Noemi Glaeser

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## Education

**University of Maryland**, *College Park, MD, USA* *Estimated May 2024*

**Max Planck Institute for Security and Privacy (MPI-SP)**, *Bochum, Germany*

Ph.D., Computer Science • *Maryland-Max Planck joint program*

Advisors: Jonathan Katz (UMD) and Giulio Malavolta (MPI-SP)

**University of Maryland**, *College Park, MD, USA* *May 2021*

M.S., Computer Science (GPA: 3.9/4.0)

**University of South Carolina Honors College**, *Columbia, SC, USA* *May 2019*

B.S., Mathematics • B.S.C.S., Computer Science • *summa cum laude* (GPA: 4.0/4.0)

Minor, Music • Flute performance certificate

**Thomas Jefferson High School for Science & Technology**, *Alexandria, VA, USA* *Jun 2015*

*#1 public U.S. high school according to Newsweek (2014-2016)*

Advanced Studies Diploma (GPA: 4.46/4.0)

## Current Projects

**Implementation and SoK: Composable and Simulation-Extractable Compact NIZKs with Updatable Common Reference Strings.** Proof-of-concept Rust implementation.

**Pre-Constrained Signatures.** Constructing signature schemes with the property that some class of messages cannot be signed, even under full compromise.

## Publications

*authors listed in alphabetical order

### *In Submission*

P3.* B. Abdolmaleki, N. Glaeser, S. Ramacher, D. Slamanig. (2022). Composable and Simulation-Extractable Compact NIZKs with Updatable Common Reference Strings. In review.

P2. N. Glaeser, S.A.K. Thyagarajan, G. Malavolta, P. Moreno-Sanchez. (2021) Coin Mixing Services: New Constructions and Cryptanalysis. In review.

P1. R. De Viti, B. Dinis, N. Glaeser, et al. (2021). CoVault: Secure High-Stakes Analytics. In review.

**Conference Papers**

C2. K. Herner et al. (2020). The updated DESGW processing pipeline for the third LIGO/ VIRGO observing run. *Conf. on Computing in High Energy & Nuclear Physics (CHEP)*, 245, 01008. https://doi.org/10.1051/epjconf/202024501008.

C1. N. Glaeser and A. Wang. (2016). Access control for a database-defined network, *Proceedings of IEEE 37th Sarnoff Symposium*. http://dx.doi.org/10.1109/SARNOF.2016.7846728.

**Journal Papers**

J2. K. Herner et al. (2020). Optical follow-up of gravitational wave triggers with DECam during the first two LIGO/VIRGO observing runs. *Astronomy & Computing*, 33, 100425. https://doi.org/10.1016/j.ascom.2020.100425.

J1. K. Abdelfatah, J. Senn, N. Glaeser, and G. Terejanu. (2019). Prediction and Measurement Update of Fungal Toxin Geospatial Uncertainty using a Stacked Gaussian Process. *Agricultural Systems*, *176*, 102669. https://doi.org/10.1016/j.agsy.2019.102662.

**Other**

O1. N. Glaeser. (2021). Cryptographic secret sharing packet, *UMD Girls Talk Math summer camp*. https://github.com/nglaeser/gtm2021/tree/main/packet.

**Talks & Posters**

T6. Mathematically Sharing Secrets. (2021). Invited talk, *UMD Girls Talk Math Spring Event*, Virtual.

T5. Improving bounds on entropy of odd cycle graphs. (2019). (with Joshua Cooper.) Poster, *UofSC Discovery Day*, Columbia, SC.

T4. Improvements to image processing in the DES-GW pipeline. (2018). (with Kenneth Herner.) Talk, *Summer Internship in Science & Tech (SIST) Presentation Day*, Fermi National Accelerator Laboratory, Batavia, IL.

T3. Access control for a database-defined network. (2016). (with Anduo Wang.) Talk, *Temple University REU Presentations*, Philadelphia, PA.

T2. Access control for a database-defined network. (2016). (with Anduo Wang.) Poster, *IEEE Sarnoff Symposium*, Newark, NJ.
*Won 3rd place Poster Award

T1. Generating geographic and temporal heat maps of aflatoxin incidence using regularized linear models. (2017). (with Gabriel Terejanu.) Poster, *UofSC Discovery Day*, Columbia, SC.

## Awards & Honors

**GREPSEC Workshop Grant** *2021*

**Graduate Research Fellowship**, *National Science Foundation (NSF)* *2019 – 2024*

**Phi Beta Kappa Honor Society** *2019*

*Oldest and most prestigious academic honor society in the U.S.*

**Computational Science Fellowship** (Math & Computing track), *Dept of Energy* *2019, declined*

**Outstanding Senior in Mathematics**, *UofSC Math Dept* *Spring 2019*

**Goldwater Scholarship** (Honorable Mention) *2018*

**Science Undergraduate Research Fellowship (SURF)**, *UofSC Honors College* *Fall 2018*

**Grace Hopper Scholar**, *Anita Borg Institute* *2017*

Funding to attend the 2017 Grace Hopper Celebration of Women in Computing

**Magellan Scholar Award**, *UofSC* *2016*

$2,500 for Computer Science department research

**McNair Scholar**, *UofSC* *2015-19*

*Highest out-of-state merit-based scholarship*

## Service

**External Reviewer**

PETS 2022.1, PKC 2022

**Organizer**

UMD Cryptography Reading Group *Fall 2020, Spring 2021*

UMD CS GradCo Peer Mentoring Program (inaugural year) *Fall 2021*

**Leadership**

*Webmaster*, UofSC Cybersecurity Club *Spring 2018 – Spring 2019*

*Treasurer*, Gamecock Math Club/Pi Mu Epsilon Math Honor Society *Fall 2017 – Spring 2019*

*Founding member, treasurer, secretary*, UofSC Assoc for Women in Math *Spring 2017 – Spring 2018*

**Mentor**

UMD Iribe Initiative for Inclusion & Diversity in Computing (I4C) *Fall 2020*

UMD CS GradCo Peer Mentoring Program *Fall 2021*

UofSC McNair Scholar Buddy *Fall 2016 – Spring 2019*

**Other**

Packet Writer, UMD Girls Talk Math *Summer 2021*

## Research Experience

**University of Maryland** *2019-2020*

*Research Assistant*

Developing secure multiparty computation (MPC) protocols in novel threat models & deployment environments; studied bounds on query-pattern leakage attacks on encrypted databases.

**Inria Sophia Antipolis** *summer 2019*

*Research Intern*

**University of South Carolina Mathematics Department** *2018-2019*

*Science Undergraduate Research Fellowship (SURF)*

Investigated tightness of stochastic bounds on cycle graph entropy (poster T5); released an open-source package with cycle graph utilities.

GitHub: nglaeser/graph_cyclone *(Python)* • PyPI: graph-cyclone

**University of South Carolina Computer Science Department** *2018-2019*

*Capstone Computing Project*

Developed "Open vLab", an educational network virtualization framework for hands-on computing education.

GitHub: SCCapstone/OpenVLab *(Django, OpenFlow, Javascript)*

**Fermi National Accelerator Laboratory, Particle Astrophysics** *summer 2018*

*Grace Hopper Computing Intern*

Improved efficiency of the Dark Energy Survey's image processing pipeline for optical counterparts of gravitational wave events from average 5-8 hrs to 30 min (10-16x speedup). Published in papers J2 & C2 and talk T4.

GitHub: SSantosLab/gw_workflow *(Python, Bash)*

**Temple University Computer Science Department** *summer 2016*

*NSF Research Experience for Undergraduates (REU)*

Implemented an access-control security application for the database-defined software-defined network (SDN) controller Ravel. Work presented in C1, T2, & T3.

GitHub: ravel-net/REU-access-control *(Python, PostgreSQL)* • Web: ravel-net.org/

**University of South Carolina Computer Science Department** *2016-2018*

*Research Assistant / Magellan Scholar*

Published in paper J1 and presented in poster T1.

## Memberships

Association for Computing Machinery (ACM) *2018-*

International Association for Cryptology Research (IACR) *2019-*

## Other Achievements

BSides Charleston Capture the Flag (cybersecurity competition), *2nd place* *2018*

BSides Charleston Cryptography Challenge, *1st place* *2017*

MAA Southeastern Math Jeopardy, *3rd place* *2016*

## Technical Skills

Strong: *Python • LaTeX • HTML/CSS/Javascript*
Average: *Bash • C++*
Beginner: *Rust*

## Languages

*Native proficiency:* English, German, Italian

*Conversational proficiency:* French, American Sign Language (ASL)

## Selected Coursework

(* denotes honors course; † denotes graduate course.)

### Mathematics

Computational Number Theory†
Analysis I* & II*
Algebraic Structures I & II*
Linear Algebra
Ordinary Differential Equations
Discrete Mathematics I

### Computer Science

Applied Mechanism Design for Social Good†
Intro to Secure Distributed Computation†
Intro to Quantum Information Processing†
Algos in ML: Guarantees & Analyses†
Applied Crypto & Hostile Gov'ts (audit)†
Interactive Technologies†
Human Factors in Security & Privacy†
How to Conduct Great Research (seminar)†
Computer & Network security†
Program Analysis & Understanding†
Introduction to Cryptography*
Computer Architecture*
Theory of Computation
Ethical Hacking
Information Security Principles