Ellis Fenske

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Education

Ph.D. Mathematics 2018
Tulane University, New Orleans, LA.

- Thesis: Anonymity and Linkability. Advisor: Michael Mislove.
- Focus Areas: Cryptography, Statistics, Denotational Semantics and Foundations.

B.S. Mathematics, B.A. Philosophy. 2009
Santa Clara University, Santa Clara, CA.

Employment

Assistant Professor 2018 - Present
United States Naval Academy, Annapolis, MD.

- Research in multiparty private measurement protocols, location privacy in mobile devices.
- Faculty Supervisor: Furious MAC Research Group.
- Coach: USNA team, International Collegiate Programming Contest

Graduate Student 2011-2018
Tulane University, New Orleans, LA.

- Research Assistant, Teaching Assistant, Instructor (Discrete Mathematics)

Research Engineer 2006-2010
Enertechnix, Inc.

- Worked to fulfill research grants (NIH, DOD, NIH, DTRA) related to development of aerosol technology.
- Automation, scientific programming (fluid simulations, laboratory hardware interface), experimentation.

Publications

Refereed Publications

6. **Ellis Fenske**. *Optimal lower bounds on the accuracy of path selection fingerprinting attacks by generalized link adversaries in anonymous routing networks.* In preparation.
5. Travis Mayberry, **Ellis Fenske**, Dane Brown, Jeremy Martin, Christine Fossaceca, Erik Rye, and Lucas Foppe. *Who Tracks the Trackers? Circumventing Apple's Anti-Tracking Alerts in the Find My Network.* 20th Workshop on Privacy in the Electronic Society (WPES). November, 2021.
4. **Ellis Fenske**, Akshaya Mani, Aaron Johnson, Micah Sherr. *Accountable Private Set Cardinality for Distributed Measurement.* ACM Transactions on Privacy and Security (TOPS). Accepted. 2021
3. **Ellis Fenske**, Dane Brown, Jeremy Martin, Travis Mayberry, Peter Ryan, and Erik Rye. *Three Years Later: A Study of MAC Address Randomization in Mobile Devices And When It Succeeds.* Proceedings on Privacy Enhancing Technologies (PETS). July, 2021.

2. Jeremy Martin, Douglas Alpuche, Kristina Bodeman, Lamont Brown, **Ellis Fenske**, Lucas Foppe, Travis Mayberry, Erik Rye, Brandon Sipes, Sam Teplov. *Handoff All Your Privacy – A Review of Apple's Bluetooth Low Energy Continuity Protocol.* Proceedings on Privacy Enhancing Technologies (PETS). July, 2019.
1. **Ellis Fenske***, Akshaya Mani*, Aaron Johnson, Micah Sherr. *Distributed Measurement with Private Set-Union Cardinality.* ACM Conference on Computer and Communications Security (CCS), November 2017. (*Co-First Authors)

Media Coverage

1. Thomas Claburn. Latest phones are great at thwarting Wi-Fi tracking. Other devices, not so much – study. The Register, May 18 2021. link

Professional Activities

- Member: ACM, AMS
- Member: Privacy Enhancing Technology Symposium (PETS) Program Committee, 2020-present
- Member: Workshop on Privacy in the Electronic Society (WPES) Program Committee, 2020
- External Reviewer: Network and Distributed Systems Security (NDSS) 2019.
- External Reviewer: Usenix Security, 2018

Teaching (USNA)

Fall 2021
- SY301 - Data Structures for Cyber Operations

Spring 2021
- SY204 - Cyber Systems Programming & Operating Systems Fundamentals
- SY308 - Security Fundamental Principles (Cryptography & Binary Exploitation)

Fall 2020
- SY201 - Cyber Fundamentals I
- SY301 - Data Structures for Cyber Operations

Spring 2020
- SY308 - Security Fundamental Principles
- SY486C - Anonymous Communication

Fall 2019
- SY201 - Cyber Fundamentals I

Spring 2019
- SY110 - Introduction to Cyber Security
- SY308 - Security Fundamental Principles

Fall 2018
- SY301 - Data Structures for Cyber Operations

Spring 2018, 2015
- CMPS/MATH 2170 - Discrete Mathematics (Tulane University)

Student Supervision

6. Independent Research Project: Jon Goohs. *Reasonable Expectation of Privacy in an IP Address - The Tor Browser and Other Anonymization Measures* 2021. Columbia Undergraduate Law Review.
5. Independent Research Project: Eric Towe. *State of Knowledge on Wi-Fi MAC Randomization.* 2020.
4. Capstone Project: Annie Oakley, Allie Freedman, Colin Gavin, Kestrel Kuhne. *Intentionally Fingerprintable Websites Within Tor.* 2020.
3. Capstone Project: Pedro Castillo-Valdes, Jordan Gonyea, Joaquin Gabriel. *Pluggable Transports in Tor.* 2020
2. Capstone Project: Brittney Slook, Alex Lopez, Emily Klitgard. *Special Agent Alexa: Unintentional Recording and Eavesdropping Vulnerabilities and Applications of Amazon Echo Devices.* 2020.
1. Independent Research: Morgan Giraud. *Party Selection and Trust Assumptions in a Distributed Trust Anonymity System.* 2018.

Service

- Cyber Science Department Scheduler (2020-present)
- Cyber Science Awards Committee Chair (2019-2020)
- Cyber Science Systems Committee (2018-2019)