

Muntasir Wahed

✉ mwahed@vt.edu | 🌐 mwahed.com | 📧 immuntasir | 📺 immuntasir | 🐦 @immuntasir

Research Interests

ML robustness, adversarial training, conversational AI, self-supervision, contrastive learning, information retrieval

Education

Virginia Tech

Ph.D. in Computer Science (Grade: **4.00/4.00**)

January 2021 - December 2024

Advisor: Dr. Ismini Lourentzou

University of Dhaka

B.Sc. in Computer Science and Engineering (Grade: **3.66/4.00**)

January 2015 - January 2019

Honors & Awards

- 2022 **Outstanding Doctoral Student Award (Nominated)**, College of Engineering, Virginia Tech
- 2022 **Graduate Fellowship**, Department of Computer Science, Virginia Tech
- 2021 **SIGIR Student Travel Grant**, CIKM 2021

Publications

- **Muntasir Wahed**, Daniel Gruhl, Ismini Lourentzou. *MARBLE: Hierarchical Multi-Armed Bandit for Human-in-the-Loop Lexicon Expansion*, Under review (2023)
- **Muntasir Wahed**, Afrina Tabassum, Ismini Lourentzou. *SwARo: Adversarial Contrastive Learning by Permuting Cluster Assignments*, Under review (2023)
- Nur Ahmed, **Muntasir Wahed**, Neil Thompson (2023). The Growing Influence of Industry in AI Research. *Science* (Policy Forum).
- Afrina Tabassum, **Muntasir Wahed**, Hoda Eldardiry, Ismini Lourentzou. *UnReMix: Mixing Hard Negative Sampling Strategies for Contrastive Representation Learning*, Under review (2023)
- Parshin Shojaei, Yingyan Zeng, **Muntasir Wahed**, Avi Seth, Ran Jin, Ismini Lourentzou. *A Task-Driven Privacy-Preserving Data-Sharing Framework for the Industrial Internet*, IEEE International Conference on Big Data (Big Data), 2022
- **Muntasir Wahed**, Mazharul Islam, Xiaowei Wu, and Hongxiao Zhu. "Fast Simulation of Trees and Forests for Bat-inspired Sonar Sensing." In 2022 5th International Conference on Information and Computer Technologies (ICICT), IEEE, 2022.
- **Muntasir Wahed**, Daniel Gruhl, Alfredo Alba, Anna Lisa Gentile, Petar Ristoski, Chad Deluca, Steve Welch, and Ismini Lourentzou. *SAUCE: Truncated Sparse Document Signature Bit-Vectors for Fast Web-Scale Corpus Expansion*, Proceedings of the 30th ACM International Conference on Information and Knowledge Management (CIKM '21), November 1–5, 2021
- **Muntasir Wahed**, Redwan Ahmed Rizvee, Riddho Ridwanul Haque, Amin Masud Ali, Moinul Zaber, and Amin Ahsan Ali. *What Can Nighttime Lights Tell Us about Bangladesh?*, 2020 IEEE Region 10 Symposium, 5-7 June 2020, Dhaka, Bangladesh (2020)
- Nuruddin Ahmed, **Muntasir Wahed**. *The De-democratization of AI: Deep Learning and the Compute Divide in Artificial Intelligence Research*, arXiv preprint arXiv:2010.15581 (2020)
 - **Media Coverages:** [VentureBeat](#), [Scientific American](#), [Axios](#), [Marginal Revolution](#)
 - Cited by** [National Security Commission on Artificial Intelligence](#), [Stanford AI Index-2021](#)

Experience

Virginia Tech

Graduate Research Assistant

May 2021 - December 2021

August 2022 - Present

- Experimented with state-of-the-art **contrastive learning** (CL) frameworks, and proposed and implemented a method to improve the **robustness** of CL frameworks against **adversarial attacks**.
- Implemented real-life **forest simulation** using trees generated with L-systems to facilitate **sonar simulation**.

IBM Research

Summer Research Intern

May 2022 - August 2022

- Developed an **entity set expansion** technique to build lexicons for natural language processing tasks by efficiently selecting between existing models based on continuous feedback from subject-matter expert. (patent pending)
- Developed a data annotation UI and deployed it for research with external collaborators.
- Scheduled to return for an internship next summer.

Virginia Tech

Graduate Teaching Assistant

- CS5254 (January 2022 - May 2022): grading assignments in android app development.
- CS2114 (January 2021 - May 2021): took classes, graded assignments, and helped students in office hours.

Tiger IT Bangladesh Limited

Software Engineer (ML)

June 2020 - December 2020

- Conducted literature review and designed solutions using deep learning models in **Tensorflow** and **Pytorch** to solve image and signal processing problems including **face detection**, **video classification**, and analyzing **vital signs from video**.
- Built prototypes using Fast API and android studio to enable testing and gather feedback from users.

Data & Design Lab

Research Assistant

April 2019 - June 2020

- Developed a dashboard for BRAC, providing various interactive visualization support to foster policy-making.
- Implemented the Unique ID generation process, which enabled BRAC to uniquely identify its more than 100 million beneficiaries, facilitating the proper use of big data in policy-making.
- Analyzed the usability of satellite data as an economic proxy to identify regional inequality using **geospatial data analysis**.

Skills

Programming Python, C/C++, Java, JavaScript, R

Web Django, Spring, AngularJS, HTML5, SASS

Libraries Gensim, NLTK, Scikit-Learn, NumPy, Matplotlib, Pandas, Scipy, Tensorflow, Pytorch

Miscellaneous Linux, Git, REST API, LaTeX, Android Studio, QGIS

Extracurricular Activities

Academic Services

- Served as a reviewer for The 2022 Conference on Empirical Methods in Natural Language Processing (EMNLP).
- Served as a judge for the VTHacks 2022 Hackathon.
- Working with the Computer Science Graduate Council at Virginia Tech in different events, for example, Lightning Talks 2021 & 2022, Graduate recruiting weekend 2021, Qualifier Q&A 2022 (panelist).
- Volunteered for various campus-based organizations, including Dhaka University Science Society, and ACM Students Chapter of Dhaka University.

Competitive Programming

- **Team Participation:** ACM ICPC Dhaka Regionals 2017 (**5th**/148), SUST Inter University Programming Contest 2017 (**6th**/161), ACM ICPC Dhaka Regionals 2016 (**19th**/123), National Collegiate Programming Contest 2016 (**21st**/119)
- Worked as problem setter in National High School Programming Contest 2017, and HackerRank.

Content Writing

- **Shoshikkha - Education Blog in Bengali:** founded the project and developed the website in 2015, contributed to the website as an author and editor of technical articles and tutorials about programming languages, data structures, and algorithms.
- Technical writing on **Medium**, featured in popular blogs, for example, **Towards Data Science**.