EMRUL HASAN
(647) - 857 – 2014, Toronto, ON | emrul.phy@gmail.com | linkedin.com/in/emrulphy/

PROFILE

Applied Machine Learning Specialist with 5 years of experience in Machine Learning, Deep Learning, AI, Natural Language Processing, Python, and Recommendation Systems. Demonstrated proficiency in research techniques and publishing in high-impact journals, familiarity with responsible AI research, AI safety, and System Development.

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, GPY-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 and data sets.
- Demonstrated mathematics and data engineering background working with messy real-world data.
- Demonstrated analytical skills to identify signals in data and the feasibility of prediction.
- Knowledge and understanding of Python and preferably C/C++ and C#
- Familiarity with Software engineering, agile methodology, software development, and HCI (human-computer interaction)
- Developed prototypes and proofs of concept
- 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 and AI research techniques

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 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 23% and 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