

CHEN ZHAO

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PERSONAL INFORMATION

Title: Assistant Professor
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RESEARCH OF INTERESTS

- ◇ Fairness-Aware Machine Learning
- ◇ Uncertainty Quantification
- ◇ Domain Generalization
- ◇ Graph Learning
- ◇ Causal Learning and Structural Causal Mechanisms

EDUCATION

Ph.D. in Computer Science 2021
The University of Texas at Dallas *Richardson, Texas*
Department of Computer Science
Dissertation: Fairness-Aware Multi-Task and Meta-Learning
Advisor: Feng Chen, Ph.D.

M.S. in Computer Science 2016
University at Albany - SUNY *Albany, New York*
Department of Computer Science

M.S. in Biomedical Science 2016
Albany Medical College *Albany, New York*
Department of Molecular and Cellular Physiology

PROFESSIONAL APPOINTMENTS

Assistant Professor (Tenure-Track) 2023 – Present
Baylor University, Waco, Texas
Department of Computer Science

Adjunct Lecturer 2022 – Present
University at Albany - SUNY, Albany, New York
Department of Information Sciences and Technology

Senior Research and Development Engineer 2021 – 2023
Kitware Inc., Clifton Park, New York
Computer Vision Team

Research/Teaching Assistant 2019 – 2021
University of Texas at Dallas, Richardson, Texas
Department of Computer Science

PUBLICATIONS

Peer-Reviewed Conference Publications

- [1] [CIKM'23] Yujie Lin, **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, 2023. (full paper, oral, acceptance rate: 24%)
- [2] [CIKM'23] Dong Li, Wenjun Wang, Minglai Shao and **Chen Zhao**. Contrastive Representation Learning Based on Multiple Node-centered Subgraphs. In Proceedings of the 32nd ACM International Conference on Information and Knowledge Management, 2023. (full paper, oral, acceptance rate: 24%)
- [3] [KDD'23] **Chen Zhao***, Feng Mi*, Xintao Wu, Kai Jiang, Latifur Khan, Christan Earl Grant, Feng Chen. Towards Fair Disentangled Online Learning for Changing Environments. In Proceedings of the 29th ACM SIGKDD Conference on Knowledge Discovery and Data Mining, 2023. (research track, acceptance rate: 22.1%)
- [4] [CVPR'23] **Chen Zhao**, Dawei Du, Anthony Hoogs, Christopher Funk. Open Set Action Recognition via Multi-Label Evidential Learning. In Proceedings of the 34th IEEE/CVF Conference on Computer Vision and Pattern Recognition.
- [5] [ICASSP'23] Xujiang Zhao, Xuchao Zhang, **Chen Zhao**, Jin-Hee Cho, Lance Kaplan, Dong Hyun Jeong, Audun Jøsang, Haifeng Chen, Feng Chen. Multi-Label Temporal Evidential Neural Networks for Early Event Detection. In Proceedings of the IEEE International Conference on Acoustics, Speech and Signal Processing, 2023.
- [6] [KDD'22] **Chen Zhao***, Feng Mi*, Xintao Wu, Kai Jiang, Latifur Khan, Feng Chen. Adaptive Fairness-Aware Online Meta-Learning for Changing Environments. In Proceedings of the 28th ACM SIGKDD Conference on Knowledge Discovery and Data Mining, 2022. (research track, acceptance rate: 14.9%)
- [7] [PAKDD'22] Haoliang Wang, **Chen Zhao**, Xujiang Zhao, Feng Chen. Layer Adaptive Deep Neural Networks for Out-of-distribution Detection. In Proceedings of the 26th Pacific-Asia Conference on Knowledge Discovery and Data Mining, 2022.
- [8] [AAAI'22] Krishnateja Killamsetty, Changbin Li, **Chen Zhao**, Rishabh Krishnan Iyer, Feng Chen. A Nested Bi-level Optimization Framework for Robust Few-Shot Learning. In Proceedings of AAAI Conference on Artificial Intelligence, 2022.
- [9] [KDD'21] **Chen Zhao**, Feng Chen, Bhavani Thuraisingham. Fairness-Aware Online Meta-learning. In Proceedings of the 27th ACM SIGKDD Conference on Knowledge Discovery and Data Mining, 2021. (research track, acceptance rate: 15.4%)
- [10] [ICBC'21] Feng Mi, Zhuoyi Wang, **Chen Zhao**, Jinghui Guo, Fawaz Ahmed, Latifur Khan. VSCL: Automating Vulnerability Detection in Smart Contracts with Deep Learning. In Proceedings of the IEEE International Conference on Blockchain and Cryptocurrency, 2021.
- [11] [WWW'21] Zhuoyi Wang, Yuqiao Chen, **Chen Zhao**, Hemeng Tao, Yu Lin, Xujiang Zhao, Yigong Wang and Latifur Khan. CLEAR: Contrastive-Prototype Learning with Drift Estimation for Resource Constrained Stream Mining. In Proceedings of the ACM International World Wide Web Conference, 2021.
- [12] [ICDM'20] **Chen Zhao**, Feng Chen, Zhuoyi Wang, Latifur Khan. A Primal-Dual Subgradient Approach for Fair Meta Learning. In Proceedings of the IEEE International Conference on Data Mining, 2020. (regular paper, acceptance rate: 9.8%)
- [13] [ICKG'20] **Chen Zhao**, Changbin Li, Jincheng Li, Feng Chen. Fair Meta-Learning for Few-Shot Classification. In Proceedings of the IEEE International Conference on Knowledge Graph, 2020.

- [14] [ICKG'20] **Chen Zhao**, Feng Chen. Unfairness Discovery and Prevention for Few-Shot Regression. In Proceedings of the IEEE International Conference on Knowledge Graph, 2020.
- [15] [ICDM'19] **Chen Zhao**, Feng Chen. Rank-Based Multi-task Learning for Fair Regression. In Proceedings of the IEEE International Conference on Data Mining (ICDM), 2019. (regular paper, acceptance rate: 9.08%)

Peer-Reviewed Workshop Publications

- [1] [NeurIPS'23-W] Yujie Lin, **Chen Zhao**, Minglai Shao, Xujiang Zhao, Baoluo Meng, Haifeng Chen. Achieving Counterfactual Fairness in Changing Environments via Sequential Autoencoder. NeurIPS Workshop on Algorithmic Fairness through the Lens of Time (AFT), 2023.
- [2] [KDD'23-W] Yujie Lin, **Chen Zhao**, Minglai Shao, Xujiang Zhao, Haifeng Chen. Adaptation Speed of Causal Models Concerning Fairness. KDD Workshop on Ethical Artificial Intelligence: Methods and Applications (EAI), 2023.
- [3] [KDD'23-W] Dong Li, **Chen Zhao**, Minglai Shao, Xujiang Zhao. Learning Fair and Domain Generalization Representation. KDD Workshop on Ethical Artificial Intelligence: Methods and Applications (EAI), 2023.
- [4] [AAAI'23-W] Ruomeng Ding, Xujiang Zhao, **Chen Zhao**, Minglai Shao. Detecting Multi-Label Out-of-Distribution Nodes on Graphs. AAAI Workshop on Uncertainty Reasoning and Quantification in Decision Making (UDM), 2023.
- [5] [NeurIPS'21-W] Krishnateja Killamsetty, Changbin Li, **Chen Zhao**, Rishabh Krishnan Iyer, Feng Chen. A Reweighted Meta Learning Framework for Robust Few Shot Learning. NeurIPS Workshop on Meta-Learning (MetaLearn), 2021.

Peer-Reviewed Journal Publications

- [1] [TKDD'24] **Chen Zhao**, Feng Mi, Xintao Wu, Kai Jiang, Latifur Khan, Feng Chen. Dynamic Environment Responsive Online Meta-Learning with Fairness Awareness. The ACM Transactions on Knowledge Discovery from Data, 2024.
- [2] [Development'17] Jingjing Li, Lianjie Miao, **Chen Zhao**, Wasay Mohiuddin Shaikh Qureshi, David Shieh, Hua Guo, Yangyang Lu, Saiyang Hu, Alice Huang, Lu Zhang, Chen-leng Cai, Leo Q. Wan, Hongbo Xin, Peter Vincent, Harold A. Singer, Yi Zheng, Ondine Cleaver, Zhen-Chuan Fan, Mingfu Wu. CDC42 is required for epicardial and pro-epicardial development by mediating FGF receptor trafficking to plasma membrane. Development 144.9 (2017): 1635-1647.
- [3] [Development'14] **Chen Zhao**, Hua Guo, Jingjing Li, Thomas Myint, William Pittman, Le Yang, Weimin Zhong, Robert J. Schwartz, John J. Schwarz, Harold A. Singer, Michelle D. Tallquist, Mingfu Wu. Numb family proteins are essential for cardiac morphogenesis and progenitor differentiation. Development 141.2 (2014): 281-295.

ArXiv Preprints

- [1] **Chen Zhao**, Kai Jiang, Xintao Wu, Haoliang Wang, Latifur Khan, Christan Grant, Feng Chen. Fairness-Aware Domain Generalization under Covariate and Dependence Shifts. ArXiv preprint, 2311.13816, 2023
- [2] Yujie Lin, **Chen Zhao**, Minglai Shao, Baoluo Meng, Xujiang Zhao, Haifeng Chen. Pursuing Counterfactual Fairness via Sequential Autoencoder Across Domains. ArXiv preprint, 2309.13005, 2023.
- [3] Haoliang Wang, **Chen Zhao**, Yunhui Guo, Kai Jiang, Feng Chen. Towards Effective Semantic OOD Detection in Unseen Domains: A Domain Generalization Perspective. ArXiv preprint, 2309.10209, 2023.
- [4] Feng Mi, **Chen Zhao**, Zhuoyi Wang, Sadaf MD Halim, Xiaodi Li, Zhouxiang Wu, Latifur Khan, Bhavani Thuraisingham. An Automated Vulnerability Detection Framework for Smart Contracts. ArXiv preprint, 2301.08824, 2023.

- [5] Dennis Melamed, Cameron Johnson, **Chen Zhao**, Russell Blue, Philip Morrone, Anthony Hoogs, Brian Clipp. xFBD: Focused Building Damage Dataset and Analysis. ArXiv preprint, 2212.13876, 2022.
- [6] **Chen Zhao**, Feng Chen, Zhuoyi Wang, Latifur Khan. PDFM: A Primal-Dual Fairness-Aware Framework for Meta-learning. ArXiv preprint, 2009.12675v2, 2020.

ACADEMIC SERVICES

Conference PC Member and Reviewer

- 2024:
 - ACM Conference on Knowledge Discovery and Data Mining (KDD), Research Track
 - International Conference on Machine Learning (ICML)
 - International Joint Conference on Artificial Intelligence (IJCAI)
 - The Web Conference (WWW)
 - Pacific-Asia Conference on Knowledge Discovery and Data Mining (PAKDD)
 - AAAI Conference on Artificial Intelligence (AAAI)
 - IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP)
 - The International Conference on Learning Representations (ICLR)
 - International Conference on Artificial Intelligence and Statistics (AISTATS)
 - SIAM International Conference on Data Mining (SDM)
- 2023:
 - The Conference on Neural Information Processing Systems (NeurIPS)
 - European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases (ECML-PKDD)
 - International Joint Conference on Artificial Intelligence (IJCAI)
 - IEEE/CVF Winter Conference on Applications of Computer Vision (WACV)
 - ACM International Conference on Information and Knowledge Management (CIKM)
 - ACM Conference on Knowledge Discovery and Data Mining (KDD), Research Track
 - ACM Conference on Knowledge Discovery and Data Mining (KDD), Applied Science Track
 - IEEE International Conference on Big Data (BigData)
 - IEEE International Conference on Data Mining (ICDM)
 - International Conference on Intelligent Computing (ICIC)
 - International Conference on Networks, Communication and Information Technology (NCIT)
- 2022:
 - ACM International Conference on Information and Knowledge Management (CIKM)
 - ACM Conference on Knowledge Discovery and Data Mining (KDD), Research Track
 - ACM Conference on Knowledge Discovery and Data Mining (KDD), Applied Science Track
 - AAAI Conference on Artificial Intelligence (AAAI)

- SIAM International Conference on Data Mining (SDM)
- International Conference on Web Search and Data Mining (WSDM)
- IEEE International Conference on Big Data (BigData)
- IEEE International Conference on Data Mining (ICDM)
- International Congress on Blockchain and Applications (BLOCKCHAIN)
- International Conference on Automated Machine Learning (AutoML)
- 2021:
 - ACM Conference on Knowledge Discovery and Data Mining (KDD), Research Track
 - ACM Conference on Knowledge Discovery and Data Mining (KDD), Applied Science Track
 - IEEE International Conference on Big Data (BigData)
 - IEEE International Conference on Data Mining (ICDM)
 - International Conference on Artificial Intelligence and Statistics (AISTATS)
- 2020:
 - ACM Conference on Knowledge Discovery and Data Mining (KDD), Research Track
 - ACM Conference on Knowledge Discovery and Data Mining (KDD), Applied Science Track

Journal Reviewer

- 2024:
 - Journal of Frontiers in Big Data
- 2023:
 - Journal of Data-centric Machine Learning Research (DMLR)
 - ACM Transactions on Knowledge Discovery from Data (TKDD)
 - Journal of Frontiers in Big Data
- 2022:
 - Journal of Frontiers in Big Data
 - Journal of Knowledge-based Systems (KBS)
 - Journal of IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)
 - Journal of Springer Machine Learning (MACH)
 - Journal of IEEE Transactions on Software Engineering (TSE)
 - Environment and Planning B: Urban Analytics and City Science
- 2020:
 - Journal of Big Data Research

Workshop Reviewer

- 2023:
 - NeurIPS Workshop on Diffusion Models

- ICML Workshop on Structured Probabilistic Inference & Generative Modeling (SPIGM)
- WACV Workshop on Dealing with Novelty in Open Worlds (DNOW)
- 2022:
 - WACV Workshop on Dealing with Novelty in Open Worlds (DNOW)
 - AutoML Workshop Late-Breaking
 - KDD Workshop on Ethical Artificial Intelligence (EAI)
- 2021:
 - NeurIPS Workshop on Meta-Learning

Other Academic Services

- 2024:
 - Editorial Member, American Journal of Artificial Intelligence
 - **Review Panelist**, National Science Foundation (NSF)
 - Co-PI, Center for Responsible artificial intelligence and Governance (CRaiG), supported by NSF Industry-University Collaborative Research Centers Program (IUCRC)
 - **Organizer**, The 3rd Southwest Data Science Conference
 - Editorial Board Member, American Journal of Data Mining and Knowledge Discovery (AJDMKD)
- 2023:
 - **Review Panelist**, National Science Foundation (NSF)
 - **Session Chair** for Applied Data Science, ACM Conference on Knowledge Discovery and Data Mining (KDD)
 - **Organizer and Chair**, 2nd Workshop on Ethical Artificial Intelligence (EAI-KDD)
 - **Organizer and Chair**, 2nd Workshops on Uncertainty Reasoning and Quantification in Decision Making (UDM-AAAI)
 - **Organizer and Chair**, 1st Workshops on Uncertainty Reasoning and Quantification in Decision Making (UDM-AAAI)
 - Editorial Board Member, American Journal of Data Mining and Knowledge Discovery (AJDMKD)
- 2022:
 - **Organizer and Chair**, 1st Workshop on Ethical Artificial Intelligence (EAI-KDD)
 - Mentor for KDD Undergraduate Consortium, ACM Conference on Knowledge Discovery and Data Mining (KDD)
 - Editorial Board Member, American Journal of Data Mining and Knowledge Discovery (AJDMKD)

ACADEMIC TALKS

Invited Talks

- 2023:
 - Towards Algorithmic Fairness under Distribution Shifts (10/2023)

- * Data Science Seminar, Baylor University, Waco TX, USA.
- * Host: Dr. Henry Han
- Towards Fair Disentangled Online Learning for Changing Environments. (07/2023)
 - * AI TIME, Beijing, China.
 - * Host: Qing Qi
- Applications of Machine Learning in Social Science. (05/2023)
 - * Institute of National Politics, Yunnan University, Yunnan, China.
 - * Host: Dr. Taihui Guo
- Applications of Machine Learning in Social Science. (05/2023)
 - * Institute of National Politics, Yunnan University, Yunnan, China.
 - * Host: Dr. Taihui Guo
- Fairness-aware Machine Learning for Multi-task Learning and Domain Generalization. (05/2023)
 - * School of Information Science and Engineering, Yunnan University, Yunnan, China.
 - * Host: Dr. Kun Yue
- Fairness-aware Machine Learning for Multi-task Learning and Domain Generalization. (05/2023)
 - * School of Business Administration, Southwestern University of Finance and Economics, Chengdu, China.
 - * Host: Dr. Jingjing Tang and Dr. Shan Xu
- Fairness-aware Machine Learning for Multi-task Learning and Domain Generalization. (05/2023)
 - * AI TIME, Beijing, China.
 - * Host: Qing Qi
- Fairness-aware Machine Learning for Multi-task Learning and Domain Generalization. (04/2023)
 - * Department of Electronics and Computer Engineering Technology, Indiana State University, Terre Haute, IN, USA.
 - * Host: Dr. Xiaolong Li
- Fairness-aware Machine Learning for Multi-task Learning and Domain Generalization. (04/2023)
 - * Department of Computer Science, SUNY at Albany, Albany, NY, USA.
 - * Host: Dr. Aweek Dutta
- Fairness-aware Machine Learning for Multi-task Learning and Domain Generalization. (03/2023)
 - * Department of Computer Science, Tennessee State University, Nashville, TN, USA.
 - * Host: Dr. Tamara Rogers
- Fairness-aware Machine Learning for Multi-task Learning and Domain Generalization. (03/2023)
 - * Department of Computer Science, Millersville University, Millersville PA, USA.
 - * Host: Dr. Jingnan Xie
- Fairness-aware Machine Learning for Multi-task Learning and Domain Generalization. (03/2023)

- * Department of Computer Science, Baylor University, Waco TX, USA.
- * Host: Dr. Henry Han
- Fairness-aware Machine Learning for Multi-task Learning and Domain Generalization. (02/2023)
 - * Department of Computer Science and Information Science, University of Mississippi, Oxford MS, USA.
 - * Host: Dr. ByungHyun Jang
- Fairness-aware Machine Learning for Multi-task Learning and Domain Generalization. (01/2023)
 - * Department of Computer Science, University of Alabama at Birmingham, Birmingham AL, USA.
 - * Host: Dr. Chengcui Zhang
- 2022:
 - Fairness-aware Machine Learning for Multi-task Learning and Domain Generalization. (12/2022)
 - * Department of Computer Science, University of Central Missouri, Warrensburg CO, USA.
 - * Host: Dr. Belinda Copus
 - Fairness-aware Machine Learning for Multi-task Learning and Domain Generalization. (11/2022)
 - * Department of Computer Science, East Carolina University, Greenville NC, USA.
 - * Host: Dr. Nic Herndon
 - Fairness-aware Machine Learning for Multi-task Learning. (11/2022)
 - * Department of Computer Science, The University of Texas at Dallas, Richardson TX, USA.
 - * Host: Dr. Feng Chen
 - Fairness-Aware Domain Generalization. (10/2022)
 - * Data Science and System Security team, NEC America Laboratory, Princeton NJ, USA.
 - * Host: Dr. Haifeng Chen
 - Adaptive Fairness-Aware Online Meta-Learning for Changing Environments. (07/2022)
 - * AI TIME, Beijing, China.
 - * Host: Qing Qi
 - Fairness-Aware Online Meta-Learning. (05/2022)
 - * Smart Society and Big Data Intelligence Lab, Tianjin University, Tianjin, China.
 - * Host: Dr. Minglai Shao
- 2021:
 - Fairness-Aware Online Meta-Learning. (11/2021)
 - * AI TIME, Beijing, China.
 - * Host: Qing Qi
- 2015:
 - Success to Become a Medical Doctor and Biologist. (04/2015)

* Shaker High School, Latham NY, USA.

* Host: Alan Dai

Other Talks

- 08/2023: ACM Conference on Knowledge Discovery and Data Mining, Long Beach, California, USA (oral and poster).
- 06/2023: IEEE/CVF Conference on Computer Vision and Pattern Recognition, Vancouver, Canada (poster).
- 08/2022: ACM Conference on Knowledge Discovery and Data Mining, Washington D.C., USA (oral and poster).
- 08/2021: ACM Conference on Knowledge Discovery and Data Mining, Singapore (oral and poster).
- 11/2020: IEEE International Conference on Data Mining, Sorrento, Italy (oral).
- 08/2020: IEEE International Conference on Knowledge Graph, Nanjing, China (two oral talks).
- 11/2019: IEEE International Conference on Data Mining, Beijing, China (oral).
- 05/2015: Weinstein Cardiovascular Development Conference, Boston MA, USA (poster).
- 10/2013: North American Vascular Biology Organization (NAVBO) Conference, Hyannis MA, USA (poster).

DEPARTMENT SERVICES

- 2023:
 - Engagement Committee, Department of Computer Science, Baylor University
 - Graduate Committee, Department of Computer Science, Baylor University

MENTORSHIP

Thesis Committee

- Alessandra Rodriguez, M.S. in Computer Science, Baylor University, 2023
- Shaif Chowdhury, Ph.D. in Computer Science, Baylor University, 2024 (expected)
- Feng Mi, Ph.D. student in Computer Science, The University of Texas at Dallas, 2024 (expected)

Graduate Students Supervised

- Haoliang Wang, Ph.D. student in Computer Science, The University of Texas at Dallas
- Kai Jiang, Ph.D. student in Computer Science, The University of Texas at Dallas
- Kangshuo Li, Ph.D. student in Computer Science, The University of Texas at Dallas
- Sadaf Md Halim, Ph.D. student in Computer Science, The University of Texas at Dallas
- Yujie Lin, M.S. student in Computer Science, Tianjin University, China
- Dong Li, M.S. student in Computer Science, Tianjin University, China
- Ruomeng Ding, M.S. student in Computer Science, Tianjin University, China
- Qin Tian, Ph.D. student in Computer Science, Tianjin University, China
- Xiaoxu Ma, M.S. student in Computer Science, Tianjin University, China
- Yumeng Lin, M.S. student in Computer Science, Tianjin University, China

TEACHING EXPERIENCE

Baylor University

- DSC 4320 - Data Visualization
 - Spring 2024
- DSC 2350 - Discrete Structures for Data Science
 - Fall 2023

University at Albany - SUNY

- INF 108 - Programming for Problem Solving (Python)
 - Fall 2023, Spring 2023, Spring 2022
- INF 428/528 - Analysis, Visualization, and Prediction in Analytics
 - Spring 2024, Fall 2022, Spring 2022
- ICSI 500 - Operating Systems
 - Spring 2019, Fall 2018, Spring 2018
- ICSI 518 - Software Engineering
 - Fall 2017
- ICSI 201 - Introduction of Computer Science
 - Fall 2016, Spring 2016, Fall 2015

University of Texas at Dallas

- CS 6385 - Algorithmic Aspects of Telecommunication Networks
 - Summer 2021
- CS 4365 - Artificial Intelligence
 - Summer 2021
- CS 1136 - Computer Science Laboratory
 - Summer 2021
- CS 6364 - Artificial Intelligence
 - Fall 2019
- CS 6301 - Convolutional Neural Network
 - Fall 2019

Albany Medical College

- MCP 608 - Cardiovascular Physiology
 - Spring 2015, Spring 2014
- MCP 609 - Respiratory and Renal Physiology
 - Spring 2015, Spring 2014

AWARDS AND HONORS

- Baylor Startup Funds.
- UT Dallas Dissertation Research Award, Duration: 05/2021 - 05/2022, **\$1,224**.
- Student Travel Award, IEEE International Conference on Data Mining (ICDM), U.S. National Science Foundation, 2020.
- First Prize in the 11th “Challenge Cup” National Undergraduate Academic Science and Technology, Tianjin Municipal Education Commission, Top 5% among all works in Tianjin City, 2011.