Hy (Gia) Dang

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RESEARCH INTERESTS

I am primarily focused on Natural Language Processing, Data Mining, and Machine Learning. I have an interest in addressing the challenges posed by information sparsity in textual data. Specifically, my recent project centers around augmenting text data by incorporating supplementary information to enrich its content. The objective is to enhance its relevance and usefulness for downstream applications such as information retrieval and text classification.

ACADEMIC BACKGROUND

Ph.D. Computer Science and Engineering — Aug. 2022 - Present
University of Notre Dame, Notre Dame, IN
- Research assistant in Data Mining Lab, advised by Dr. Meng Jiang

BS in Computer Science — Aug. 2017 - Dec. 2021
BS in Mathematics
Texas Christian University (TCU), Fort Worth, TX — GPA: 4.0/4.0
- Graduated with Summa Cum Laude
- Graduated with Departmental Honors in Mathematics

RESEARCH PROJECT

Knowledge Enhancement for Text Using Expansion Techniques Aug. 2022 - Present
- Funded by NSF CAREER IIS-2142827: Synergistic Approaches for Specialized Intelligent Assistance;
- Theory: Analyzing theoretical perspectives to propose text expansion techniques for information retrieval and ranking;
- Methods: Utilizing Large Language models (LLMs) to expand texts based on observations from derived theoretical derivations;
- Broad impact: Building a real-world system based on the techniques to improve questionnaire design in psychological studies.

HONORS AND AWARDS

Best Presentation Award, Notre Dame Data Mining Lab, Spring 2023
- Presentation title: *Expansion Is All You Need: Text Expansion Approaches For Information Retrieval.*
- The presentation reviewed recent approaches in text expansion, especially in information retrieval applications. It focused on different expansion techniques: Document expansion approaches: Doc2Query and Doc2Query–, which utilizes a model to train to expand documents to include queries that documents can be used to answer; Query expansion approaches: Query2Doc, which expand the queries by prompting and utilizing LLMs.

Student Research Symposium Best Poster Award, TCU, Spring 2021

Science and Engineering Research Center Grant, TCU, Fall 2019

Academic Achievement Award, TCU, May 2018

CONFERENCE PAPERS

2. **H. Dang**, M. Nguyen, B. Mei. StTime-Net: Combining both Historical and Textual Factors for Stock Movement Prediction, in Proceedings of *International Conference on Artificial Neural Networks (ICANN)*, Bristol, UK, 2022
1. Q. Truong, M. Nguyen, **H. Dang**, B. Mei. Housing price prediction via improved machine learning techniques, *Precedia Computer Science 174, 433-442*

WORKSHOP PAPERS

1. **H.Dang**, B. Nguyen, N. Ziems, M. Jiang. Embedding Mental Health Discourse for Community Recommendation. *Submitted to the 4th Workshop on Computational Approaches to Discourse, joint with The 61st Annual Meeting of the Association for Computational Linguistics, Toronto, Canada, 2023.*

POSTERS

4. **H. Dang**. Wound Healing Modeling Using Partial Differential Equations And Deep Learning? *Presentation at National Collegiate Research Conference (NCRC)*, Harvard University. 2022
3. **H. Dang**, L. Mantilla, S. Zhang, A. Borum. Bifurcations of an elastic ring with interacting particles, *Student Talk/Poster Session Presentation at the Canadian Undergraduate Mathematics Conference (CUMC)*, Western University, 2020
2. **H. Dang**. Wound Healing Modeling Using Partial Differential Equations And Deep Learning, *Poster Presentation at the 3rd Annual Meeting of the SIAM Texas-Louisiana Section.*, Texas A&M University, 2020
1. **H. Dang**. Wound Healing Modeling Using Partial Differential Equations And Deep Learning, *Student Talk at the Sixteenth Annual Texas Undergraduate Mathematics Conference (TUMC)*, 2021