Gezheng XU

Ph.D. Candidate
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RESEARCH INTERESTS

Area: Deep Learning, Machine Learning
Topics: Transfer Learning, Domain Adaptation, Trustworthy AI

EDUCATION

University of Western Ontario, London, Canada   Sept. 2021 — Present
Ph.D. Candidate, Department of Computer Science
Advisor: Prof. Boyu Wang, Prof. Charles Ling.

Beihang University, Beijing, China   Sept. 2018 — Jan. 2021
Master in Industrial Engineering, Sino-French Engineering School
Thesis Title: Research on Pre-trained Language Model Based Biomedical Question Answering.
Advisor: Prof. Wenge Rong.

Paris-Saclay University, Paris Area, France   Sept. 2017 — Jul. 2019
Engineer's Degree (Diplôme d'Ingénieur from École Centrale Paris, Double Degree)   GPA: 3.84/4.33
Advisor: Fragkiskos D.Malliaros.
Core Courses: Algorithm, Graph Theory, Advanced Statistics, Discrete Optimization.

Beihang University, Beijing, China   Sept. 2014 — Jun. 2018
B.S. of Mathematics and Applied Mathematics, Sino-French Engineering School   GPA: 3.73/4.00 (Rank 4/111)
Thesis Topic: Website Design and Function Improvement for "Tributerre" - a French start-up.
Major courses in Mathematics, Physics, and General Engineering.

PUBLICATIONS

* denotes equal contribution.

Conference Publications

Revisiting Source-Free Domain Adaptation: a New Perspective via Uncertainty Control.
Gezheng Xu*, Hui Guo*, Li Yi, Charles Ling, Boyu Wang, and Grace Yi.
International Conference on Learning Representations (ICLR), 2025. [Paper] [Code]

ZETA: Leveraging Z-order Curves for Efficient Top-k Attention.
Qiuhao Zeng, Jerry Huang, Peng Lu, Gezheng Xu, Boxing Chen, Charles Ling, and Boyu Wang.
International Conference on Learning Representations (ICLR), 2025. [Paper]

Leveraging Group Classification with Descending Soft Labeling for Deep Imbalanced Regression.
Ruizhi Pu, Gezheng Xu, Ruiyi Fang, Bingkun Bao, Charles Ling, and Boyu Wang.
AAAI Conference on Artificial Intelligence (AAAI), 2025 (oral, acceptance rate ≈ 4.6%). [Paper]

Intersectional Unfairness Discovery.
Gezheng Xu, Qi Chen, Charles Ling, Boyu Wang, Changjian Shui
International Conference on Machine Learning (ICML), 2024. [Paper] [Code]

Generalizing Across Temporal Domains with Koopman Operators.
Qiuhao Zeng, Wei Wang, Fan Zhou, Gezheng Xu, Ruizhi Pu, Changjian Shui, Christian Gagné, Shichun Yang, Charles Ling, Boyu Wang.
AAAI Conference on Artificial Intelligence (AAAI), 2024. [Paper]

When Source-Free Domain Adaptation Meets Learning with Noisy Labels.
Li Yi*, Gezheng Xu*, Pengcheng Xu, Jiaqi Li, Ruizhi Pu, Charles Ling, A. Ian McLeod, Boyu Wang.

International Conference on Learning Representations (ICLR), 2023 (spotlight). [Paper] [Code]

On Learning Fairness and Accuracy on Multiple Subgroups.
Changjian Shui*, Gezheng Xu*, Qi Chen, Jiaqi Li, Charles Ling, Tal Arbel, Boyu Wang, Christian Gagné.
Neural Information Processing Systems (NeurIPS), 2022. [Paper] [Code]

<u>Journal Publications</u>

Unraveling the Mysteries of Label Noise in Source-Free Domain Adaptation: Theory and Practice.
Gezheng Xu*, Li Yi*, Pengcheng Xu, Jiaqi Li, Ruizhi Pu, A. Ian McLeod, Boyu Wang, Charles Ling.
IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI). Accepted. [Paper] [Code]

Gap Minimization for Knowledge Sharing and Transfer.
Boyu Wang, Jorge Mendez, Changjian Shui, Fan Zhou, Di Wu, Gezheng Xu, Christian Gagné, Eric Eaton.
Journal of Machine Learning Research (JMLR), vol. 24, no. 33, pp. 1-57, 2023. [Paper] [Code]

Label Shift Conditioned Hybrid Querying for Deep Active Learning.
Jiaqi Li*, Haojia Kong*, Gezheng Xu, Changjian Shui, Ruizhi Pu, Zhao Kang, Charles X. Ling, Boyu Wang.
Knowledge-Based Systems, vol. 274, 2023. [Paper]

Towards More General Loss and Setting in Unsupervised Domain Adaptation.
Changjian Shui*, Ruizhi Pu*, Gezheng Xu, Jun Wen, Fan Zhou, Christian Gagné, Charles X. Ling, Boyu Wang.
IEEE Transactions on Knowledge and Data Engineering (TKDE), vol. 35, no. 10, pp. 10140-10150, 2023.
[Paper]

External Features Enriched Model for Biomedical Question Answering.
Gezheng Xu, Wenge Rong, Yanmeng Wang, Yuanxin Ouyang, Zhang Xiong.
BMC Bioinform. 22(1): 272 (2021). [Paper] [Code]

EXPERIENCE

University of Western Ontario   London, Canada
Teaching Assistant   Sept. 2021 — Present
  - CS2209: Applied Logic For Computer Science
  - CS3346 & CS9146: Introduction to Artificial Intelligence
  - CS4442 & CS9542: Artificial Intelligence

University of Western Ontario   London, Canada
Research Assistant   Jan. 2021 — Sept. 2021
  - Assisted in Label shift conditioned hybrid querying for deep active learning Project.

Murex   Beijing, China
Integration technical consultant Intern   Dec. 2019 — Oct. 2020
  - Assisted in bank risk control software interface design and workflow integration.

Commercial Aircraft Corporation of China Ltd   Beijing, China
AI department Intern   Jul. 2019 — Sept. 2019
  - Participated in a project called Pilot Intelligence Instruction Manual and investigated some latest methods (e.g., information retrieval and deep learning).
  - Built a demo using BM25 algorithms to realize automatic information retrieval when the pilot was flying and analyzing preliminary data.

HONORS & AWARDS

Graduate Student Teaching Award at Western University for the academic year of 2023-2024.
Excellent Graduate of Beihang University in the year of 2018.
The National Undergraduate Scholarship for the academic year of 2015-2016 (TOP 1%).
The First-class Academic Scholarship for the academic year of 2015-2016.

SKILLS & ACTIVITIES

Programming: Python (TensorFlow, PyTorch, Numpy, Scikit-learn and Pandas), Java, Matlab, C Programming Language, XSL/XSLT.

Languages: Native speaker of Chinese, fluent in English and French.
Leadership: Vice-president of Students Union of École Centrale de Pékin in Beihang University (2016-2017).
Academic Services: Member of the review committee at ICLR 24; NeurIPS 22-24; ICML 22-23; AISTATS 22-23.
Academic Activities: Oral Presentation on ICLR 2023, Kigali, Rwanda.