

Xujiang Zhao, Ph.D.





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Employment History

- 2022 - Present  **Researcher.** NEC Laboratories America.
 *Research on Uncertainty and Reasoning in AI safety for NLP and LLM*
- 2021 Summer  **Research Intern.** NEC Laboratories America.
- 2019 Summer  **Research Intern.** Alibaba Damo Academy.

Education

- 2019 – 2022  **Ph.D. University of Texas at Dallas** in Computer Science.
Advisor: Prof. Feng Chen
Thesis title: *Multidimensional Uncertainty Quantification for Deep Neural Networks.*
- 2014 – 2017  **M.Sc. University of Science and Technology of China** in Computer Science.
- 2010 – 2014  **B.S. Chongqing University** in Civil Engineering.

Research Interests

-  AI Safety: Uncertainty Quantification and Reasoning, Fairness and Equity, Privacy-preserving
-  Machine Learning: Robust ML, Out-of-Distribution Detection and Generalization
-  Natural Language Processing: Reliable Large Language Models, Neural Machine Reasoning
-  Graph Mining: Robust Graph Learning

Research Publications

* : Denote equal contribution; *Students* : Denote students I supervise.

Journal Article

- Junji Jiang, *Chen Ling*, Hongyi Li, Guangji Bai, **Xujiang Zhao**, and Liang Zhao. "*Quantifying Uncertainty in Graph Neural Network Explanations.*" **Frontiers in big Data**, 2024.
- Zhen Guo*, Zelin Wan*, Qisheng Zhang*, **Xujiang Zhao***, Feng Chen, Jin-Hee Cho, *et al.*, "A Survey on Uncertainty Reasoning and Quantification for Decision Making: Belief Theory Meets Deep Learning." **Information Fusion** (Impact IF: 17.5), 2023.

Conference Proceedings

- Chen Ling*, **Xujiang Zhao**, Xuchao Zhang, *et al.* "*Uncertainty Quantification for In-Context Learning of Large Language Models.*" In Proceedings of the 2024 Conference of the North American Chapter of the Association for Computational Linguistics. **NAACL**, 2024.
- Nan Zhang, Yanchi Liu, **Xujiang Zhao**, *et al.*, "Pruning as a Domain-Specific LLM Extractor," in Findings of the Association for Computational Linguistics. **NAACL**, 2024.
- Yijia Xiao, Yiqiao Jin, Yushi Bai, Yue Wu, Xianjun Yang, Xiao Luo, Wenchao Yu, **Xujiang Zhao**, *et al.* "*Large Language Models Can be Good Privacy Protection Learners.*" in Proceedings of the 2024 Conference on Empirical Methods in Natural Language Processing. **EMNLP**, 2024
- Zhao, Xujiang**, Chen Zhao, Feng Chen, Jin-Hee Cho, Wei Hua, and Haifeng Chen. "*3rd Workshop on Uncertainty Reasoning and Quantification in Decision Making (UDM).*" In Proceedings of the 30th ACM SIGKDD Conference on Knowledge Discovery and Data Mining, **KDD**, 2024.

5. Lin, Yujie, Chen Zhao, Minglai Shao, Baoluo Meng, **Xujiang Zhao**, and Haifeng Chen. "Towards counterfactual fairness-aware domain generalization in changing environments." **IJCAI**, 2024.
6. Lin, Yujie, Chen Zhao, Minglai Shao, **Xujiang Zhao**, and Haifeng Chen. "Adaptation Speed Analysis for Fairness-aware Causal Models." In Proceedings of the 32nd ACM International Conference on Information and Knowledge Management, **CIKM**, 2023.
7. Shi, Weili, Xueying Yang, **Xujiang Zhao**, Haifeng Chen, Zhiqiang Tao, and Sheng Li. "Calibrate Graph Neural Networks under Out-of-Distribution Nodes via Deep Q-learning." In Proceedings of the 32nd ACM International Conference on Information and Knowledge Management, **CIKM**, 2023.
8. Chen Ling, Xuchao Zhang, **Xujiang Zhao**, et al., "Open-Ended Commonsense Reasoning with Unrestricted Answer Candidates," in Findings of the Association for Computational Linguistics: **EMNLP**, 2023
9. **Xujiang Zhao**, Xuchao Zhang, Chen Zhao, etc. "Multi-Label Temporal Evidential Neural Networks for Early Event Detection." In IEEE International Conference on Acoustics, Speech and Signal Processing, **ICASSP**, 2023.
10. **Zhao, Xujiang**, Chen Zhao, Feng Chen, Jin-Hee Cho, and Haifeng Chen. "2nd Workshop on Uncertainty Reasoning and Quantification in Decision Making (UDM)." In Proceedings of the 30th ACM SIGKDD Conference on Knowledge Discovery and Data Mining, **KDD**, 2023.
11. **Xujiang Zhao***, Krishnateja Killamsetty*, Rishabh Iyer, Feng Chen. "How Out-of-Distribution Data Hurts Semi-Supervised Learning." In 2022 IEEE International Conference on Data Mining, **ICDM**, 2022
12. Xueying Yang, Jiamian Wang, **Xujiang Zhao**, Zhiqiang Tao. "Calibrate Automated Graph Neural Network via Hyperparameter Uncertainty." In Proceedings of the 31st ACM International Conference on Information and Knowledge Management, **CIKM**, 2022.
13. **Xujiang Zhao**, Xuchao Zhang, Wei Cheng, et al.. "SEED: Sound Event Early Detection via Evidential Uncertainty". In IEEE International Conference on Acoustics, Speech and Signal Processing, **ICASSP**, 2022.
14. Haoliang Wang, Chen Zhao, **Xujiang Zhao**, Feng Chen. "Layer Adaptive Deep Neural Networks for Out-of-distribution Detection". In Pacific-Asia Conference on Knowledge Discovery and Data Mining, **PAKDD**, 2022.
15. Krishnateja Killamsetty, **Xujiang Zhao**, Feng Chen, Rishabh Iyer. "RETRIEVE: Corset Selection for Efficient and Robust Semi-Supervised Learning". In Advances in neural information processing systems, **NeurIPS**, 2021.
16. Liyan Xu, Xuchao Zhang, **Xujiang Zhao**, et al., "Boosting Cross-Lingual Transfer via Self-Learning with Uncertainty Estimation". In Proceedings of 2021 Conference on Empirical Methods in Natural Language Processing, **EMNLP**, 2021.
17. Zhuoyi Wang, Chen Zhao, Yuqiao Chen, Hemeng Tao, Yu Lin, **Xujiang Zhao**, et al., "CLEAR: Contrastive-Prototype Learning with Drift Estimation for Resource Constrained Stream Mining." In Proceeding of TheWebConf 2021, **WWW**, 2021.
18. Yibo Hu, Yuzhe Ou, **Xujiang Zhao**, Feng Chen. "Multidimensional Uncertainty-Aware Evidential Neural Networks." In Proceeding of the Thirty-fifth AAAI Conference on Artificial Intelligence, **AAAI**, 2021.
19. **Xujiang Zhao**, Feng Chen, Shu Hu, Jin-Hee Cho. "Uncertainty Aware Semi-Supervised Learning on Graph Data." In Advances in neural information processing systems, **NeurIPS**, 2020, (**Spotlight; Acceptance rate: 4%**).
20. Weishi Shi, **Xujiang Zhao**, Qi Yu, Feng Chen. "Multifaceted Uncertainty Estimation for Label-Efficient Deep Learning." In Advances in neural information processing systems, **NeurIPS**, 2020.

21. Adil Alim, **Xujiang Zhao**, Jin-Hee Cho, Feng Chen. "Uncertainty-Aware Opinion Inference Under Adversarial Attacks." In 2019 IEEE International Conference on Big Data, **Big Data**, 2019.
22. **Xujiang Zhao**, Shu Hu, Jin-Hee Cho, and Feng Chen. "Uncertainty-based Decision Making using Deep Reinforcement Learning." In 2019 22nd International Conference on Information Fusion , **FUSION**, 2019.
23. **Xujiang Zhao**, Feng Chen, and Jin-Hee Cho. "Deep Learning for Predicting Dynamic Uncertain Opinions in Network Data." In 2018 IEEE International Conference on Big Data, **Big Data** 2018.
24. **Xujiang Zhao**, Feng Chen, and Jin-Hee Cho. "Deep Learning based Scalable Inference of Uncertain Opinions." In 2018 IEEE International Conference on Data Mining, **ICDM** 2018. (Full paper; Acceptance rate: 8.86%)
25. **Xujiang Zhao**, Feng Chen, and Jin-Hee Cho. "Uncertainty-Based Opinion Inference on Network Data Using Graph Convolutional Neural Networks." In IEEE Military Communications Conference , **MILCOM**, 2018.



Preprint

1. Lin, Minhua, Zhengzhang Chen, Yanchi Liu, **Xujiang Zhao**, Zongyu Wu, Junxiang Wang, Xiang Zhang, Suhang Wang, and Haifeng Chen. "Decoding Time Series with LLMs: A Multi-Agent Framework for Cross-Domain Annotation." arXiv preprint arXiv:2410.17462 (2024).
2. Chenyuan Deng, Zhengzhang Chen, **Xujiang Zhao**, et al., "RIO-CPD: A Riemannian Geometric Method for Correlation-Aware Online Change Point Detection, ", Presented at the **ICML 2024 Workshop** on Geometry-grounded Representation Learning and Generative Modeling (GRaM), 2024
3. Chen Ling, **Xujiang Zhao**, Xuchao Zhang, et al., "Improving Open Information Extraction with Large Language Models: A Study on Demonstration Uncertainty", Presented at the **ICLR 2024 Workshop** on Reliable and Responsible Foundation Models, 2024
4. Chen Ling, **Xujiang Zhao**, Jiaying Lu, et al., "Domain Specialization as The Key to Make Large Language Models Disruptive: A Comprehensive Survey", 2023. arXiv: 2305.18703.
5. Tanmoy Chowdhury, Chen Ling, Xujiang Zhang, et al., Knowledge-enhanced neural machine reasoning: A review, 2023, arXiv: 2302.02093.
6. Yang, Xianjun, Wei Cheng, **Xujiang Zhao**, et al., "Dynamic Prompting: A Unified Framework for Prompt Tuning." arXiv preprint arXiv:2303.02909 (2023).
7. Lin, Yujie, Chen Zhao, Minglai Shao, Baoluo Meng, **Xujiang Zhao**, and Haifeng Chen. "Pursuing counterfactual fairness via sequential autoencoder across domains." arXiv preprint arXiv:2309.13005 (2023).
8. Ruomeng Ding, **Xujiang Zhao**, Chen Zhao, Minglai Shao, "Detecting Multi-Label Out-of-Distribution Nodes on Graphs", Presented at the **AAAI 2023 Workshop** on Uncertainty Reasoning and Quantification in Decision Making, 2023
9. **Xujiang Zhao**, Yuzhe. Ou, Lance. Kaplan, Feng. Chen, and Jin-Hee. Cho. "Quantifying Classification Uncertainty using Regularized Evidential Neural Networks." accepted to **AAAI 2019 Fall Symposium Series**, Artificial Intelligence in Government and Public Sector.


Invited Talks

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| Feb 2025 | ■ | Uncertainty Quantification in LLMs, Seminar Talk at Brigham Young University. |
| Dec 2024 | ■ | Uncertainty Quantification in LLMs, Keynote at IEEE BigData 2024 RobustMLDS Workshop. |

Invited Talks (continued)



- Dec 2020  Uncertainty Aware Semi-Supervised Learning on Graph Data, **Spotlight Presentation** at NeurIPS 2020.
- Nov 2018  Deep Learning-based Scalable Inference of Uncertain Opinions, **Keynote** at Institute of Information Engineering, Chinese Academy of Sciences (CAS).

Teaching Experience





- Guest Lecturer  CS7301 Recent Advances in Computing, 2020 Spring
-  CS6364 Artificial Intelligence, 2020 Fall, 2021 Fall

Mentoring Experience

Thesis Committee




- Chen Ling  Ph.D. from *Emory University*, 2024
-  EMNLP 2023, ICLR2024, NAACL 2024, Frontiers in Big Data 2024, LLM survey paper

Interns






- Qiwei Zhao  Ph.D. student from *University of North Carolina at Chapel Hill*, 2024 Summer
-  NAACL 2025 (Submitted), TMLR (Submitted)
- Ruomeng Ding  Master student from *Georgia Institute of Technology*, 2023 Summer
-  AAAI 2023, SDM 2025 (Submitted)

Professional Activities







Program Chair

- 2024  3rd KDD Workshop on Uncertainty Reasoning and Quantification in Decision Making.
- 2023  2nd KDD Workshop on Uncertainty Reasoning and Quantification in Decision Making.
-  1st AAAI Workshop on Uncertainty Reasoning and Quantification in Decision Making.




Journal Reviewer

-  IEEE Transactions on Knowledge and Data Engineering
-  IEEE Transactions on Services Computing
-  ACM Transactions on Knowledge Discovery from Data
-  Frontiers in Big Data
-  Neurocomputing








Program Committee Member / Reviewer

- 2022-2025  International Conference on Learning Representations (ICLR)
- 2022-2024  International Conference on Machine Learning (ICML)
- 2021-2024  Conference on Neural Information Processing Systems (NeurIPS)
- 2022-2025  AAAI Conference on Artificial Intelligence (AAAI)
- 2020-2024  ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD)
- 2022-2024  Association for Computational Linguistics (ACL) Rolling Review (ARR)

Professional Activities (continued)

- 2022  SIAM International Conference on Data Mining (SDM)
- 2022-2023  IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)
- 2022  ACM International Conference on Web Search and Data Mining (WSDM)

HONORS & Awards

- 2024  Our survey paper on Domain Specialization of LLMs is honorably mentioned by The 2024 Economic Report of the President from the White House.
- 2020  NeurIPS 2020 Student Travel Award.
- 2018  ICDM 2018 Student Travel Award.
- 2014  Outstanding Graduate Award of Chongqing University.
  First-class College Scholarship at Chongqing University.
- 2013  National Scholarship.
- 2012  First Prize in The National Drawing Skills and Advanced Technology .