Xindi Wang

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Summary

I am a 4th year PhD student at the University of Western Ontario and Vector Institute, supervised by Dr. Robert Mercer (University of Western Ontario) and Dr. Frank Rudzicz (University of Toronto, Dalhousie University, and Vector Institute). My research interests mostly lie in natural language processing (NLP) and natural language understanding (NLU) in scientific biomedical literature and clinical texts, especially utilizing external knowledge and graph theory to solve practical problems in the biomedical and healthcare domain.

Educational Background

PhD Candidate in Computer Science (June. 2024 expected)

- The University of Western Ontario, London, ON, Canada
- Vector Institute, Toronto, ON, Canada

Master of Science in Computer Science (June. 2019), GPA: 91/100

- Thesis topic: extreme large-scale biomedical document classification
- The University of Western Ontario, London, ON, Canada

Bachelor of Science, major in mathematics and minor in economics (2015)

- The University of British Columbia, Vancouver, BC, Canada

Publications

- **Xindi Wang**, Robert E. Mercer, Frank Rudzicz. Auxiliary Knowledge-Induced Learning for Automatic Multi-Label Medical Document Classification. – Proceedings of the 30th International Conference on Computational Linguistics. – LREC-COLING 2024
- **Xindi Wang**, Yufei Wang, Can Xu, Xiubo Geng, Chongyang Tao, Bowen Zhang, Frank Rudzicz, Robert E. Mercer, Daxin Jiang. Investigating the Learning Behaviour of In-context Learning: A Comparison with Supervised Learning. Proceedings of the 26th European Conference on Artificial Intelligence - ECAI 2023
- **Xindi Wang**, Robert E. Mercer, Frank Rudzicz. KenMeSH: Knowledge-enhanced End-to-end Biomedical Text Labelling. Proceedings of the 60th Annual Meeting

of the Association for Computational Linguistics. © 2022 Association for Computational Linguistics

- **Xindi Wang**, Robert E. Mercer, , Frank Rudzicz. MeSHup: A Corpus for Full Text Biomedical Document Indexing. Proceedings of the 13th Conference on Language Resources and Evaluation (LREC 2022). ©European Language Resources Association (ELRA)
- **Xindi Wang** and Robert E. Mercer. Incorporating Figure Captions and Descriptive Text in MeSH Term Indexing. Proceedings of the BioNLP 2019 workshop, pages 165–175 Florence, Italy, August 1, 2019. © 2019 Association for Computational Linguistics
- Penghui Zhao, **Xindi Wang**, Yi Zhang, Yang Li, Hongjun Wang, Yang Yang. (2024), Diffusion-UDA: Diffusion-based unsupervised domain adaptation for submersible fault diagnosis. Electronics Letters, Volume 60, Issue 3: e13122.
- John Chen, Ian Berlot-Attwell, **Xindi Wang**, Safwan Hossain, Frank Rudzicz. Exploring Text Specific and Blackbox Fairness Algorithms in Multimodal Clinical NLP. Proceedings of the 3rd Clinical Natural Language Processing Workshop, pages 301–312 November 19, 2020. © 2020 Association for Computational Linguistics **(Best Short Paper Award)**
- John Giorgi, **Xindi Wang**, Nicola Sahar, Won Young Shin, Gary Bader, Bo Wang. End-to-end named entity recognition and relation extraction using pre-trained language models. arXiv preprint arXiv:1912.13415 (2019).

Papers Under Review

- **Xindi Wang**, Robert E. Mercer, Frank Rudzicz. Multi-stage Retrieve-reduce-rerank Model for Automatic Medical Coding Recommendation. – submitted to NAACL 2024
- **Xindi Wang**, Mahsa Salmani, Parsa Omidi, Xiangyu Ren, Mehdi Rezagholizadeh, and Armaghan Eshaghi. Beyond the Limits: A Survey of Techniques to Extend the Context Length in Large Language Models. arXiv preprint arXiv:2402.02244(2024). – submitted to IJCAI 2024
- **Xindi Wang**, Robert E. Mercer, Frank Rudzicz. Label-Centric Curriculum Contrastive Learning for Zero-shot Extreme Multi-label Biomedical Document Classification. – submitted to ACL 2024

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Employment

- Associate Researcher, Intern (Oct. 2023 to present)
  Huawei, Markham, Canada
- **Graduate Teaching Assistant** (Sep. 2017 to present)
  The University of Western Ontario, London, ON
  - Instructed and lectured in tutorials
  - Graded assignments, laboratory reports and term tests
- **Research Intern** (Jun. 2022 to Dec. 2022), Mentor: Can Xu
  Microsoft, Beijing, China
  - Conducted empirical study on the performance of large-scaled pre-trained language models, specifically examining in-context learning with label perturbations on text classification tasks.
- **Research Assistant** (Jun. 2019 to May. 2020), Supervisor: Dr. Bo Wang
  The University Health Network, Toronto, ON, Canada
  - Led and collaborated research projects in natural language processing,
  - Projects: joint name entity extraction and relation extraction; large-scale biomedical semantic indexing; cross-lingual summarization
- **Junior Data Analyst** (Apr. 2017-Aug. 2017)
  Inspur Group, Jinan, China
  - Accessed and analyzed large volume of enterprise data from various sources (We have over 100 million companies in Inspur's business database)
  - Managed the enterprise searching platform developed by Inspur (The platform is not available to public right now. It is an enterprise searching engine, which provides the basic company's business information, such as business data and credit information)
- **Research Trainee** (May. 2016 to Sep. 2016), Supervisor: Dr. Sylvain Baillet
  Montreal Neurological Institute (McGill University), Montreal, QC, Canada
  - Conducted Magnetoencephalography (MEG) data analysis
  - Added image compression functionality to Brainstorm

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Teaching

- **Teaching Assistant at University of Western Ontario**
  - CS1027 Computer Science Fundamentals II
  - CS1032 Information Systems and Design
  - CS2034 Data Analytics: Principles and Tools
  - CS2209 Applied Logic for Computer Science
  - CS3346 Artificial intelligence I
- **Advising**
  - Anurag Bhattacharjee – 2023 Master thesis: Investigating Improvements to MeSH Indexing
  - Ximing Dong – Master thesis: Distilling knowledge through student-teacher model and BERT for sentiment analysis – The University of Manitoba - 2022

Invited Talks

- Large-scale Biomedical Text Labeling, Health Roundup at Endless Summer School, Vector Institute, Mar. 2023
- Biomedical Text Classification with External Knowledge, AIS 2022, Chinese Information Processing Society of China, May 2022

Services

- **Reviewing**
  - Conferences: ACL 2023, ECAI 2023, EMNLP 2023, IJCAI 2019
  - Journal: IEEE JBHI

Awards

- **Western Graduate Research Scholarships**
  - The University of Western Ontario, 2018, 2020, 2021, 2022
- **Outstanding International Student Award (Vancouver)**
  - The University of British Columbia, 2012
- **Chancellor's Scholar Award**
  - The University of British Columbia, 2013

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References

- Dr. Robert E. Mercer (mercer@csd.uwo.ca)
- Dr. Frank Rudzicz (frank@spoclab.com)
- Dr. Max Magguilli (lmagguil@uwo.ca)

(All referees kindly request to send their reference letters directly to the employer upon receiving a specific request.)