

Homaira Huda Shomee

PhD Researcher

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Education

Aug 2023 - Present	University of Illinois Chicago <i>Ph.D. in Computer Science</i> GPA: 4.00/4.00	Chicago, USA
Jan 2017 - Dec 2020	Brac University <i>B.Sc in Computer Science and Engineering</i> CGPA: 3.93/4.00	Dhaka, Bangladesh

Research Interests

Multimodal Learning | Graph Machine Learning | Knowledge Graphs | LLM Evaluation | Retrieval-Augmented Generation

Publications

Conference	[C9] H. Sharifi, H. H. Shomee, S. Medya, Melissa Lamar, D Chattopadhyay, "Helping the Helper: LLM-Assisted Problem Articulation for Older Adults Seeking Technology Support," ASSETS 2026. [C8] Z. Wang, H. H. Shomee, S. N. Ravi, and S. Medya, "DesignCLIP: Multimodal Learning with CLIP for Design Patent Understanding," Findings of the Association for Computational Linguistics: EMNLP, 2025. [C7] H. H. Shomee, Z. Wang, S. N. Ravi, and S. Medya, "A Survey on Patent Analysis: From NLP to Multimodal AI," Proceedings of 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." Proceedings of the Extended Abstracts of the 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," Advances in 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.
Preprint	[P2] H. H. Shomee, R. Chaturvedi, Y. Xie, and T. Mallick, "SCORE: Specificity, Context Utilization, Robustness, and Relevance for Reference-Free LLM Evaluation," arXiv preprint arXiv:2602.10017, 2026. [P1] H. H. Shomee, S. K. Maity, and S. Medya, "PATENTWRITER: A Benchmarking Study for Patent Drafting with LLMs," arXiv preprint arXiv:2507.22387, 2025.

Work Experience

Aug 2023 - Present	University of Illinois Chicago <i>Graduate Research Assistant</i> - Conducting research on multimodal learning and machine learning on graphs. <i>Graduate Teaching Assistant</i> - Supervised undergraduate and graduate coursework, labs, and projects for the following courses: Software Design (Spring 2026) Introduction to Data Science (Spring 2025, Fall 2025) Computer Design (Fall 2023)	Chicago, USA
May 2025 - August 2025	Argonne National Laboratory <i>W.J. Cody Associate</i> Developed a multi-dimensional evaluation framework for LLM-based RAG systems in natural hazard and infrastructure decision-support settings.	Lemont, USA
June 2021 - May 2023	Brac University, Bangladesh <i>Lecturer</i> - 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 <i>Student Tutor/Teaching Assistant</i> Contributed to grading and facilitated lab sessions.	Dhaka, Bangladesh

Invited Talks & Conferences

- Short research talk at the workshop **Automation in the Workforce: Ethics, AI, and the Reconfiguration of Labor, IDEAL, Loyola University Chicago**, Chicago, USA, March 2026.
- Poster presentation at **EMNLP 2025**, Suzhou, China, November 2025 (virtual).
- Invited talk at **Cardiff School of Computer Science & Informatics, Cardiff University**, Cardiff, UK, September 2025.
- Poster presentation at **the Sixth Discovery Partners Institute (DPI) Council Meeting**, Cardiff, UK, September 2025.
- Poster presentation at **ACL 2025**, Vienna, Austria, July 2025 (virtual).
- Poster presentation at **NeurIPS 2024**, Vancouver, Canada, December 2024.

Awards

- UIC College of Engineering** Graduate Student Award for Teaching Assistance Excellence (2026)
- ACL 2025** Diversity & Inclusion Subsidy Award (Virtual)
- NeurIPS 2024** Scholar Award (Travel Grant)

Services

Reviewer

- 2026:**Advances in Neural Information Processing Systems (NeurIPS)
- 2025:** Advances in Neural Information Processing Systems (NeurIPS), The Web Conference 2026 (WWW).
- 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 UIC freshman students in collaboration with a faculty mentor to strengthen their practical skills in Machine Learning and academic research (Summer 2024, Summer 2025).
- 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 (Fall 2024).