MAZHARUL ISLAM

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RESEARCH INTERESTS

Topics	User authentication, Detection and prevent of online abuse, Privacy enchancing techniques
Areas	Cryptography, Machine Learning, and empiricial analysis.

EDUCATION

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

Bangladesh University of Engineering & Technology (BUET) — *Dhaka, Bangladesh*
- Bachelor of Computer Science, CGPA: 3.73/4.00 — 2012 - 2017

WORK EXPERIENCE

University of Wisconsin-Madison — *Madison, WI*
- Graduate Research Assistant, Lab: MadS&P — August 2020 - Present

Visa Research — *Palo Alto, CA*
- Ph.D. Research Intern, Systems security team — May 2023 - August 2023
- Project: Account recovery problem in passworldless user authentication.

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

United International University — *Dhaka, Bangladesh*
- Lecturer, Department of Computer Science — May 2022 - August 2022
- Designed and was primary instructor for undergraduate-level courses CSE-477: Network Security and CSE-315: Data communications to more than 300 students for six semesters.

iPay Systems Ltd — *Dhaka, Bangladesh*
- Software Engineer, Front-end developer — May 2017 - Jul. 2017
- I developed a firewall manager on top of `iptables` to help the network administrator add new rules delete old rules, and modify existing rules

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, Tomas 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, Tomas 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 Real Time Secure Computation"
[Under Preparation] [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)