

MAZHARUL ISLAM

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RESEARCH INTERESTS

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

EDUCATION

University of Wisconsin-Madison

Madison, WI

- Ph.D. student in Computer Science, Advisor: Prof. Rahul Chatterjee.
- Master of Computer Science, CGPA: 3.75/4.00

2020 - Present
2020 - 2022

Bangladesh University of Engineering & Technology (BUET)

Dhaka, Bangladesh

- Bachelor of Computer Science, CGPA: 3.73/4.00

2012 - 2017

WORK EXPERIENCES

University of Wisconsin-Madison

Madison, WI

- Graduate Research Assistant, Lab: [MadS&P](#)
- Projects: Working on enhancing security of password based authentication using techniques from applied cryptography and machine learning

August 2020 - Present
Supervisor: [Prof. Chatterjee](#)

Visa Research

Palo Alto, CA

- Ph.D. Research Intern, Systems security team
- Project: Account recovery problem in passwordless user authentication

May 2023 - August 2023
Supervisor: [Sunpreet S. Arora](#)

Visa Research

Palo Alto, CA

- Ph.D. Research Intern, Systems security team
- Project: Designing multi-party computation (MPC) friendly complex non-linear functions used in deep neural networks

May 2022 - August 2022
Supervisor: [Sunpreet S. Arora](#)

University of Wisconsin-Madison

Madison, WI

- Graduate Teaching Assistant, [CS 642-Introduction to Information Security](#)
- Responsibilities: conducting office hours for students, preparing homework and grading for a class of 100+ students

August 2020 - Dec 2020

United International University

Dhaka, Bangladesh

- Lecturer, Department of Computer Science
- I designed and 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.

May 2022 - August 2022

iPay Systems Ltd

Dhaka, Bangladesh

- Software Engineer, Front-end developer
- I developed a firewall manager on top of [iptables](#) to help the network administrator add new rules delete old rules, and modify existing rules

May 2017 - Jul. 2017

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] Bijeta Pal, **Mazharul Islam**, Marina Sanusi Bohuk, Nick Sullivan, Luke Valenta, Tara Whalen, Christopher Wood, Thomas Ristenpart, Rahul Chatterjee
"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"
[\[PDF available on request\]](#) [\[Provisional patent filed\]](#)

AWARDS

- **Travel Grants:** [Privacy Preserving Machine 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	<ul style="list-style-type: none">• Artifact evaluation PC member USENIX 2022 (2), Externally reviewed papers from USENIX 2022 (1)
Social Work	<ul style="list-style-type: none">• 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)