MD MONOARUL ISLAM BHUIYAN

+1-501-223-7377 | mdmibhuiyan@gmail.com

LinkedIn | GitHub | Google Scholar

Little Rock, Arkansas - 72204, USA

Research Interests

Computational Social Science, Network Science, Natural Language Processing, AI for Social Good, Machine Learning

Experience

- **COSMOS Research Center [🌐]** *September 2023 - Present*
  Graduate Research Assistant Little Rock, USA
  - Conducted research on content traps in YouTube's recommendation system, applying network analysis, topic modeling, and language models to study how similar content clusters form.
  - Presented and co-authored several papers at venues such as ASONAM 2025, HICSS 2025, and ACM WWW 2024 workshop, with additional work under review.
  - Collaborated on projects examining social, cultural, and political (SCP) artifacts across YouTube and Instagram, exploring their role in shaping online discussions and engagement.

Education

- **University of Arkansas at Little Rock** *August 2023 - December 2025 (Expected)*
  Masters in Information Science Little Rock, Arkansas, USA
  * GPA: 3.83/4.00
- **Khulna University of Engineering and Technology** *December 2014 - February 2019*
  Bachelors in Computer Science and Engineering Khulna, Bangladesh
  * GPA: 3.30/4.00

Publications

C=Conference, J=Journal, S=In Submission

[C.1] **Md Monoarul Islam Bhuiyan**, Nitin Agarwal (2025). **Detecting Algorithmic Homophily in Recommendation Graphs via Weighted Topic Distribution**. Accepted and to appear in the *The 37th IEEE International Conference on Tools with Artificial Intelligence (ICTAI)*, Athens, Greece, November 2025.

[C.2] **Md Monoarul Islam Bhuiyan**, Nitin Agarwal (2025). **Evaluating Structural Attractors and Retainers in YouTube Recommendation Networks**. Accepted and to appear in the *IEEE/ACM International Conference on Advances in Social Networks Analysis and Mining (ASONAM 2025), Canada*.

[C.3] **Md Monoarul Islam Bhuiyan**, Nitin Agarwal (2025). **Structure, Semantics, and Attraction: Analyzing Homophily in Recommender Networks**. Accepted and to appear in the *18th International Conference on Social Computing, Behavioral-Cultural Modeling & Prediction and Behavior Representation in Modeling and Simulation (SBP-BRiMS 2025), CMU, Pittsburgh, USA*.

[C.4] Mayor Inna Gurung, **Md Monoarul Islam Bhuiyan**, Ahmed Al-Taweel, Nitin Agarwal (2024). **Decoding YouTube's Recommendation System: A Comparative Study of Metadata and GPT-4 Extracted Narratives**. In *Companion Proceedings of the ACM Web Conference 2024*, pp. 1468–1472. ACM, May 2024, Singapore. DOI: 10.1145/3569219.3570040

[C.5] Mayor Inna Gurung, Nitin Agarwal, **Md Monoarul Islam Bhuiyan** (2025). **How Does Semiotics Influence Social Media Engagement in Information Campaigns?** In *Proceedings of the 58th Hawaii International Conference on System Sciences (HICSS)*, January 2025, Honolulu, Hawaii.

[C.6] **Md Monoarul Islam Bhuiyan**, Shadi Shajari, Nitin Agarwal (2025). **Resilience and Node Impact Assessment in YouTube Commenter Networks Leveraging Focal Structure Analysis**. In *Proceedings of the Eleventh International Conference on Human and Social Analytics (HUSO 2025)*, 2025. (Best Paper Award) 🏆

[C.7] **Md Monoarul Islam Bhuiyan**, Nitin Agarwal (2025). **Identification and Characterization of Content Traps in YouTube Recommendation Network**. In *Proceedings of the Seventeenth International Conference on Information, Process, and Knowledge Management (eKNOW 2025)*, pp. 59–64. May 2025. (Best Paper Award) 🏆

[J.1] Mayor Inna Gurung, Nitin Agarwal, **Md Monoarul Islam Bhuiyan**, Diwash Poudel (2025). **Symbolic Signals: How Visuals Shape Engagement, Emotion, Trust, and Diffusion on Instagram**. *Journal of Social Network Analysis and Mining (SNAM)*, Springer. DOI: 10.1007/s13278-025-01469-0

[S.1] **Md Monoarul Islam Bhuiyan**, Mayor Inna Gurung, Nitin Agarwal, Diwash Poudel (2025). **Unraveling X-Factors: The Influence of Sociopolitical Artifacts in Shaping Social Media Narratives**. Manuscript submitted for publication in *Journal of Social Network Analysis and Mining (SNAM)*.

[S.2] **Md Monoarul Islam Bhuiyan**, Nitin Agarwal (2025). **How Far is Too Far? Modeling User Attraction Pathways in Recommendation Networks via Random Walk Variants**. Manuscript submitted for review at *The 14th International Conference on Complex Networks and their Applications, Binghamton, New York, USA, 2025*

[S.3] **Md Monoarul Islam Bhuiyan**, Nitin Agarwal (2025). **TrapIntensity: Quantifying Structural Entrapment via Hop-Aware Attraction and Retention**. Manuscript submitted for review at *The 14th International Conference on Complex Networks and their Applications, Binghamton, New York, USA, 2025*

[S.4] **Md Monoarul Islam Bhuiyan**, Nitin Agarwal (2025). **Persuasive Pathways into Content Traps: The Role of Persuasive Features in Structuring Algorithmic Content Cycles**. Manuscript submitted for review at *The 14th International Conference on Complex Networks and their Applications, Binghamton, New York, USA, 2025*

Skills

- **Technical Proficiencies:** Python, R, C, Git, GitHub, MySQL, LaTeX, Overleaf, Excel
- **Data Science & Research Tools:** Scikit-learn, PyTorch, TensorFlow, Pandas, NumPy, Matplotlib, Seaborn, StatsModels, NetworkX, Gephi, Zotero
- **Research Expertise:** Social Network Analysis, Computational Social Science, LLM Prompt Engineering, Experimental Design, Network Resilience Metrics, Statistical Hypothesis Testing

Honors and Awards

- **2nd Place – Graduate Research Poster Presentations** *April 2024*
  University of Arkansas at Little Rock Research and Creative Works Expo
- **Travel Scholarship Award and Volunteer Certificate** *2024*
  DCSTEM Travel Scholarship Award, ASONAM Travel Scholarship, Graduate School Scholarship for Travel
- **Merit Scholarship Award** *2025*
  UA Little Rock Marian Williams Scholarship
- **Travel Scholarship Award and Funding** *2025*
  SBP-BRiMS 2025 Travel Scholarship Award

Miscellaneous

Languages: English, Bengali
Interests: Photography, Soccer.