

## Research Interests

Areas Cryptography, Privacy Preserving Machine Learning, Measurement.  
Topics Passwords, Fuzzy Private Matching, Secure Machine Learning.

## Education

Aug '20 — Present **University of Wisconsin-Madison, Madison, Wisconsin**  
*Ph.D. student, Department of Computer Science.*

Aug '20 — May '22 **University of Wisconsin-Madison, Madison, Wisconsin**  
*Masters in Computer Science, GPA: 3.75/4.00.*

Jul '12 — Feb '17 **Bangladesh University of Engineering & Technology (BUET), Dhaka, Bangladesh**  
*BSc. in Computer Science and Engineering, GPA: 3.73/4.00.*

## Publications

- USENIX Security 2023 [1] **M. Islam**, M. S. Bohuk, P. Chung, T. Ristenpart, R. Chatterjee (Title changed to preserve anonymity) **“Password Guessing Attacks in the Wild”**, [\[Under Major Revision\]](#),
- USENIX Security 2022 [2] M. S. Bohuk, **M. Islam**, S. Ahmad, M. Swif, T. Ristenpart, R. Chatterjee **“Gossamer: Securely Measuring Password-based Logins”**, [\[Acceptance rate: 17.2%\]](#) [\[PDF\]](#) [\[Source Code\]](#) [\[Media Coverage\]](#)
- USENIX Security 2022 [3] B. Pal, **M. Islam**, M. S. Bohuk, N. Sullivan, T. C. Wood, T. Ristenpart, R. Chatterjee **“Might I Get Pwned: A Second Generation Compromised Credential Checking Service”**. [\[Acceptance rate: 17.2%\]](#) [\[PDF\]](#) [\[Source code\]](#) [\[Media Coverage\]](#)
- PoPETs 2023 [4] M. Almansoori, **M. Islam**, S. Ghosh, M. Mondal, R. Chatterjee (Title changed to preserve anonymity) **“Search Bias in Tech-Enabled Intimate Partner Surveillance”**. [\[Under Submission\]](#)
- IEEE Sec-Dev 2020 [5] **M. Islam**, S. Rahaman, N. Meng, B. Hassanshahi, P. Krishnan, D. Yao, **“Coding Practices and Recommendations with Spring Security for Enterprise Applications”**, [\[Acceptance rate = 39%\]](#) [\[PDF\]](#) [\[Presentation Video\]](#)
- BMC Genomics 2020 [6] **M. Islam**, K. Sarker, T. Das, R. Reaz, Md S. Bayzid **“STELAR: A statistically consistent coalescent-based species tree estimation method by maximizing triplet consistency”**, BMC Genomics 21, 136 (2020). [\[Impact factor: 3.9\]](#) [\[PDF\]](#) [\[Source Code\]](#)
- Bioinformatics 2022 [7] S. Tarafder, **M. Islam**, S. Shatabda, A. Rahman, **“Figbird: A probabilistic method for filling gaps in genome assemblies”**, Bioinformatics, Volume 38, Issue 15, [\[Impact factor: 6.9\]](#) [\[PDF\]](#) [\[Source code\]](#)
- MobiQuitous 2019 [8] **M. Islam**, N. Naurin, M. Kaykobad, S. Chellappan, and A. B. M. A. A. Islam, **“HEliOS: Huffman Coding Based Lightweight Encryption Scheme for Data Transmission”** 16<sup>th</sup> EAI International Conference on Mobile and Ubiquitous Systems: Computing, Networking and Services (ACM, Houston, TX, USA) [\[h-index 40, Acceptance rate: 30%\]](#) [\[PDF\]](#).
- NSysS 2018 [9] **M. Islam**, Md. N. Ansary, N. Nurain, S. P. Shams and A. B. M. A. A. Islam, **“Attacking a Live Website by Harnessing a Killer Combination of Vulnerabilities for Greater Harm”**, 5<sup>th</sup> International Conference on Networking, Systems and Security 2018, Dhaka, Bangladesh [\[Acceptance rate: 29%\]](#)

## Research Impact

Cloudflare official blog link Might I Get Pwned (MIGP) [3] is deployed at Cloudflare (a major CDN provider) to warn users from selecting passwords similar (and same) to a breached password in a secure way

GitHub issue link My proposed changes of Spring security framework in [5] have improved its documentation and contributed a new fix on 6.0.x release.

## Work Experience

Aug '20 — Present **Graduate Research Assistant, University of Wisconsin-Madison, Madison, WI.**  
Working on enhancing security and usability of password based authentication using techniques from applied cryptography and machine learning.

May '22 – Aug '22 **Research Intern, Visa Research, Systems Security Team, Palo Alto, CA.**  
During the internship, I worked on designing multi-party computation (MPC) friendly complex non-linear functions used in deep neural networks.

Aug '20 — Dec '20 **Graduate Teaching Assistant, University of Wisconsin-Madison, Madison, WI.**  
Course name: CS 642-Introduction to Information Security. Responsibilities include conducting office hours for students, preparing homework and grading.

- Jun '17 – Jul '19 **Lecturer**, *Department of Computer Science*, United International University, Dhaka, Bangladesh.  
Designed and instructed undergraduate level courses including CSE-477: Network Security and CSE-315: Data communications
- May '17 – Jun '17 **Software Engineer**, *iPay Systems Limited*, Dhaka, Bangladesh.  
Worked as a front-end developer and was part of security testing team.

## Skills

Languages	Python, C++, Java, Go, HTML, CSS
Frameworks	Pytorch, Django
Tools	Git, Docker

## Awards

- 2020 Received CS fellowship from University of Wisconsin-Madison (Given to 15-20% top admitting graduate students)
- 2017 Best Student Poster Award (1/42), NSysS conference
- 2015, 2016 – Dean List Awards for outstanding academic performance, Department of computer science, BUET.  
– University Merit List Scholarship for Academic Result, BUET.

## Invited Talks

- 2022 “Towards usable and secure password based user authentication”, Visa research, Palo Alto, CA
- 2020 “Coding Practices and Recommendations with Spring Security for Enterprise Applications”, IEEE SecDev 20, Atlanta, GA happened virtually due to COVID-19 pandemic.
- 2019 “Huffman coding based encryption scheme”, MobiQuitous-19, Houston, TX.

## Extra Curricular Activities

- Reviewer Artifact evaluation PC member USENIX 2022 (2), Externally reviewed papers from USENIX 2022 (1)
- Mentor – One undergraduate student at University of Wisconsin-Madison (also have co-authored one paper [1]).  
– Welcoming and advising two new incoming graduate students at University of Wisconsin-Madison (2022).
- Volunteer – Worked as field volunteer and took sessions on improving health hygiene and mental development of the children of sex-workers at nonprofit organization named Project Pothchola (2017).  
– Running the “Madison Tech Clinic” as part of “Domestic Abuse Intervention Services (DAIS)” at Madison to provide services to give consultation to victims of tech-enabled intimate partner violence (2022 — Current)

## References

**Dr. Rahul Chatterjee**  
Assistant Professor  
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**Dr. Thomas Ristenpart**  
Associate Professor  
Department of Computer Science  
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Ithaca, NY

**Dr. Maliheh Shirvanian**  
Staff Research Scientist  
System Security team  
Visa Research  
Palo Alto, CA