Mazharul Islam

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🖰 Website: https://islamazhar.github.io
Google Scholar

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], *equal contributions.

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"** 16th 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"**, 5th 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	**Dr. Thomas Ristenpart**	**Dr. Maliheh Shirvanian**
Assistant Professor	Associate Professor	Staff Research Scientist
Department of Computer Science	Department of Computer Science	System Security team
University of Wisconsin-Madison	Cornell University	Visa Research
Madison, WI	Ithaca, NY	Palo Alto, CA