Muntasir Wahed

✉ mwahed@vt.edu | 🏠 mwahed.com | ⊙ immuntasir | in immuntasir | 🐦 @immuntasir

Research Interests

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

Education

Virginia Tech

Ph.D. in Computer Science (Grade: **4.00/4.00**)   *January 2021 - December 2024*

Advisor: Dr. Ismini Lourentzou

Virginia Tech

M.S. in Computer Science (Grade: **4.00/4.00**)   *January 2021 - May 2023*

University of Dhaka

B.Sc. in Computer Science and Engineering (Grade: **3.66/4.00**)   *January 2015 - January 2019*

Publications

- **Muntasir Wahed**, Xiaona Zhou, Tianjiao Yu, Ismini Lourentzou. *Fine-Grained Alignment for Cross-Modal Recipe Retrieval*, IEEE/CVF Winter Conference on Applications of Computer Vision (WACV '24), January 4-8, 2024
- **Muntasir Wahed**, Daniel Gruhl, Ismini Lourentzou. *MArBLE: Hierarchical Multi-Armed Bandit for Human-in-the-Loop Lexicon Expansion*, 30th ACM International Conference on Information and Knowledge Management (CIKM '23), October 21–25, 2023
- Afrina Tabassum, **Muntasir Wahed**, Tianjiao Yu, Amarachi Blessing Mbakwe, Makanjuola Ogunleye, Ismini Lourentzou. *PLAN-Bot: Contextualized and Knowledge-Grounded Multimodal Taskbot*, Alexa Prize TaskBot Challenge 2 Proceedings, 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 Shojaee, 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)

Experience

IBM Research

Summer Research Intern   *May '22 - Aug '22, May '23 - Aug '23*

- 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 experts. (accepted at CIKM '23, patent pending)
- Designed and implemented models to identify Personally Identifiable Information as part of the LLM training process.
- Developed a data annotation UI and deployed it for research with external collaborators.

Virginia Tech

Graduate Research Assistant   *May '21 - Dec '21, Aug '22 - May '23*

- 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**.

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**.

Honors & Awards

2023	**Finalist**,	Amazon Alexa Prize TaskBot Challenge 2
2023	**Graduate Fellowship**,	Department of Computer Science, Virginia Tech
2022	**Graduate Fellowship**,	Department of Computer Science, Virginia Tech
2021	**SIGIR Student Travel Grant**,	CIKM 2021

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 WACV '24 and EMNLP '22.
- Served as a program committee member for PETRA '23 and IEEE Big Data '23.
- Served as a judge for the VTHacks 2022 Hackathon.
- Working with the Computer Science Graduate Council at Virginia Tech in different events, including, Lightning Talks 2021 & 2022, Graduate recruiting weekend 2021, Qualifier Q&A 2022 (panelist).

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**.