ELLIS FENSKE

PERSONAL INFORMATION

email   fenske@usna.edu

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EDUCATION

2018   **PH.D. MATHEMATICS**

Tulane University

Thesis
Anonymity and Linkability. Advisor: Michael Mislove.

Areas of interest
Cryptography and anonymity, probability and statistics, information theory, order and category theory, set theory

2009   **B.S. MATHEMATICS (CUM LAUDE)**

Santa Clara University

Logic, cryptography

2009   **B.A. PHILOSOPHY (CUM LAUDE)**

Santa Clara University

History, ethics

PUBLICATIONS

2017   **Distributed Measurement with Private Set-Union Cardinality**

ACM Conference on Computer and Communications Security

Description, implementation, and proof of correctness of a protocol to privately measure and aggregate unique distributed tallies.

Ellis Fenske*, Akshaya Mani*, Aaron Johnson, and Micah Sherr. Distributed Measurement with Private Set-Union Cardinality. In ACM Conference on Computer and Communications Security (CCS), November 2017. *Co-first authors

2019   **Handoff All Your Privacy: A Review of Apple's Bluetooth Low Energy Continuity Protocol**

Privacy Enhancing Technologies Symposium

Reverse engineering and statistical attacks for tracking Apple device users by tracking persistent identifiers in order to circumvent Bluetooth Low Energy MAC Randomization.

Jeremy Martin, Douglas Alpuche, Kristina Bodeman, Lamont Brown, **Ellis Fenske**, Lucas Foppe, Travis Mayberry, Erik C. Rye, Brandon Sipes, Sam Teplov. In the Proceedings on Privacy Enhancing Technologies, 2019.

Information Leakage in Path Selection through Non-Observations

In Preparation

Single author submission.

TEACHING

2015   **Discrete Mathematics (Instructor)**

Tulane University

Instructor for cross-listed Computer Science-Mathematics survey course.

Independently designed course structure, selected topics, wrote all assignments.
Course Website

2012-17	**Introduction to Computer Science (Assistant)**

Tulane University

Gave weekly lab sessions. Assisted writing homework problems. Developed software to automate grading and administrative tasks for large classes.

2014	**Operating Systems and Networking (Assistant)**

Tulane University

Responsible for programming instruction. Designed and wrote all programming homework exercises

2014	**Introduction to Algorithms (Assistant)**

Tulane University

Gave weekly lectures and problem sessions.

PRESENTATIONS

Washington, DC Anonymity and Privacy Seminar (DCAPS)

2017	Private Set-Union Cardinality
2017	A Bound on Information Leakage in Tor Route Selection
2015	Crowds, Asymmetry, and Neighbors

Tulane Math Graduate Colloquium

2017	Cryptographic Protocols for Multiparty Computation
2016	Non Well-Founded Solutions to Set Theoretic Equations
2015	Mathematical Analysis of Anonymity Protocols
2013	A Foundation in the Foundations of Mathematics

INDUSTRY EXPERIENCE

2006-10	**Research Engineer**

Enertechnix

Worked to fulfill research grants (DHS, DOD, NIH, DTRA) related to the development of aerosol technology. Designed, developed and maintained computer systems and software to facilitate experimentation. Scientific programming - computational fluid dynamics, hardware interface, statistical methods. Repair, operation, and maintenance of scientific equipment for aerosol testing. Built in-house software to automate biological microscopy.

OTHER

Tulane University	*2012-14*	Organizer, Mathematics Graduate Student Colloquium
Tulane University	*2012-15*	Representative, Graduate Studies Students Association
Tulane University Chapter	*2013*	Vice President, Society for Industrial and Applied Mathematics