

Mohammad Ratul Mahjabin

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SUMMARY

I study how **intellectual humility** can be elevated and how it shapes **collective intelligence** and **polarization** in networked systems. I design **AI-based behavioral interventions** to enhance intellectual humility and improve belief revision in individuals, with the goal of strengthening decision-making in complex information environments.

EDUCATION

- **University of South Florida** Jan 2024 - Present
Ph.D. in Computer Science and Engineering
◦ Research Areas: Computational Social Science, Human-Computer Interaction, AI
◦ Advisor: Dr. Raiyan Abdul Baten - [USF CSSAI Lab](#) Tampa, FL, USA
- **Islamic University of Technology** Jan 2019 - May 2023
B.Sc. in Software Engineering Dhaka, Bangladesh

PROFESSIONAL EXPERIENCE

- **University of South Florida** Jan 2024 - Present
Graduate Research and Teaching Assistant Tampa, FL, USA
- **Military Institute of Science and Technology (MIST)** Aug 2023 - Dec 2023
Research Assistant Dhaka, Bangladesh
- **Samsung R&D Institute Bangladesh** May 2022 - Sept 2022
Software Engineer Intern Dhaka, Bangladesh

PUBLICATIONS

Recent Preprints Under Review

- [R.1] **Mahjabin, M. R.** & Baten, R. A., "General Intellectual Humility Is Malleable Through AI-Mediated Reflective Dialogue" [URL: https://arxiv.org/abs/2603.23855](https://arxiv.org/abs/2603.23855).

Conference Proceedings

- [C.1] **Mahjabin, M. R.** & Baten, R. A., "The Wisdom of Intellectually Humble Networks," in *Proceedings of the Annual Meeting of the Cognitive Science Society*, 2025. [URL: https://escholarship.org/uc/item/1hd2t78f](https://escholarship.org/uc/item/1hd2t78f).
- [C.2] Hema, N. E. J., Zeest, N. S., **Mahjabin, M. R.**, & Islam, M. N., "An Ensemble-based ML Model to Predict Cardiac Disease," in *International Conference on Inventive Computation Technologies (ICICT)*, 2024. [URL: https://ieeexplore.ieee.org/abstract/document/10544816](https://ieeexplore.ieee.org/abstract/document/10544816).
- [C.3] Rafi, M. H., **Mahjabin, M. R.**, Rahman, M. S., Kabir, M. H., & Ahmed, S., "A critical analysis of deep learning applications in crop pest classification: Promising pathways and limitations," in *26th International Conference on Computer and Information Technology (ICCIT)*, 2023. [URL: https://ieeexplore.ieee.org/abstract/document/10441417](https://ieeexplore.ieee.org/abstract/document/10441417).

Journal Articles

- [J.1] Mustafina, S. N., Islam, M. N., **Mahjabin, M. R.**, Mannan, M. R., & Islam, M. M., "Identifying key indicators to develop a novel mobile application for early screening of postpartum depression in developing countries," in *BMC Health Services Research*, 2025. [URL: https://link.springer.com/article/10.1186/s12913-025-12429-x](https://link.springer.com/article/10.1186/s12913-025-12429-x).
- [J.2] Rafi, T. H., **Mahjabin, R.**, Ghosh, E., Ko, Y. W., & Lee, J. G., "Domain generalization for semantic segmentation: a survey," in *Artificial Intelligence Review*, 2024. [URL: https://d-nb.info/134895759X/34](https://d-nb.info/134895759X/34).
- [J.3] Islam, M.N., Jahangir, R., Mohim, N.S., Wasif-Ul-Islam, M., Ashraf, A., Khan, N.I., **Mahjabin, M.R.**, Miah, A.S.M. & Shin, J., "Identifying key indicators to develop a novel mobile application for early screening of postpartum depression in developing countries," in *IEEE Access*, 2024. [URL: https://ieeexplore.ieee.org/abstract/document/10399807](https://ieeexplore.ieee.org/abstract/document/10399807).

TALKS & POSTERS

- Poster, USF AI+X Symposium, University of South Florida, Tampa, FL Apr 2026
- Oral, USF Graduate Research Symposium, University of South Florida, Tampa, FL Mar 2026
- Poster, ASEMFL Annual Meeting, University of Central Florida, Orlando, FL Nov 2025
- Poster, USF Graduate Research Symposium, University of South Florida, Tampa, FL Mar 2025

PROJECTS

• Bloom Annotation Tool

Tools: [React, Node.js, JavaScript, HTML, CSS]



- Developed an interactive web application for annotating conversational data using Bloom's Taxonomy and Socratic questioning frameworks, with integrated rubrics, search, and progress tracking
- Implemented span-level highlighting, trace-back editing, and auto-saving to support efficient annotation and revision of conversation turns
- Exported structured JSON annotations with turn-level context, text spans, and assigned labels for downstream statistical analysis and machine learning workflows

• Wisdom of Intellectually Humble Networks

Tools: [Python, R]



- Agent-based simulations of belief revision in social networks using DeGroot process
- Experiments across datasets and network structures analyzing error, polarization, and revision dynamics

• The Room of Humility

Tools: [JavaScript, HTML, React]



- Designed an interactive game to teach intellectual humility through reflection and scenario-based challenges
- Uses metaphorical objects to encourage self-reflection, perspective-taking, and belief revision

• An Analysis of Toxicity and Public Concerns on Generative LLMs

Tools: [Python]



- Analyzes public discourse on large language models using Twitter data
- Detects toxicity and user concerns with NLP and LLM-based annotation
- Compares generative LLMs (Gemini, Mistral) with baseline models (BERT, RoBERTa)
- Explores how occupation and geography influence attitudes toward AI

• LLMAnnoBangla: Exploring LLMs as Annotators for Bangla Language

Tools: [Python]



- Evaluated open-source LLMs as annotators for Bangla across different tasks
- Compared different prompting techniques, highlighting performance gaps between LLM-generated and human annotations
- Identified limitations of LLMs in low-resource settings

• PPD Coach: An android application for Screening Postpartum Depression in the context of Bangladesh

Tools: [Flutter, Firebase]



- It screens postpartum depression using story-based questions and visual aids
- It also includes a standard PPD test, e.g., EPDS

• HaateKhorī: ML-powered web app for early childhood education

Tools: [Python, OpenCV, YOLO, React, Node.js]



- This project utilizes ML techniques to provide early education to children in an engaging and interactive way

SKILLS

- **Programming:** Python, R, C/C++, JavaScript, Java, HTML, CSS
- **Libraries & Frameworks:** PyTorch, TensorFlow, HuggingFace, NetworkX, NLTK, Pandas, Scikit-Learn, Matplotlib, Seaborn, NumPy, SciPy, XGBoost, OpenCV, Plotly, SpaCy
- **Statistical & Data Analysis:** lme4, dplyr, tidyr, ggplot2, broom, stats
- **Web & Database:** Flask, Django, React, MongoDB, Firebase, REST APIs
- **Tools & Platforms:** Empirica, Git, Docker, Heroku, LaTeX

ACADEMIC SERVICE

• Summer Camp Counselor

Summer 2026

- Assisted students with debugging code and troubleshooting technical issues.
- Guided students in developing, testing, and completing hands-on AI projects.

Teaching Assistant

- Ethical Issues / Professional Conduct
- Data Structures
- Social Media Mining
- Adv Database Systems for IT
- Intro to Computer Programming
- Quantum Computing & Quantum Algorithms
- Computer Information Networks for Information Technology

Spring 24, Fall 24
Summer 24
Spring 25, Fall 25, Spring 26
Summer 25
Spring 26
Summer 26
Fall 26