

# Sam A. Markelon

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## Education

2020–	<b>PhD in Computer Science, University of Florida</b> Florida Institute for Cybersecurity Research Advisor: Vincent Bindschaedler and Thomas Shrimpton
2016–2020	<b>BS in Computer Science, University of Connecticut</b> Minor in Mathematics Summa Cum Laude Honors Scholar Upsilon Pi Epsilon

## Professional Experience

Summer 2023	<b>NCC Group (New York, NY)</b> Cryptography Services Intern
Summer 2019	<b>NCC Group (New York, NY)</b> Cryptography Services Intern
Summer 2018	<b>Institut de Physique Nucléaire d'Orsay (Orsay, France)</b> Scientific Computing Intern
Summer 2017	<b>Jefferson National Laboratory (Newport News, VA)</b> Software Engineering Intern

## Awards and Grants

2023	<b>ThinkSwiss Research Scholarship</b> Academic Guest for Fall 2023 with Prof. Kenneth Paterson's Applied Cryptography Group at ETH Zürich.
2023	<b>Gartner Group Graduate Fellowship</b>
2020	<b>University of Florida Graduate School Preeminence Award</b>
2019	<b>Barry M. Goldwater Scholarship</b>
2018	<b>University of Connecticut IDEA Grant</b> NTRUEncrypt implementation and usage research.
2016	<b>University of Connecticut STEM Scholar</b>

## Teaching Experience

As teaching assistant at the University of Florida.

Spring 2025	<b>COP 3530: Data Structures and Algorithms</b>
Fall 2024	<b>CIS 6930: Randomized Algorithms and Probability in Computing</b>

As undergraduate teaching assistant at the University of Connecticut.

Spring 2020	<b>CSE 3400: Introduction to Computer and Network Security</b>
Fall 2019	
Spring 2019	<b>CSE 3150: C++ Essentials</b>
Fall 2018	<b>CSE 2050: Data Structures and Object Oriented Programming</b>

## Publications

Various author ordering conventions used.

### Journal and Conference Papers

1. Luke A. Bauer, James K. Howes IV, Sam A. Markelon, Vincent Bindschaedler, and Thomas Shrimpton. **Covert Message Passing over Public Internet Platforms Using Model-Based Format-Transforming Encryption**. In *Proceedings of the 2024 ACM Conference on Data and Application Security and Privacy*. Association for Computing Machinery, 2024
2. Sam A. Markelon, Mia Filić, and Thomas Shrimpton. **Compact Frequency Estimators in Adversarial Environments**. In *Proceedings of the 2023 ACM SIGSAC Conference on Computer and Communications Security, CCS '23*, New York, NY, USA, 2023. Association for Computing Machinery
3. Sam A. Markelon and John True. **The DecCert PKI: A Solution to Decentralized Identity Attestation and Zooko's Triangle**. In *2022 IEEE International Conference on Decentralized Applications and Infrastructures (DAPPS)*, pages 74–82, 2022  
*Best Paper Award*.
4. Walter O. Krawec and Sam A. Markelon. **A semi-quantum extended B92 protocol and its analysis**. In Eric Donkor and Michael Hayduk, editors, *Quantum Information Science, Sensing, and Computation XII*, volume 11391, page 113910G. International Society for Optics and Photonics, SPIE, 2020
5. Walter O. Krawec and Sam A. Markelon. **Genetic Algorithm to Study Practical Quantum Adversaries**. In *Proceedings of the Genetic and Evolutionary Computation Conference, GECCO '18*, page 1270–1277, New York, NY, USA, 2018. Association for Computing Machinery

### Posters and Poster Papers

6. Walter O. Krawec and Sam A. Markelon. **Discovery of Robust Protocols for Secure Quantum Cryptography**. In *Proceedings of the Genetic and Evolutionary Computation Conference Companion, GECCO '19*, page 379–380, New York, NY, USA, 2019. Association for Computing Machinery
7. Sam A. Markelon. **gemcWeb: A Cloud Based Nuclear Physics Simulation Software**. *Bulletin of the American Physical Society*, 2017

## Preprints

8. Nicholas Brandt, Mia Filić, and Sam A. Markelon. **A Formal Treatment of Key Transparency Systems with Scalability Improvements.** Cryptology ePrint Archive, Paper 2024/1938, 2024
9. Mia Filić, Jonas Hofmann, Sam A. Markelon, Kenneth G. Paterson, and Anupama Unnikrishnan. **Probabilistic Data Structures in the Wild: A Security Analysis of Redis.** Cryptology ePrint Archive, Paper 2024/1312, 2024