AMANUL HAQUE

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EDUCATION

Doctor of Philosophy (PhD) in Computer Science — *Expected May 2024*
- *GPA - **4.0/4***

North Carolina State University, Raleigh, NC

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

Master of Science in Computer Science — *May 2019*
- *CGPA - **4.0/4***

North Carolina State University, Raleigh, NC

Bachelor of Engineering in Information Science — *May 2015*
- *CGPA - **8.76/10***

PES University, Bangalore, India

RESEARCH AND PROJECTS

- ***NewSlant: Understanding Political Slant in News*** — ***Python, PyTorch***

  Identify political slants in news and influence on users. Conduct an entity-centric affective analysis using a vector subspace projection approach with contextual embeddings. We find that news shows political slant and moral foundations in user response to news from left and right-leaning news publishers differ. *(Under review at IEEE-TCSS)*

- ***Understanding Dynamics of Polarization via Multiagent Social Simulation*** (Github) — ***Python, mesa***

  Designed a social simulation to study polarization dynamics in social networks. Adopted Social Judgment Theory and modeled user behavior based on empirical evidence from past studies. Analyzed the influence of user tolerance and selective exposure on user satisfaction and polarization via content sharing. *(Published at AI & Society 2023)*

- ***Pixie: Preference in Implicit and Explicit Comparisons*** (Github) — ***Python, PyTorch***

  Created Pixie, a gold standard dataset for Preference Classification, to identify the preferred entity in user-generated comparative sentences from app reviews. Our dataset includes implicit and indirect comparisons that previous works have overlooked. We achieved an F1 score of 84% by fine-tuning BERT with segment embeddings to demarcate compared entities, while SOTA achieved a 74% F1 score on Pixie. *(Published at ACL 2022)*

- ***Emotional response to COVID-19 News Coverage*** (Github) — ***Python, PyTorch, Gensim***

  Created a large-scale dataset of Covid-19 related news tweets and user responses containing ~20M tweets from 12 countries across five continents. Fine-tuned the RoBERTa model to recognize emotions in tweets and used LDA to identify discussion topics. We found that anger was the predominant emotion in user responses, while sadness in news tweets. User emotions differ across population groups and discussion topics *(Published at IEEE Access 2022)*

PROFESSIONAL EXPERIENCE

Coupang, Mountain View, California, Machine Learning Summer Intern — ***May 2022 - Aug 2022***
- Improved Coupang's DCN 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.

SKILLS

- *Programming Languages*: Python, Java, Shell, SQL, PHP, HTML, JavaScript
- *API and Libraries:* PyTorch, Tensorflow, Keras, Scikit Learn, Gensim, Numpy, Pandas, REST