MAZHARUL ISLAM

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RESEARCH INTERESTS

Topics User authentication, Online abuse detection, Trustworthy machine learning
Areas Applied cryptography, Machine learning, Data-driven approaches

EDUCATION

University of Wisconsin–Madison | Ph.D. candidate — Till Date
University of Wisconsin–Madison | MSc. in Computer Science — May 2022
Bangladesh University of Engineering and Technology (BUET) | BSc. in Computer Science — Feb 2017

EXPERIENCE

Graduate Research Assistant, *University of Wisconsin–Madison* | Madison, WI — Fall 2020 - Till Date

- Working on enhancing security of password-based authentication without sacrificing their usability

Staff Research Scientist, Intern, *Visa Research* | Foster City, CA — Summer 2022, 2023

- Developed cryptographic-friendly approximation of complex activation functions used in deep neural networks.
- Developed a new cryptographic framework for detecting leakage of users' credentials from the cloud.

Graduate Research Assistant, *Virginia Tech* | Blacksburg, VA — Fall 2019 - Spring 2020

- Performed a measurement-based study on Spring security framework.
- Identified six types of security anti-patterns 4 insecure defaults of Spring Security framework.

Research Assistant, *Bangladesh Univ. of Engineering and Technology* | Dhaka, Bangladesh — Fall 2017 - Spring 2019

- Developed a Huffman compression-based lightweight encryption scheme for resource-constrained edge devices.
- Worked in the area of computational biology

PATENTS

- System, method, and computer program product for secure inference in multi-party computation.
- A mechanism to detect compromise of synced passkeys

PUBLICATIONS

- **M. Islam**, S. S. Arora, R. Chatterjee, P. Rindal, M. Shirvanian. *"Compact: Approximating Complex Activation Functions for Secure Computation"* PETs 2024, Bristol, UK
- **M. Islam**, M. Bohuk, P. Chung, T. Ristenpart, R. Chatterjee. *"Araña: Discovering and Characterizing Password Guessing Attacks in Practice"*, USENIX Security 2023, Anaheim, CA.
- **M. Islam**, S. Rahaman, N. Meng, B. Hassanshahi, P. Krishnan, D. Yao. *"Coding Practices and Recommendations of Spring Security for Enterprise Applications"*, IEEE SecDev 2020, Atlanta, GA.
- **M. Islam**, N. Nurain, M. Kaykobad, S. Chellappan, A. A. Islam. *"HEliOS: Huffman Coding Based Lightweight Encryption Scheme for Data Transmission"*, 16th MobiQuitous 2019, Houston, TX.
- **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 2020 (Impact factor: 3.9)
- M. Bohuk, **M. Islam**, S. Ahmad, M. Swift, T. Ristenpart, R. Chatterjee *"Gossamer: Securely Measuring Password-based Logins"*, USENIX Security 2022, Boston, MA.
- B. Pal, **M. Islam**, M. Bohuk, N. Sullivan, L. Valenta, T. Whalen, C. Wood, T. Ristenpart, R. Chatterjee. *"A Second Generation Compromised Credential Checking Service"*, USENIX Security 2022, Boston, MA.
- M. Almansoori, **M. Islam**, S. Ghosh, M. Mondal, R. Chatterjee, "*The Web of Abuse: Online Resource Asymmetry in Intimate Partner Violence*", IEEE Euro S&P, 2024
- 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)
- **M. Islam**, Md. N. Ansary, N. Nurain, S. P. Shams, A. A. Islam, "*Attacking a Live Website by Harnessing a Killer Combination of Vulnerabilities*". 5th NSysS 2018 (🏆 Best student poster award)

AWARDS

Travel Grants	PPML '22, USENIX Security '23, CAMLIS '23, IEEE SaTML '24
Research Competition	Awarded by UW-Madison in '23
Fellowship	Awarded by the department of Computer Science, UW-Madison in '20
Programming Competition	ACM-ICPC Dhaka regional '15, Bangladesh (placed 17^{th}/170 teams)
Dean List Award	Awarded by BUET for outstanding academic result

SKILLS

Languages	Python, C/C++, Java, Go, HTML, CCS
Frameworks	Pytorch, Django, AngularJS, EMPToolkits
Tools	Git, Docker

INVITED TALKS

Visa Research	*"A Second Generation Compromised Credential Checking Service"* (Palo Alto, '22)
Conference talks	USENIX Security '23 (Anaheim, CA), IEEE Sec-Dev '20 (Atlanta, GA), MobiQuitous '19 (Houston, TX)