

# Lisa Oakley

## Curriculum Vitae

Khoury College of Computer Sciences  
Northeastern University  
Boston, MA  
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*Research Interests: Formal Verification for Cybersecurity and Privacy, Differential Privacy, Robust Reinforcement Learning*

## Education

- Sept. 2020 – (exp. 2025) **PhD in Computer Science**, *Northeastern University*, Khoury College of Computer Sciences.  
○ Advisor: Alina Oprea  
○ GPA: 3.97
- Aug. 2022 **Master of Science in Computer Science**, *Northeastern University*, Khoury College of Computer Sciences.  
○ Selected coursework: Foundations of Probabilistic Programming. Formal Specification, Verification, and Synthesis. Machine Learning Security and Privacy. Privacy in Statistics and Machine Learning.  
○ GPA: 3.97
- Dec. 2018 **Bachelor of Science in Mathematics and Computer Science**, *Northeastern University*, Khoury College of Computer Sciences.  
○ *summa cum laude* (highest honors)

## Research Experience

- June 2022 – present **Quant Research Intern**, *Proof Trading, Inc.*  
○ Advisor: Allison Bishop
- Sept. 2018 – present **Research Assistant**, *Northeastern University*, Khoury College of Computer Sciences.  
○ Advisors: Alina Oprea and Stavros Tripakis

## Publications

### Conference Papers

- 2024 **Synthesizing Tight Privacy and Accuracy Bounds via Weighted Model Counting.**  
**Lisa Oakley**, Steven Holtzen, Alina Oprea  
*Manuscript (In Submission)*.  
<https://arxiv.org/abs/2402.16982>
- 2024 **Defining and Controlling Information Leakage in US Equities Trading.**  
Arthur Américo, Allison Bishop, Paul Cesaretti, Garrison Grogan, Adam McKoy, Robert Moss, **Lisa Oakley**, Marcel Ribeiro, Mohammad Shokri  
In *24th Proceedings on Privacy Enhancing Technologies*, (PoPETs '24).  
<https://eprint.iacr.org/2023/971>
- 2022 **Adversarial Robustness Verification and Attack Synthesis in Stochastic Systems.**  
**Lisa Oakley**, Alina Oprea, and Stavros Tripakis  
In *35th IEEE Computer Security Foundations Symposium*, (CSF'22, FLoC'22) 2022.  
<https://arxiv.org/abs/2110.02125>
- 2019 **QFlip: An Adaptive Reinforcement Learning Strategy for the FlipIt Security Game.**  
**Outstanding Student Paper Award**  
**Lisa Oakley** and Alina Oprea  
In *10th Proceedings of the Conference on Decision and Game Theory for Security*, (GameSec'19) Stockholm, Sweden, 2019.  
[https://link.springer.com/chapter/10.1007/978-3-030-32430-8\\_22](https://link.springer.com/chapter/10.1007/978-3-030-32430-8_22)

## Workshop Papers and Presentations

- 2024 **What Does Privacy Mean for Stock Trading?**  
Speakers: Allison Bishop and **Lisa Oakley**. Other Contributors: Arthur Américo, Paul Cesaretti, Garrison Grogan, Adam McKoy, Robert Moss, Marcel Ribeiro, Mohammad Shokri  
Accepted Talk at *IACR Real World Crypto (RWC)*, 2024.
- 2023 **Defining and Controlling Information Leakage in US Equities Trading.**  
Arthur Américo, Allison Bishop, Paul Cesaretti, Garrison Grogan, Adam McKoy, Robert Moss, **Lisa Oakley**, Marcel Ribeiro, Mohammad Shokri  
Poster at *Theory and Practice of Differential Privacy (TPDP)*, 2023.
- 2020 **Adversarial Robustness of AI Agents Acting in Probabilistic Environments.**  
**Lisa Oakley**, Alina Oprea, and Stavros Tripakis  
*Workshop on Foundations of Computer Security* (Affiliated with *Computer Security Foundations Symposium*), 2020.  
<http://www.ccs.neu.edu/~stavros/papers/2020-fcs.pdf>

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## Other Presentations

### Posters

- 2022 **Model Checking Adversarial Robustness in Stochastic Systems.**  
**Lisa Oakley**, Alina Oprea, and Stavros Tripakis  
*CRA-WP Grad Cohort for Women*, 2022.
- 2019 **Reinforcement Learning Techniques to Increase Intrusion Resilience in Game Theoretical APT Models.**  
**Lisa Oakley** and Alina Oprea  
*NSF Secure and Trustworthy Cyberspace PI Meeting*, 2019.

### Other Talks

- 2023 **Differential Privacy Verification.**  
Lisa Oakley  
*Northeastern University Software Day*, 2023.
- 2019 **Game Theoretical Modeling and Reinforcement Learning Techniques for Cybersecurity.**  
Lisa Oakley  
*Northeastern University Math Club*, 2019.
- 2019 **Diversity in Tech Panel.**  
Lisa Oakley  
*Northeastern University Women in Technology and Multi-Diverse Unified Leaders in the Technology Industry*, 2019.

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## Teaching Experience

- Fall 2022, **Graduate Teaching Assistant**, *Northeastern University*.  
Spring 2023
  - Spring 2023: Logic and Computation (CS2800). Instructor: Daniel Patterson.
  - Fall 2022: Logic and Computation (CS2800). Instructor: Stavros Tripakis.Spring 2017, **Undergraduate Teaching Assistant**, *Northeastern University*.  
Spring 2018,
  - Fall 2018: Algorithms and Data Structures (CS3000). Instructor: Jon Ullman.Fall 2018
  - Spring 2018: Algorithms and Data Structures (CS3000). Instructor: Huy Nguyen.
  - Spring 2017: Logic and Computation (CS2800). Instructors: Pete Manolios, Thomas Wahl, and David Sprague.

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## Awards and Honors

- 2023 **Student Stipend**, *High Assurance Crypto Systems (HACS) Workshop '23*.  
2023 **Student Stipend**, *Real World Crypto (RWC) '23*.  
2023 **Student Volunteer**, *Principles of Programming Languages (POPL) '23*.  
2022 **Northeastern Google Fellowship Nominee**, *Northeastern University*.

- 2022 **CRA-WP Grad Cohort for Women**, *CRA-WP Grad Cohort for Women '22*.
- 2021 **USENIX Diversity Grant**, *USENIX Security '21*.
- 2021 **GREPSEC Workshop Attendee**, *GREPSEC Workshop, USENIX Security '21*.
- 2019 **Outstanding Student Paper Award**, *GameSec '19*.
- 2018 **summa cum laude**, *Khoury College of Computer Sciences, Northeastern University*.
- 2015–2018 **Merit Scholarship**, *Northeastern University*.
- 2015–2018 **Dean's List**, *Northeastern University*.
- 2013–2015 **Dean's List, President's List**, *California Polytechnic State University, SLO*.
- 2013–2015 **Italian Catholic Federation Merit Scholarship**, *Italian Catholic Federation*.
- 2013 **California Scholarship Federation Lifetime Member**, *California Scholarship Federation*.
- 2013 **Kiwanis Merit Scholarship**, *Kiwanis*.
- 2013 **Sons of Italy Merit Scholarship**, *Sons of Italy*.

## Software Engineering Experience

- June – Aug. **Software Engineering Intern**, *VMWare Tanzu Greenplum*, Palo Alto, CA.
  - 2018 ○ Member of Infrastructure team for distributed Postgres database
- July – Dec. **Software Engineering Co-Op**, *VMWare Tanzu*, New York, NY.
  - 2017 ○ Windows team for cloud platforms software (Google Cloud, AWS, Microsoft Azure, VMWare On-Prem)
- July – Dec. **Quality Assurance Engineering Co-Op**, *Runkeeper (Asics Digital)*, Boston, MA.
  - 2016 ○ Mobile app wearables team (Garmin, Apple Watch, Android Watch, Pebble, iOS, Android OS)

## Other Activities

- 2020-present **Organizer**, *Khoury PhD Women Group*.
- 2020-2021 **Member**, *Northeastern University Accountable Algorithms Reading Group*.
- 2019-2020 **Volunteer**, *Y2Y Youth Shelter (Cambridge, MA), Rosie's Place Womens' Shelter (Boston, MA)*.
- 2018-2020 **Cast Member**, *ImprovBoston All Access Improv Comedy Show*.
- 2015-2018 **Vice President, Member**, *Northeastern University Math Club*.
- 2015-2018 **Member**, *Northeastern University Women in Technology Club*.
- 2015-2017 **Member**, *NU & Improv'd (Northeastern University Improv Comedy Troupe)*.
- 2014-2015 **Volunteer**, *Habitat for Humanity ReStore (San Luis Obispo, CA)*.
- 2011-2012 **Sponsorship Chair**, *Justin-Siena High School Relay for Life (American Cancer Society)*.