EMRUL HASAN
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PROFILE

PhD student with 5 years of experience in applied science, machine learning, deep learning, NLP, Python, Recommendation Systems, statistical analysis, and quantitative research. Proven track record of excellent written and verbal communication skills with the ability to work independently.

EDUCATION

Ph.D. in Computer Science/AI, Toronto Metropolitan University, Toronto Jan 2021 -Present

Graduate Courses: Machine Learning, Deep Learning, Software Engineering, Advanced Natural Language Processing

RELEVANT SKILLS & KNOWLEDGE

Data Science Toolkits: Python, SQL, PyTorch, Scikit-Learn, Numpy, MySQL Server, NLTK, SpaCy, Huggingface
Machine Learning and Deep Neural Networks: CNN, RNN, LSTM, GRU, and Autoencoder
Large Language Models (LLMs): BERT, GPT-2, Llama2

HIGHLIGHTS OF QUALIFICATIONS

- Pursuing a Ph.D. in computer science with a focus on Natural Language Processing/Recommendation Systems.
- Experienced in applying machine learning models and statistics to novel problems
- Demonstrated math and data engineering background working with messy real-world data.
- Demonstrated analytical skills to identify signals in data and the feasibility of prediction.
- Proficient in coding with Python and familiarity with Excel/VBA, SQL, R, C/C++, or MATLAB
- Familiarity with Software engineering, software development, and investment analysis
- Experience with parameter and architecture tuning of deep learning algorithms
- Experience in leading open-source deep learning software frameworks (PyTorch, Tensorflow, and CUDA)
- Experience in collaboration with researchers, maintain confidentiality, data security, and data integrity

WORK HISTORY

Graduate Research Assistant | Toronto Metropolitan University, Toronto Jan 2021- Present
Reported to: Professor Dr. Cherie Ding

Project 1: LLM-based review summarization for Top-N recommendation (Under progress)

- Utilized LLM (Llama 2) to summarize customer review text, eliminating noise from the free-form content.
- Created a top-N recommendation model by leveraging semantic similarity between user and item

Project 2: Multi-criteria recommendation model with aspect Representation Learning

- Proposed a multi-criteria recommendation model involving aggregation function learning
- Predicted criteria ratings through an aspect representation learning layer on top of the BERT output layer.
- Acquired 6.15% and 3.85% performance improvement in terms of MSE and MAE compared to the baseline model.
- Reported and presented research outcomes for team efforts, including demos, status, and results

Project 3: Multi-criteria rating and review-based recommendation model

- Conducted thorough research into the latest advancements and identified challenges.
- Developed a recommendation model utilizing Deep Neural Networks considering both reviews and ratings.
- Achieved 19% performance improvement compared to the baseline models.
- Authored a research paper and presented the findings at the IEEE International Conference on Big Data

Project 4: PubMed Document Retrieval

- Employed diverse feature extraction techniques including FT-IDF, Word2Vec, and GloVe word embedding
- Utilized Named Entity Recognition (NER) and POS tagging for extracting specific clinical terms
- Achieved 8% performance improvements by employing a transformer-based BERT model, demonstrating superior results compared to conventional bag-of-word embedding methods.

Teaching Assistant, Toronto Metropolitan and Northeastern University, Toronto Jan 2021 – Present
Reported to: Professor Dr. Sadaf Mustafiz and Professor Dr. Yvonne Leung

- Delivered tutorials on a range of courses encompassing topics such as database management, Python programming, Data Analytics, Data Mining, Natural Language Processing, and Data warehousing.
- Assessed weekly assignments and final projects for a cohort of 200 students, offering constructive feedback to support their learning and development.

PUBLICATIONS

- **Emrul Hasan**, Chen DingCriteria Rating Prediction with Aspect Representation Learning for Multi-criteria Recommendation, Accepted, The 22nd IEEE/WIC International Conference on Web Intelligence and Intelligent AgentTechnology, 2023
- **Emrul Hasan**, D. Chen, and C. Alfredo, "Multi-criteria rating and review-based recommendation model," Proceedings of the 33 IEEE International Conference on Big Data, 2022.
- **Emrul Hasan**, Aritra Kumar Lahiri, Qinmin Vivian Hu, Chen Ding, "TMU at TREC CAsT 2022", Proceedings of the thirty-first text retrieval Conference, NIST, 2022
- **Emrul Hasan**, B. W. Southern, "Monte Carlo study of a geometrically frustrated rare-earth magnetic compound: SrGd2O4", Phys. Rev. B 96, 0944907, 2017

SCHOLARSHIPS AND AWARDS

- **Ontario Graduate Scholarship**, Toronto Metropolitan University 2023-2024
- **Ryerson Graduate Fellowship**, Toronto Metropolitan University 2021-2023
- **University of Manitoba Graduate Fellowship**, University of Manitoba 2015-2017
- **International Graduate Students Entrance Scholarship**, University of Manitoba 2015

VOLUNTARY EXPERIENCE

- **Councilor**, CS Graduate Student Council, Toronto Metropolitan University 2021-2023
- **Vice-President Academic**, UMGSA, University of Manitoba 2017-2018
- **Chair**, Awards Committee, UMGSA, University of Manitoba 2017-2018
- **Member**, Programs and Guidelines Committee, FGS, University of Manitoba 2017-2018
- **Member**, Senate Committee on Curriculum and Course Changes, FGS, University of Manitoba 2017-2018
- **Member**, FGS Awards Committee, FGS, University of Manitoba 2017-2018
- **Senator**, UMGSA, University of Manitoba 2016-2017

EQUITY AND DIVERSITY STATEMENT

I am committed to the fundamental principles of equality, diversity, and inclusion and I strongly believe that they are the cornerstones of a thriving and progressive society.

REFERENCES

Available Upon Request