

Roya Ensafi

Research Assistant Professor
Computer Science and Engineering
University of Michigan

September 25, 2018

2260 Hayward Street
Ann Arbor, MI 48109 USA
(work) +1 734 764 3184
ensafi@umich.edu

<https://Ensa.fi>

Research Overview

My research focuses on security and privacy, with an emphasis on designing techniques and systems to protect users from adversarial networks. Much of my work has focused on detecting and defending against adversaries who manipulate Internet traffic in order to block, monitor, or otherwise tamper with users' online activities.

Positions

- University of Michigan, Ann Arbor, MI
Department of Electrical Engineering and Computer Science,
Computer Science and Engineering Division
Research Assistant Professor ... (2017–present)
- Princeton University, Princeton, NJ
Research Fellow, Center for Information Technology Policy ... (2015–2017)
Postdoctoral Research Associate, Computer Science ... (2015–2017)
- International Computer Science Institute (ICSI) affiliated with 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: Terran Lane, Michalis Faloutsos, Stefan Savage
- 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

- Google Faculty Research Award (2018)
- NSF CNS Research Initiation Initiative (NSF-CRII)
- IRTF Applied Networking Research Prize (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)
- 2013 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.”)

Selected Projects

– **Censored Planet** (2018)

Founded Censored Planet, a platform for continuously monitoring global Internet censorship and disruption. Our regular scan data on Internet censorship tactics commonly used by governments and others is publicly available and already in use by computer and political scientists.

Refereed Conference Publications

- [1] **403 Forbidden: A Global View of Geoblocking**
A. McDonald, M. Bernhard, B. VanderSloot, W. Scott, J. A. Halderman, and R Ensafi
ACM Internet Measurement Conference (IMC), November 2018.
- [2] **Quack: Scalable Remote Measurement of Application-Layer Censorship**
B. VanderSloot, A. McDonald, W. Scott, J. A. Halderman, and R. Ensafi
USENIX Security Symposium (USENIX Security), August 2018.
Acceptance rate: 19%, 100/524.
- [3] **Nation-State Hegemony in Internet Routing**
A. Edmundson, R. Ensafi, N. Feamster, and J. Rexford
ACM SIGCAS Conference on Computing and Sustainable Societies, July 2018.
- [4] **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.
- [5] **Global Measurement of DNS Manipulation**
P. Pearce, B. Jones, F. Li, R. Ensafi, N. Feamster, V. Paxson
USENIX Security Symposium (USENIX Security), August 2017.
Invited to appear in USENIX ;login:, Winter 2017 Issue.
Acceptance rate: 16%, 85/522.
- [6] **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.
- [7] **Identifying and Characterizing Sybils in the Tor Network**
P. Winter, R. Ensafi, K. Loesing, and N. Feamster
USENIX Security Symposium (USENIX Security), August 2016.
Acceptance rate: 16%, 72/463.
- [8] **A Case Study of Traffic Demand Response to Broadband Service-Plan Upgrades**
S. Grover, R. Ensafi, and N. Feamster
Passive and Active Measurement Conference (PAM), April 2016.
Acceptance rate: 31%, 30/93.
- [9] **Examining How the Great Firewall Discovers Hidden Circumvention Servers**
R. Ensafi, D. Fifield, P. Winter, N. Feamster, N. Weaver, and V. Paxson
ACM Internet Measurement Conference (IMC), October 2015.
IRTF Applied Networking Research Prize winner. Acceptance rate: 26%, 44/169.

- [10] **Analyzing the Great Firewall of China Over Space and Time**
R. Ensafi, P. Winter, A. Mueen, and J. Crandall
Privacy Enhancing Technologies Symposium (PETS), July 2015. Acceptance rate: 22.5%, 23/102.
- [11] **Detecting Intentional Packet Drops on the Internet via TCP/IP Side Channels**
R. Ensafi, J. Knockel, G. Alexander, and J. Crandall
Passive and Active Measurement Conference (PAM), April 2014.
- [12] **Idle Port Scanning & Non-interference Analysis of Network Protocol Stacks Using Model Checking**
R. Ensafi, J. Park, D. Kapur, and J. Crandall.
USENIX Security Symposium (USENIX Security), August 2010.
 Acceptance rate: 14%, 30/202.

Other Refereed Publications

- [13] **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, and V. Paxson
USENIX Workshop on Free and Open Communications on the Internet (FOCI), August 2015.
 Also appeared as a [Citizen Lab report](#), April 2015.
- [14] **Ethical Concerns for Censorship Measurement**
 B. Jones, R. Ensafi, N. Feamster, V. Paxson, and N. Weaver
ACM SIGCOMM Workshop on Ethics in Networked Systems Research (NS Ethics), August 2015.
- [15] **Global Censorship Detection over the RIPE Atlas Network**
 C. Anderson, P. Winter, and R. Ensafi
USENIX Workshop on Free and Open Communications on the Internet (FOCI), August 2014.
- [16] **A Case Study in Helping Students to Covertly Eat Their Classmates**
R. Ensafi, M. Jacobi, and J. Crandall
USENIX Workshop on Gaming, Games, and Gamification in Security Education (3GSE), August 2014.
- [17] **Students Who Don't Understand Information Flow Should Be Eaten: An Experience Paper**
R. Ensafi, M. Jacobi, and J. Crandall
USENIX Workshop on Cyber Security Experimentation and Test (CSET), August 2012.
- [18] **Ecology of Malware**
 J. Crandall, R. Ensafi, S. Forrest, J. Ladau, and B. Shebaro
New Security Paradigms Workshop (NSPW), September 2008.

Journal Publications

- [19] **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.
- [20] **Global Measurement of DNS Manipulation**
 P. Pearce, B. Jones, F. Li, R. Ensafi, N. Feamster, V. Paxson
USENIX ;login., Winter 2018.

Research Proposals & Grants

- Principal Investigator, Google Faculty Research Awards 2018
 Awarded February, 2018 (Duration unspecified)

- **Principal Investigator**, NSF:CNS Research Initiation Initiative (CRII)
Awarded February, 2018 (Duration: 2018-2019)
- **Principal Investigator**, Open Fund Technology (OTF)
Awarded April, 2018 (Duration: 2018-2020)
- **Principal Investigator**, Microsoft Inc. and CITP at Princeton.
co-Investigator: Molly Roberts (UCSD), Brandon Stewart (Princeton)
Awarded, January 2016
- **Principal Investigator**, Amazon AWS Research Grant
Awarded, January 2016

Selected Talks & Panels

- **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, Feb. 2018
- **Censored Planet: Measuring Internet Censorship Globally and Continuously**
Invited talk, U-M ITS SUMIT_2018: Cyber Security, Ann Arbor, Oct. 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 presentation, Nov. 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 and Organizations: Communications Networks, Computational Trust, Reputation, Anonymity, and Beyond, 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, Princeton, Oct. 2015
- **Assessing the Research Community's Progress on Having Impact on Internet Accessibility**
Panelist, Free and Open Communications on the Internet Workshop (FOCI), USENIX Security, August 2015
- **From Designing Advanced Network Inference Techniques to Detecting Censorship**
Princeton University, CITP Luncheon Speaker Series, March 2015

Advising and Mentoring

Graduate Students

- Ram Sundara Ramen (2018–present)
- Reethika Ramesh (2017–present)

Undergraduate Students

- Victor Ongkowitz (2017–present)
- Adrian Stoll (2017–present)

Post Docs

- Muhammad Ikram (co-advise with Prof. Kaafar, Macquarie University, Australia)

Graduate and Undergraduate Research Supervised

- Steven Sprecher, MS research (summer 2018)
- Annie Edmundson, Ph.D. research, Princeton University (2015–present)
- Sarthak Grover, Ph.D. research, Princeton University (2015–2016)
- Bridger Hahn, undergrad independent work, Stony Brook and Princeton University (2016)
- Ben Jones, Ph.D. research, Princeton University (2014–2015)

Teaching

Guest lecturer

- 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)

Instructor

- **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.

Professional Service

Program Committees

- 2019 USENIX Security Symposium (Sec '19)
- 2019 IEEE Symposium on Security and Privacy ("Oakland"/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)
- 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)

Boards

- Open Technology Fund Advisory Board (2017-present)

Organizing Committee

- 2018 Travel grants chair: CoNEXT
- 2018 Conference Session Chair: USENIX Security, FOCI, ANRW (IETF)
- 2017 Conference Session Chair: IMC, FOCI

Department and University Service

- CSE Faculty Seminar Series (2018-2019)
- U-M Dissonance Organizing Committee (2017-present)
- President, Computer Science Graduate Student Association, UNM, 2011-12
- Chair, 8th CS UNM Student Conference, 2012

Nationality & Languages

- Iranian Citizen and United States Permanent Resident
- English (fluent), Farsi/Persian (native), Arabic (basic)