

AMANUL HAQUE

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EDUCATION

Doctor of Philosophy (PhD) in Computer Science

North Carolina State University, Raleigh, NC

With a focus on Artificial Intelligence, Machine Learning, and Natural Language Processing

● GPA - **4.0/4** Expected May 2024

Master of Science in Computer Science

North Carolina State University, Raleigh, NC

● CGPA - **4.0/4** May 2019

Bachelor of Engineering in Information Science

PES University, Bangalore, India

● CGPA - **8.76/10** May 2015

AWARDS AND HONORS

- Computer Science Graduate Student Leadership Award 2023 *Awarded by North Carolina State University*
- Computer Science Outstanding Graduate TA Award 2021 *Awarded by North Carolina State University*

CURRENT RESEARCH PROJECTS

- **Exploring LLMs to Unveil Human Values in Software Artifacts**
Analyze human values in software artifacts using LLMs such as ChatGPT. We identify human values based on Schwartz's theory of basic human values from issue discussion texts on GitHub. The project aims to incorporate human values in the software development lifecycle to achieve better value alignment in software products.
- **Affective Portrayal of Presidential Candidates in US Election News**
Conducted an entity-centric affective analysis using a vector subspace projection approach to identify power, sentiment, and agency towards political figures in election news. We find that the portrayal of presidential candidates differs significantly across left and right-leaning news publishers.
- **Can AI be Politically Correct? Investigating LLMs for Undesirable Latent Political Associations**
The project aims to define political correctness for LLMs and identify real-world use cases where it is desirable. Using a game theory approach, we operationalize political correctness and analyze the tradeoff between political correctness and model accuracy.
- **Identifying Direct and Indirect Political Bias in LLMs**
A prompt-based evaluation to identify political bias in LLMs. We identify direct (due to an explicit political cue) and indirect (due to an implicit political cue) political bias in LLMs. We identify universal adversarial trigger tokens that can amplify the difference based on explicit (direct) cues and help us identify implicit (indirect) cues.

PUBLICATIONS

- **Amanul Haque** and Munindar. P. Singh, "NewsSlant: Analyzing Political News and Its Influence Through a Moral Lens," in IEEE Transactions on Computational Social Systems, 2024, <https://doi.org/10.1109/TCSS.2023.3341910>.
- **Amanul Haque**, Nirav Ajmeri, & Munindar P. Singh, *Understanding Dynamics of Polarization via Multiagent Social Simulation*. AI & Society, 38, 1373–1389 (2023). <https://doi.org/10.1007/s00146-022-01626-5>.
- **Amanul Haque**, Vaibhav Garg, Hui Guo, and Munindar Singh, *Pixie: Preference in Implicit and Explicit Comparisons*. In Proceedings of the 60th Annual Meeting of the Association for Computational Linguistics (Volume 2: Short Papers), pages 106–112, Dublin, Ireland, 2022. ACL, <http://dx.doi.org/10.18653/v1/2022.acl-short.13>
- F. B. Oliveira, **A. Haque**, D. Mougouei, S. Evans, J. S. Sichman and M. P. Singh, *Investigating the Emotional Response to COVID-19 News on Twitter: A Topic Modeling and Emotion Classification Approach*, in IEEE Access, vol. 10, pp. 16883-16897, 2022, <https://doi.org/10.1109/ACCESS.2022.3150329>.

- Francisco Bráulio Oliveira, Davoud Mougouei, **Amanul Haque**, Jaime Simão Sichman, Hoa Khanh Dam, Simon Evans, Aditya Ghose, Munindar P. Singh, *Beyond Fear and Anger: A Global Analysis of Emotional Response to Covid-19 News on Twitter*, Online Social Networks and Media, Volume 36, 2023, 100253, ISSN 2468-6964, <https://doi.org/10.1016/j.osnem.2023.100253>.
- Simon L. Evans, Rosalind Jones, Erkan Alkan, Jaime Simão Sichman, **Amanul Haque**, Francisco Bráulio Silva de Oliveira, Davoud Mougouei, *The Emotional Impact of COVID-19 News Reporting: A Longitudinal Study Using Natural Language Processing*, Human Behavior and Emerging Technologies, vol. 2023, Article ID 7283166, 16 pages, 2023. <https://doi.org/10.1155/2023/7283166>.

PROFESSIONAL EXPERIENCE

- Coufang, Mountain View, California, Machine Learning Summer Intern** **May 2022 - Aug 2022**
- Improved Coufang's Deep & Cross Network (DCN) model's performance via feature engineering and parameter tuning and reduced features being used. The model recommends products to users based on past search history.
 - Benchmarked the DCN model and created scripts for easy-to-run experiments on public datasets for comparison.
- Seagate, Longmont, Colorado, Machine Learning Summer Intern** **May 2020 - Aug 2020**
- Designed a graph-based unsupervised abstractive multi-document text summarizer for a social listening tool to identify trending online topics and summarize related documents.
 - Implemented an unsupervised aspect-based sentiment analyzer for online user reviews.
- Lenovo, Morrisville, NC, Computer Science Summer Intern** **May 2018 - Aug 2018**
- Automated test plan generation based on requirement document specifications and historical test results to reduce test suite execution time.
 - Designed an information extraction model to identify executable commands from unstructured text in RMK.
- Oracle, Bangalore, India, Member of Technical Staff** **July 2015 - June 2017**
- Designed and developed Service Deployment Infrastructure (SDI) modules that govern the provisioning flow for all Oracle Public Cloud (OPC) subscription life cycles.
 - Implemented modules for a data center level load balancer and a loosely coupled execution mode to reduce runtime and increase parallelism in execution.

TEACHING ASSISTANT

- CSC 555 Social Computing and Decentralized AI (*under Dr. Munindar P. Singh*) **Fall 2019**
- CSC 505 Design and Analysis of Algorithms (*under Dr. Jamie Jennings*) **Spring 2020**
- CSC 791 Natural Language Processing (*under Dr. Munindar P. Singh*) **Fall 2020**

UNIVERSITY SERVICES

President **March 2023 - Sept 2023**

Head of Events **March 2022 - Feb 2023**

Maitri, Indian Graduate Student Association (IGSA), NC State University

- Maitri is the volunteer-run student organization and the largest student body at NC State University.

Organizer **Aug 2022 - Dec 2022**

AI in Society Seminar Series at NC State University

- Organized and hosted the AI in Society Seminar Series at NCSU, which brings together interdisciplinary researchers worldwide working on AI. (talks available on [NCSU AI in Society](#) YouTube Channel)

Graduate Mentoring

- Mentored Graduate students in research
 - Rahil Sarvaiya (Graduated with a Master in Computer Science in Fall 2022)
 - Mansi Saxena (PhD student in the Computer Science Department at NCSU, 2022-present)