MAZHARUL ISLAM

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RESEARCH INTERESTS

Topics	User authentication, online abuse detection and prevention, privacy enchancing techniques
Areas	Cryptography, machine learning, empirical analysis.

EDUCATION

University of Wisconsin-Madison *Madison, WI*
- Ph.D. student in Computer Science, Advisor: Prof. Rahul Chatterjee. 2020 - Present
- M.Sc. in Computer Science, CGPA: 3.75/4.00 2020 - 2022

Bangladesh University of Engineering & Technology (BUET) *Dhaka, Bangladesh*
- B.Sc. in Computer Science and Engineering, CGPA: 3.73/4.00 2012 - 2017

WORK EXPERIENCES

University of Wisconsin-Madison *Madison, WI*
- Graduate Research Assistant, Research Lab: MadS&P Aug 2020 - Present
- Projects: Working on enhancing security of password based user authentication Supervisor: Prof. R. Chatterjee
using techniques from applied cryptography and machine learning.

Visa Research *Palo Alto, CA*
- Ph.D. Research Intern, Systems security team May 2023 - Aug 2023
- Project: Account recovery problem in passworldless user authentication. Supervisor: Sunpreet S. Arora

Visa Research *Palo Alto, CA*
- Ph.D. Research Intern, Systems security team May 2022 - Aug 2022
- Project: Designing multi-party computation (MPC) friendly complex non-linear Supervisor: Sunpreet S. Arora
functions used in deep neural networks.

University of Wisconsin-Madison *Madison, WI*
- Graduate Teaching Assistant, CS 642-Introduction to Information Security Aug 2020 - Dec 2020
- I conducted office hours, prepared and graded homeworks for a class of more than
90 students.

United International University *Dhaka, Bangladesh*
- Lecturer, Department of Computer Science Jul. 2017 - Jul. 2019
- I was the primary instructor for two undergraduate-level courses CSE-477: Network
Security and CSE-315: Data communications for more than 300 students throughout
six semesters.

iPay Systems Ltd *Dhaka, Bangladesh*
- Software Engineer, Front-end developer May 2017 - Jul. 2017
- I developed a firewall manager from scratch on top of a Linux program named
`iptables` using Angular JS-1.2 and Django backend that can help the network
administrators to navigate and manage firewall rules with ease.

RESEARCH IMPACT

- Might I Get Pwned (MIGP) [C4] 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 (official blog link ☑)
- My proposed changes of Spring security framework in [C3] have improved its documentation (Link ☑) and contributed a new fix (Link ☑) on 6.0.x release.

SELECTED PUBLICATIONS

Conference Papers

- [C6] **Mazharul Islam***, Marina Sanusi Bohuk*, Paul Chung, Thomas Ristenpart, Rahul Chatterjee (*co-first authors).
"Araña: Discovering and Characterizing Password Guessing Attacks in Practice", 32nd USENIX Security 2023, Anaheim, CA (To appear).
[Acceptance rate: TBD%], [PDF][Source Code]

- [C5] Marina Sanusi Bohuk, **Mazharul Islam**, Sulman Ahmad, Mike Swif, Thomas Ristenpart, Rahul Chatterjee
"Gossamer: Securely Measuring Password-based Logins", 31st USENIX Security 2022, Boston, MA
[Acceptance rate: 17.2%] [PDF] [Source Code] [Media Coverage]

- [C4] Bijeeta Pal, **Mazharul Islam**, Marina Sanusi Bohuk, Nick Sullivan, Luke Valenta, Tara Whalen, Christopher Wood, Thomas Ristenpart, Rahul Chattejeee
"Might I Get Pwned: A Second Generation Compromised Credential Checking Service", 31st USENIX Security 2022, Boston, MA
[Acceptance rate: 17.2%] [PDF] [Source code][Media Coverage]

- [C3] **Mazharul Islam**, Sazzadur Rahaman, Na Meng, Behnaz Hassanshahi, Padmanabhan Krishnan, Danfeng Yao.
"Coding Practices and Recommendations of Spring Security for Enterprise Applications", IEEE-SecDev 2020
[Acceptance rate = 39%] [PDF] [Presentation Video]

- [C2] **Mazharul Islam**, Novia Nurain , Mohammad Kaykobad , Sriram Chellappan , A. B. M. Alim Al 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, 2019
[h-index 40, Acceptance rate: 30%] [PDF].

- [C1]　**Mazharul Islam**, MD. Nazmuddoha Ansary, Novia Nurain, Salauddin Parvez Shams, A. B. M. Alim Al 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%], [PDF]

Journal Papers

- [J2] **Mazharul Islam**, Kowshika Sarker, Trisha Das, Rezwana Reaz, Md. Shamsuzzoha 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]

- [J1] Sumit Tarafder, **Mazharul Islam**, Swakkhar Shatabda, Atif Rahman
"Figbird: A probabilistic method for filling gaps in genome assemblies", Bioinformatics, Volume 38, Issue 15
[Impact factor: 6.9] [PDF] [Source code]

Under Submission

- **Mazharul Islam**, Sunpreet S. Arora, Rahul Chatterjee, Peter Rindal, Maliheh Shirvanian
"Approximating Complex Neural Network Activation Functions for Secure Computation"
[PDF available on request] [Provisional patent filed]

AWARDS

- Travel Grants: [Privacy Preserving Machnine Learning (PPML)](#), 2022
- CS Fellowship: Given to $15 - 20\%$ top admitting graduate students at UW-Madison, 2020
- Best Poster: NSysS conference, 2015
- Programming Contest: ACM-ICPC Dhaka regional, Bangladesh 17th/170 teams.
- Academic Excellence: Dean List Awards & University Merit List Scholarship for Academic Result, BUET.

SKILLS

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

EXTRA CURRICULAR ACTIVITIES

Reviewer	• [Artifact evaluation PC member USENIX 2022](#) (2), Externally reviewed papers from USENIX 2022 (1)
Social Work	• 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 — 2023)