson, M. A. Kaafar, N Loizon, R Ensafi
The Web Conf. (WWW), May 2019.
Acceptance rate: 20%, 72/361.

[23] 403 Forbidden: A Global View of Geoblocking
A. McDonald, M. Bernhard, B. VanderSloot, W. Scott, A. Halderman, R. Ensafi
ACM Internet Measurement Conference (IMC), November 2018.
Acceptance rate: 24%, 43/174.

[24] Quack: Scalable Remote Measurement of Application-Layer Censorship
B. VanderSloot, A. McDonald, W. Scott, A. Halderman, R. Ensafi
USENIX Security Symposium, August 2018.
Acceptance rate: 19%, 100/524.

[25] Nation-State Hegemony in Internet Routing
A. Edmundson, R. Ensafi, N. Feamster, J. Rexford
ACM SIGCAS Conference on Computing and Sustainable Societies, July 2018.

[26] A Look at Infrastructure Geolocation in Public and Commercial Databases
M. Gharaibeh, A. Shah, B. Huffaker, H. Zhang, R. Ensafi, C. Papadopoulos
ACM Internet Measurement Conference (IMC), November 2017.
Acceptance rate: 17%, 14/79.

[27] Global Measurement of DNS Manipulation
P. Pearce, B. Jones, F. Li, R. Ensafi, N. Feamster, V. Paxson
USENIX Security Symposium, August 2017.
Invited to appear in USENIX ;login:, Winter 2017 Issue
Acceptance rate: 16%, 85/522.

[28] Augur: Internet-Wide Detection of Connectivity Disruptions
P. Pearce⋆, R. Ensafi⋆, F. Li, N. Feamster, V. Paxson   (⋆ joint first authors)
IEEE Symposium on Security and Privacy (Oakland), May 2017.
Invited to appear in the IEEE Security & Privacy Magazine, 2018 Special Issue
Acceptance rate: 13%, 60/450.

[29] Identifying and Characterizing Sybils in the Tor Network
P. Winter, R. Ensafi, K. Loesing, N. Feamster
USENIX Security Symposium, August 2016.
Acceptance rate: 16%, 72/463.

[30] A Case Study of Traffic Demand Response to Broadband Service-Plan Upgrades
S. Grover, R. Ensafi, N. Feamster
Passive and Active Measurement Conference (PAM), April 2016.
Acceptance rate: 31%, 30/93.

[31] Examining How the Great Firewall Discovers Hidden Circumvention Servers
R. Ensafi, D. Fifield, P. Winter, N. Feamster, N. Weaver, V. Paxson
ACM Internet Measurement Conference (IMC), October 2015.
IRTF Applied Networking Research Prize winner
Acceptance rate: 26%, 44/169.

[32] **Analyzing the Great Firewall of China Over Space and Time**
R. Ensafi, P. Winter, A. Mueen, J. Crandall
Privacy Enhancing Technologies Symposium (PETS), July 2015. Acceptance rate: 22.5%, 23/102.

[33] **Detecting Intentional Packet Drops on the Internet via TCP/IP Side Channels**
R. Ensafi, J. Knockel, G. Alexander, J. Crandall
Passive and Active Measurement Conference (PAM), April 2014.
Acceptance rate: 35%, 24/76.

[34] **Idle Port Scanning & Non-interference Analysis of Network Protocol Stacks Using Model Checking**
R. Ensafi, J. Park, D. Kapur, J. Crandall.
USENIX Security Symposium, August 2010.
Acceptance rate: 14%, 30/202.

Other Publications

[35] **Learning How U.S. Consumers Perceive and Use VPNs**
R. Ensafi, Y. Grauer
Digital Lab Consumer Report invited article, January 2023.

[36] **Challenges in Cybersecurity: Lessons from Biological Defense Systems**
E. Schrom, A. Kinzig, S.Forrest, A. L. Graham, S. A. Levin, C. T. Bergstrom, C. Castillo-Chavez, J. P. Collins, R. J. de Boer, A. Doupé, R. Ensafi, S. Feldman, B. T. Grenfell, A. Halderman, S. Huijben, C. Maley, M. Mosesr, A. S. Perelson, C. Perrings, J. Plotkin, J. Rexford, M. Tiwari
July 2021.

[37] **Measuring and Analysing the Chain of Implicit Trust: A Study of Third-party Resources Loading**
M. Ikram, R. Masood, G. Tyson, M. A. Kaafar, N. Loizon, R. Ensafi
In ACM Transactions on Privacy and Security (TOPS), 2020.

[38] **Towards Continual Measurement of Global Network-Level Censorship**
P. Pearce, R. Ensafi, F. Li, B. Jones, N. Feamster, V. Paxson
IEEE Security & Privacy Magazine, Special Issue, 2018.

[39] **Global Measurement of DNS Manipulation**
P. Pearce, B. Jones, F. Li, R. Ensafi, N. Feamster, V. Paxson
USENIX ;login:, Winter 2018.

[40] **A First Look into Transnational Routing Detours**
A. Edmundson, R. Ensafi, N. Feamster, and J. Rexford
Position paper – Poster & Demo Session, *30th ACM SIGCOMM*, August 2016.
SIGCOMM Student Research Competition winner

[41] **An Analysis of China's Great Cannon**
B. Marczak, N. Weaver, J. Dalek, R. Ensafi, D. Fifield, S. McKune, A. Rey, J. Railton, R. Deibert, V. Paxson
USENIX Workshop on Free and Open Communications on the Internet (FOCI), August 2015.
Also appeared as a Citizen Lab report, April 2015.

[42] **Ethical Concerns for Censorship Measurement**
B. Jones, R. Ensafi, N. Feamster, V. Paxson, N. Weaver
ACM SIGCOMM Workshop on Ethics in Networked Systems Research (NS Ethics), August 2015.

[43] **Global Censorship Detection over the RIPE Atlas Network**
C. Anderson, P. Winter, R. Ensafi
USENIX Workshop on Free and Open Communications on the Internet (FOCI), August 2014.

[44] **A Case Study in Helping Students to Covertly Eat Their Classmates**
R. Ensafi, M. Jacobi, J. Crandall
USENIX Workshop on Gaming, Games, and Gamification in Security Education (3GSE), August 2014.

[45] **Students Who Don't Understand Information Flow Should Be Eaten: An Experience Paper**
R. Ensafi, M. Jacobi, J. Crandall
USENIX Workshop on Cyber Security Experimentation and Test (CSET), August 2012.

[46] **Ecology of Malware**
J. Crandall, R. Ensafi, S. Forrest, J. Ladau, B. Shebaro
New Security Paradigms Workshop (NSPW), September 2008.

Research Funding & Grants

Since joining Michigan, I have received over $3 million in external research funding:

- **Principal Investigator**, NSF
  Awarded May 2023 (Duration: 2023–2028)
  CAREER: Internet-wide censorship detection, diagnosis, circumvention beyond nation-state censorship

- **Lead Principal Investigator**, NSF
  Awarded August 2022 (Duration: 2022–2025)
  Collaborative Research: SaTC: CORE: Medium: Rethinking the Fundamentals of Tunneling Technologies
  for Security, Privacy, and Usability

- **Principal Investigator**, DARPA
  Awarded September 2021 (Duration: 2021–2023)
  Leveraging machine learning to build an intelligent censorship observatory

- **Co-Principal Investigator**, DRL Internet Freedom
  Awarded September 2021 (Duration: 2021–2023)

- **Co-Principal Investigator**, DRL Internet Freedom
  Awarded December 2021 (Duration: 2021–2023)

- **Principal Investigator**
  Research Gift Donation from Philanthropist
  Awarded December 2020 (Duration unspecified)

- **Principal Investigator**, DRL Internet Freedom
  Awarded September 2020 (Duration: 2020–2022)
  Censored Planet: A Global Observatory for Internet Censorship

- **Principal Investigator**, Consumer Reports Digital Lab Grant
  Awarded 2020
  Deploying VPNalyzer: A tool for investigating the sprawling & unregulated VPN ecosystem

- **Principle Investigator**, Google Cloud Platform Research Credits
  Awarded October 2018, 2019, 2020

- **Principal Investigator**, Google Faculty Research Award
  Awarded February 2018

- **Principal Investigator**, NSF:CNS Research Initiation Initiative (NSF–CRII)
  Awarded February 2018 (Duration: 2018–2019)

- **Principal Investigator**, Open Technology Fund (OTF)
  Awarded April 2018 (Duration: 2018–2020)

- **Principal Investigator**, Microsoft Inc.
  Co-Investigators: Molly Roberts (UCSD), Brandon Stewart (Princeton)
  Awarded January 2016

– **Principal Investigator**, Amazon AWS Research Grant
Awarded January 2016

Selected Talks & Panels

– **GREPSEC 2023**
GREPSEC VI Workshop, co-located with USENIX Security, August 2023

– **Pursuing anti-censorship research**
Invited talk, K-12 OnRamp summer program, UM, July 19, 2023

– **Protecting Users from Adversarial Networks**
Keynote talk, Workshop on Measurements, Attacks, and Defenses for the Web (MADWeb), March, 2023

Keynote talk, Passive and Active Measurement Conference (PAM), March, 2023

Invited talk, Joint ECE/CS Seminar, UIUC, April 2022

– **Existing projects & the Alliance for Future of the Internet**
Invited guest, Consultation with White House officials, January 2022

– **Internet splintering due to server-side blocking and embargo sanction**
Panel Moderator, RightsCon, June 2022

– **Panelist for The Feeling of Being Watched**
Invited Panelist, Dissonance

– **The story of Censored Planet**
Invited talk at Brave, February 2022

– **Democracy–Affirming Technology**
Invited panelist by the President of the United States, The Summit for Democracy, December 2021

– **The Human Cost of Internet Shutdowns**
Invited Panelist, OSLO Freedom Festival, October 2021
Invited Panelist, Thomson Reuters Foundation Trust Conference, November 2021

– **Investigating the Exposure of User Traffic Through the Lens of Passive Observer**
Invited talk, Inaugural Michigan Universities Network Research Summit, November 2021

– **An overview of Censored Planet research over four years**
Invited talk, Co-organized by WISER, GEECS, and WolvSec, November 2021

– **Consumer Reports Digital Lab Virtual Workshop: Exploring VPNs**
Invited Panelist, March 2021
CR Digital Lab's most successful webinar at the time with more than 1500 attendants.

– **Censorship Proliferation:**
Three Transformations in the Globally Spreading Practice of Online
Censorship
Invited talk, Princeton University, CITP Seminar, October 2019
Invited talk, The University of Iowa, CS Colloquium, November 2019
Invited talk, Optus Macquarie University Cyber Security Hub , January 2020

– **Making Sense of Censorship**
Invited talk, Stanford University, Security Seminar, February 2019

– **Censored Planet: a Global Censorship Observatory**
35th Chaos Communication Congress, Germany, December 2018

– **Ethical Concerns for Censorship (and Risky) Measurement**
Invited talk, Human Rights Protocol Considerations Group of IETF, Montreal, July 2018

- **A Conversation on Internet Censorship**
  Panelist, HOPE (Hackers On Planet Earth), New York, July 2018
- **Discussion on Privacy-Enhancing Technologies**
  Panelist, Midwest Security Workshop (MSW 6), April 2018
- **Privacy is Freedom: Censorship, Power Asymmetries & Politics**
  Panelist, Privacy@Michigan, Dissonance Speaker Series, February 2018
- **Censored Planet: Measuring Internet Censorship Globally and Continuously**
  Invited talk, U-M ITS SUMIT_2018: Cyber Security, Ann Arbor, October 2017
  Invited talk, Active Internet Measurement Systems Workshop, CAIDA/UCSD, San Diego, March 2018
- **Investigating Internet Connectivity Disruptions**
  University College London, October 2017
  Invited talk, 2018 Female freshman students of UM CS KickStart, October 2017
- **USENIX Sec'17 Doctoral Colloquium**
  Panelist, USENIX Security, Vancouver, August 2017
- **Safeguarding Users from Adversarial Networks**
  Invited talk, University of Colorado Boulder, February 2017
  Invited talk, Rice University, February 2017
  Invited talk, University of Illinois at Urbana-Champaign, March 2017
  Invited talk, Boston University, March 2017
  Invited talk, Duke University, March 2017
  Invited talk, New York University, March 2017
  Invited talk, University of Michigan, March 2017
- **From Internet Filtering to Actively Probing Anti-Censorship Tools**
  Carnegie Mellon University, Rising Stars in EECS Workshop, Poster, November 2016
  Invited talk, Berkman Center at Harvard University, Luncheon Seminar, May 2016
  Invited talk, Stanford University, Networking Seminar, April 2016
  Invited talk, Internet Research Task Force (IRTF), IETF 97, Argentina, April 2016
- **Law and Technology Panel: Online Censorship**
  Panelist, Woodrow Wilson School and Program in Law and Public Affairs, Princeton, April 2016
- **Censored Planet: Global Study of Internet Filtering & Controls**
  ISAT/DARPA Workshop on Technological Disruptions of Societies, Arlington, March 2016
- **The Great Firewall of China**
  Princeton University, CITP Luncheon Speaker Series, December 2015
- **The Battle Over Information Control on the Internet**
  NSF Early Career Workshop, poster presentation, Arlington, VA, November 2015
- **Assessing the State of Internet Accessibility**
  Panelist, Princeton CITP Conference on Internet Censorship, Interference, and Control, October 2015
- **Assessing the Research Community's Progress on Having Impact on Internet Accessibility**
  Panelist, Free & Open Communications on the Internet Workshop (FOCI), USENIX Security, Aug. 2015
- **From Designing Advanced Network Inference Techniques to Detecting Censorship**
  Princeton University, CITP Luncheon Speaker Series, March 2015

Advising and Mentoring

Since joining U-M, I have established a thriving and diverse research group.

Graduate Students

- Wayne Wang (Sept 2023–present)

- Aaron Ortwein (Sept 2023–present)
- Anna Ablove (2022–present)
- Diwen Xue (2020–present)
- Renuka Kumar (2019–2022) (co-advised with Atul Prakash)
- Ram Sundara Raman (2018–present)
- Reethika Ramesh (2018–2023) (Senior Staff Researcher at Palo Alto Networks)
- Arham Jain (2021) (M.S. Student; Google)
- Elisa Tsai (2020–2002)

Undergraduate Students

- Robert Stanley (Jan 2024–present)
- Brennen Daudlin (Jan 2024–present)
- Joshua Hannah (Sep 2023-present)
- Therron Montgomery (Jan 2024–May 2024)
- Kyle Astroth (May 2023–September 2023)
- Yusei Uehara (Jan 2023– September 2023)
- Kevin Wang (Jan 2023 – September 2023)
- Nadav Oren (Jan 2023–present)
- Gavin Li (May 2022–December 2022)
- David Wang (2022–September 2022)
- Daniel Liu (May 2022– September 2022)
- Rose Ceccio (2020–May 2021; Ph.D. Student at UW Madison)
- Anjali Vyas (2020–May 2021; M.S. Student at Cornell Tech)
- Prerana Shenoy (Jan–Aug 2020; Atlassian)
- Apurva Virkud (2019–May 2022)
- Victor Ongkowijaya (2017–2019; M.S. Student at Princeton)
- Adrian Stoll (2017–2019; Google)

Postdocs

- Hieu Le (2023–present)
- Piyush Kumar (2023–present)
- Muhammad Ikram (2018–2019; Tenure-track faculty position at Macquarie University)

Doctoral Committees

- Ram Sundara Raman (C.S. Ph.D. 2023, Michigan)
- Reethika Ramesh (C.S. Ph.D. 2023, Michigan)
- Renuka Kumar (C.S. Ph.D. 2023, Michigan; co-chair w/ Atul Parkash)
- Deepika Natarajan (C.S. Ph.D. 2022, Michigan)
- Benjamin VanderSloot (C.S. Ph.D. 2020, Michigan)

Other Student Research Supervised

- Alexandra Dirksen, (2023-present)

- Benjamin Anthony Mixon-Baca, visiting PhD student from ASU (Winter 2022-Winter 2023)

- Hammas Tanveer, visiting PhD student from Iowa (2022)

- Owen Webb, M.S. research (Fall 2019, Winter 2020)

- Alyssa Sopanarat, Enya Chen, Kayura Mendonza, Micaela DeGenero; undergrad independent work, ExploreCS Initiative (Winter 2019)

- Steven Sprecher, M.S. research (Summer 2018)

- Annie Edmundson, Ph.D. research, Princeton University (2015–2018)

- Sarthak Grover, Ph.D. research, Princeton University (2015–2016)

- Bridger Hahn, undergrad independent work, Stony Brook and Princeton University (2016)

Teaching

- **EECS 388 Introduction to Security**, University of Michigan, Fall 2023

- **EECS 588 Computer and Network Security**, University of Michigan, Winter 2023

- **EECS 388 Introduction to Security**, University of Michigan, Fall 2022

- **EECS 588 Computer and Network Security**, University of Michigan, Fall 2020
  Intensive research seminar covers foundations research literature and current topics in computer systems security. This course prepare graduate students for security-related research, and helps them gain hands-on experience designing and evaluating secure systems.

- **EECS 388 Introduction to Security**, University of Michigan, Winter 2020
  This course teaches the security mindset and introduces the principles and practices of computer security as applied to software, host systems, and networks.

- **EECS 598-12 Censorship Privacy Tech**, University of Michigan, Fall 2019
  Created new graduate course, which covers latest research in detecting and resisting against online threats, including systems for censorship detection and circumvention, web tracking and traffic analysis countermeasures, anonymous communication systems such as Tor, and other privacy enhancing technologies (PETs). Students are expected to complete original research projects on topics in this area.

- **CS444/544 Introduction to Cybersecurity**, University of New Mexico, Spring 2013
  Led semester-long security course. Responsible for teaching lectures, redesigning lab assignments, and lab supervision for 52 grad and undergrad students. In collaboration with Prof. Jed Crandall.
  Awarded the 2012-13 university-wide Graduate Student Mentor Award.

- **Guest lecturer:**
  - Georgia Tech CS8803 Security, Privacy, and Democracy (Fall 2003)
  - UMSI Privacy & Surveillance Course, University of Michigan (Fall 2023)
  - EECS 110: Discover Computer Science, University of Michigan (Winter 2023)
  - CS 601.741: Advanced Topics in Secure and Censorship-Resistant Communications, Johns Hopkins University (April 2021)
  - CS 4950: Seminar on Computer Networking, Northeastern University (February 2021)
  - EECS 496: Major Design Experience/Professionalism (February 2019)
  - EECS 582: Advanced Operating Systems, U-M (October 2018)

– EECS 388: Introduction to Computer Security, U-M (April 2018)
– EECS 588: Computer & Network Security, U-M (February 2018)
– 6.829 Computer Networks, MIT (October 2016)
– CS 244: Advanced Topics in Networking, Stanford University (April 2016)
– ELE 574: Security and Privacy, Princeton University (October 2015)
– COS/ELE 432: Information Security, Princeton University (March 2015)
– CS 485/ECE 440/CS 585: Computer Networks, University of New Mexico (October 2013)

Professional Service

Program Committees

– 2022 USENIX Security Symposium (Sec '22)
– 2021 USENIX Security Symposium (Sec '21)
– 2021 ACM Internet Measurement Conference (IMC '21)
– 2021 Workshop on Free and Open Communications on the Internet (FOCI '21)
– 2020 USENIX Security Symposium (Sec '20)
– 2020 ACM Internet Measurement Conference (IMC '20)
– 2020 Privacy Enhancing Technologies Symposium (PoPETs 2020)
– 2020 IEEE Symposium on Security and Privacy (S&P '20)
– 2019 ACM Internet Measurement Conference (IMC '19)
– 2019 Workshop on Free and Open Communications on the Internet (FOCI '19)
– 2019 USENIX Security Symposium (Sec '19)
– 2019 IEEE Symposium on Security and Privacy (S&P '19)
– 2018 ACM Conference on Computer and Communications Security (CCS '18)
– 2018 Workshop on Free and Open Communications on the Internet (FOCI '18)
– 2018 International Symposium on Research in Attacks, Intrusions and Defenses (RAID '18)
– 2017 ACM Internet Measurement Conference (IMC '17)
– 2017 NSF SaTC external reviewer
– 2017 Workshop on Free and Open Communications on the Internet (FOCI '17)
– 2016 NSF SaTC pannel reviewer
– 2016 ACM Internet Measurement Conference (IMC '16)
– 2016 ACM Conference on emerging Networking EXperiments and Technologies (CoNEXT '16)
– 2016 Privacy Enhancing Technologies Symposium (PETS '16)
– 2016 Workshop on Free and Open Communications on the Internet (FOCI '16)
– 2016 Passive and Active Measurement Conference (PAM '16)
– 2015 Workshop on Free and Open Communications on the Internet (FOCI '15)
– 2015 CoNEXT Student Workshop (CoNEXT-Student '15)

Organizing Committees

– 2023 **Chair:** Explore Grad Studies in Computer Science and Engineering Workshop (EGS'23)
– 2023 **Program Co-Chair:** Workshop on Free & Open Communications on the Internet (FOCI'22)

- 2022 **Chair:** Explore Grad Studies in Computer Science and Engineering Workshop (EGS'22)
- 2022 **Program Co-Chair:** Workshop on Free & Open Communications on the Internet (FOCI'22)
- 2022 Publicity Chair: ACM Internet Measurement Conference (IMC '22)
- 2022 Co-Technical-Chair: The Network Traffic Measurement and Analysis Conference (TMA)
- 2020 **Program Co-Chair:** USENIX Workshop on Free & Open Communications on the Internet (FOCI'20)
  Note: This was the 10th FOCI anniversary. We had record-high registered participants, attendance at talks (average of 70 people), and submitted papers (double that of any other year, including 2021)
- 2020 Steering committee: WTMC workshop
- 2019 **Program Co-Chair:** ACM CoNEXT Workshop on Big Data, Machine Learning and Artificial Intelligence for Data Communication Networks
- 2019 Steering committee: WTMC workshop
- 2018 Travel grants chair: CoNEXT
- 2012 Chair: the 8th CS UNM Student Conference

Boards
- CLASSNET Advisory Board 2023-2025
  Advisory board for NSF CCRI award "CLASSNET: Collaborative Labeling and Sharing of Security and Networking Test datasets"
- Global Future Council on Complex Risks for World Economic Forum Global (2023-2025)
- SplinterCon Conference advisory Board (2023–present)
- Free and Open Communications on the Internet Advisory Board (2022–present)
- Open Technology Fund Advisory Council (2017–present)
- UM CS faculty liaison for Knight Fellows of Wallace House

Department and University Service
- WolvSec Student Org Advisor (2023–present)
- CSE External Recruiting Committee (2022–2023)
- CSE Research Affairs, Seminar Series (2021–2022)
- CSE External Recruiting Committee (2021–2022)
- CSE External Recruiting Committee (2020–2021)
- CSE Graduate Admissions Committee (2019–2020)
- Founder of Women In SEcurity (WISER) (2019–present)
- CSE Faculty Seminar Series (2018–2019)
- U-M Dissonance Seminar Series Organizing Committee (2017–present)
- President, UNM Computer Science Graduate Student Association (2011–2012)