

MAZHARUL ISLAM

✉ mislam9@wisc.edu 🌐 [Website](#) ◇ [Google Scholar](#) 📄 [GitHub](#) in [LinkedIn](#)

RESEARCH INTERESTS

Topics user authentication, online abuse detection and prevention, privacy enhancing techniques
Areas cryptography, machine learning for security, empirical analysis.

EDUCATION

University of Wisconsin–Madison

Madison, WI

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

2020 - 2025 (Expected)
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](#)
- Projects: Working on enhancing security of password based user authentication using techniques from applied cryptography and machine learning.

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

Visa Research

Palo Alto, CA

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

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

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.

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

University of Wisconsin-Madison

Madison, WI

- Graduate Teaching Assistant, [CS 642-Introduction to Information Security](#)
- I conducted office hours, prepared and graded homeworks for a class of more than 90 students.

Aug 2020 - Dec 2020

United International University

Dhaka, Bangladesh

- Lecturer, Department of Computer Science
- 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.

Jul. 2017 - Jul. 2019

iPay Systems Ltd

Dhaka, Bangladesh

- Software Engineer, Front-end developer
- I developed a firewall manager from scratch on top of a Linux program named [iptables](#) using AngularJS and Django backend that can help the network administrators to navigate and manage firewall rules with ease.

May 2017 - Jul. 2017

RESEARCH IMPACT

- *Might I Get Pwned (MIGP)* [4] 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 [5] have improved its documentation ([Link](#) [↗](#)) and contributed a new fix ([Link](#) [↗](#)) on 6.0.x release.

SELECTED PUBLICATIONS

Full list of publications is [Here](#) 

1. **Mazharul Islam**, Sunpreet S. Arora, Rahul Chatterjee, Peter Rindal, Maliheh Shirvanian. “*Compact: Approximating Complex Activation Functions for Secure Computation*” [\[Under Submission\]](#) [\[PDF\]](#) [\[Provisional patent filed\]](#)
2. **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. [\[Acceptance rate: 29%\]](#), [\[PDF\]](#)[\[Source Code\]](#)
3. Marina Sanusi Bohuk, **Mazharul Islam**, Suleman Ahmad, Michael Swift, Thomas Ristenpart, Rahul Chatterjee “*Gossamer: Securely Measuring Password-based Logins*”, 31st USENIX Security 2022, Boston, MA [\[Acceptance rate: 17.2%\]](#) [\[PDF\]](#) [\[Source Code\]](#) [\[Media Coverage\]](#)
4. Bijeeta 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. [\[Acceptance rate: 17.2%\]](#) [\[PDF\]](#) [\[Source code\]](#)[\[Media Coverage\]](#)
5. **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. [\[Acceptance rate = 39%\]](#) [\[PDF\]](#) [\[Presentation Video\]](#)
6. **Mazharul Islam**, Novia Nurain, Mohammad Kaykobad, Sriram Chellappan, A. B. M. Alim Al Islam. “*HE-liOS: Huffman Coding Based Lightweight Encryption Scheme for Data Transmission*”, 16th MobiQuitous 2019, Houston, TX. [\[h-index 40, Acceptance rate: 30%\]](#) [\[PDF\]](#).
7. **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, 2020. [\[Impact factor: 3.9\]](#) [\[PDF\]](#) [\[Source Code\]](#)
8. Sumit Tarafder, **Mazharul Islam**, Swakhar Shatabda, Atif Rahman. “*Figbird: A probabilistic method for filling gaps in genome assemblies*”, Bioinformatics, Volume 38, Issue 15. [\[Impact factor: 6.9\]](#) [\[PDF\]](#) [\[Source code\]](#)







AWARDS

- Travel Grants: [PPML '22](#), [USENIX Security '23](#), [CAMLIS '23](#)
- Recipient of student research grants competition from UW-Madison
- 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, AngularJS, EMPToolkit
Tools	Git, Docker

SOFTWARE ARTIFACTS

- MIGP (Might I Get Pwned): A next-generation password breach altering service. ( [GitHub Link](#) )
- Araña: A tool for identifying attack campaigns from real-world login logs ( [GitHub Link](#) )
- STELAR: A dynamic programming (DP) based software to estimate species tree by maximizing triplet agreement. ( [GitHub Link](#) )

- Mock search engine: A mock search engine that takes the users' search queries and fetches the HTML from Google server. The interaction of the user with the server is recorded and saved into a SQLite3 database. ([🔗 GitHub Link](#)).

EXTRA CURRICULAR ACTIVITIES

Reviewer	<ul style="list-style-type: none">• Artifact evaluation PC member USENIX 2022 (2), Externally reviewed papers from USENIX Security 2022 (1), IEEE S&P 2023 (1), PETS (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).• Volunteering in “Madison Tech Clinic” as part of “Domestic Abuse Intervention Services (DAIS)” at Madison to provide consultation to victims of tech-enabled intimate partner violence (2022 - 2023)