Homaira Huda Shomee

PhD Researcher

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Education

Aug 2023 - Ongoing	**University of Illinois Chicago** *PhD in Computer Science* **GPA: 4.00/4.00**	Chicago, IL
Jan 2017 - Dec 2020	**Brac University** *B.Sc in Computer Science and Engineering* **CGPA: 3.93/4.00** *Thesis: Alzheimer's Disease Detection and Classification using Transfer Learning Technique and Ensemble on Convolutional Neural Networks.*	Dhaka, Bangladesh

Research Interest

Data Science | Multimodal Learning | Graph Neural Networks | Large Language Model Evaluation | Retrieval-Augmented Generation

Work Experience

May 2025 - August 2025	**Argonne National Laboratory** *W.J. Cody Associate* • I will be working as a Summer intern under the project Climate Action through Large Language Models (CALLM).	Lemont, IL
Aug 2023 - Ongoing	**University of Illinois Chicago** *Graduate Research Assistant* • Conducting research on multimodal analysis, multimodal data generation, large language model evaluation, patent drafting, and retrieval-augmented generation.	Chicago, IL
Jan 2025 - May 2025	**University of Illinois Chicago** *Graduate Teaching Assistant* • Supervised both undergraduate and graduate students with course works and projects for "Introduction to Data Science" course.	Chicago, IL
Aug 2023 - Dec 2023	**University of Illinois Chicago** *Graduate Teaching Assistant* • Supervised senior undergraduate students with course works and projects for "Computer Design" course.	Chicago, IL
June 2021 - May 2023	**Brac University, Bangladesh** *Lecturer* • Instructed Theory Courses: Programming Language I	Programming Language II	Discrete Mathematics • Instructed Laboratory Courses: Introduction to Computer Science	Programming Language I	Programming Language II	Operating Systems	Database Systems	Computer Graphics	Dhaka, Bangladesh
Sep 2019 - Oct 2020	**Brac University, Bangladesh** *Student Tutor/Teaching Assistant* • Contributed to grading and facilitated lab sessions.	Dhaka, Bangladesh

Conferences Attended

- H.H. Shomee, "IMPACT: A Large-scale Integrated Multimodal Patent Analysis and Creation Dataset for Design Patents," NeurIPS 2024, Vancouver, Canada, December 2024. (Poster Presentation)

Awards

- **NeurIPS** 2024 Scholar Award (Travel Grant)

Publications

Conference   **[C7]** **H.H. Shomee**, Z. Wang, S.N. Ravi, and S. Medya, "A Survey on Patent Analysis: From NLP to Multimodal AI," The 63rd Annual Meeting of the Association for Computational Linguistics (ACL), 2025.

[C6] H. Sharifi, **H.H. Shomee**, S. Medya and D. Chattopadhyay, "How Older Adults Communicate their Technology Problems: Challenges and Design Opportunities." Extended Abstracts of the 2023 CHI Conference on Human Factors in Computing Systems (CHI LBW), 2025.

[C5] B. Wilk, **H.H. Shomee**, S.K. Maity, and S. Medya, "Fact-Based Counter Narrative Generation to Combat Hate Speech." The Web Conference(WWW), 2025.

[C4] **H.H. Shomee**, Z. Wang, S.N. Ravi, and S. Medya, "IMPACT: A Large-scale Integrated Multimodal Patent Analysis and Creation Dataset for Design Patents," Thirty-eighth Conference on Neural Information Processing Systems (NeurIPS), 2024.

[C3] A. Sams and **H. H. Shomee**, "GAN-based realistic gastrointestinal polyp image synthesis," 2022 IEEE 19th International Symposium on Biomedical Imaging (ISBI), 2022.

[C2] **H. H. Shomee** and A. Sams, "License plate detection and recognition system for all types of Bangladeshi vehicles using multi-step deep learning model," 2021 Digital Image Computing: Techniques and Applications (DICTA), 2021.

[C1] S. U. Sadat, **H. H. Shomee**, A. Awwal, S. N. Amin, M. T. Reza and M. Z. Parvez, "Alzheimer's Disease Detection and Classification using Transfer Learning Technique and Ensemble on Convolutional Neural Networks," 2021 IEEE International Conference on Systems, Man, and Cybernetics (SMC), 2021, pp. 1478-1481

Journal   **[J1]** A. Sams, **H. H. Shomee**, and S. M. Rahman, "HQ-finGAN: High-quality synthetic fingerprint generation using GANs," Circuits, Systems, and Signal Processing, vol. 41, no. 11, pp. 6354–6369, 2022.

Services

Reviewer
- **2025**: Thirty-ninth Conference on Neural Information Processing Systems (NeurIPS).
- **2024**: The Web Conference 2025 (WWW).
- **2024**: 6th IEEE Symposium on Computers & Informatics (IEEE ISCI).
- **2021**: IEEE International Conference on Systems, Man, and Cybernetics (IEEE SMC).

Mentoring Experience
- **Guaranteed Paid Internship Program (GPIP) for Freshman Students**
  Mentored four UIC freshman students in collaboration with a faculty mentor to strengthen their practical skills in Machine Learning and academic research.
- **Early Research Scholars Program (ERSP)**
  Mentored two UIC undergraduates in the Early Research Scholars Program with a focus on countering hate speech. Assisted them in learning research methodologies and developing problem-solving skills.