

Chia-Yuan (Scott) Chang

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Research Interests

- **Large Language Models** [1]: Extending context window of LLMs without fine-tuning.
- **Generative Models** [2]: Developing machine learning solutions based on data generation.
- **Domain Generalization** [4]: Model-agnostic frameworks for domain generalization.
- **Fairness in Healthcare** [8]: Fair machine learning algorithms for healthcare tasks.

Education

Texas A&M University

Ph.D. in Computer Science (Advisors: Dr. Na Zou and Dr. Xia Hu)

College Station, TX

Aug. 2021 – Expected May 2025

National Cheng Kung University

Master of Science in Structures and Materials

Tainan, Taiwan

Sep. 2013 – Jun. 2015

Publications

- [1] H. Jin, X. Han, J. Yang, Z. Jiang, Z. Liu, **C.Y. Chang**, H. Chen, and X. Hu, “LLM Maybe LongLM: Self-Extend LLM Context Window Without Tuning,” arXiv ([ICML’24 \(submitted\)](#))
- [2] **C.Y. Chang**, Y.N. Chuang, Z. Jiang, K.H. Lai, A. Jiang, and N. Zou, “CODA: Temporal Domain Generalization via Concept Drift Simulator,” arXiv ([ICML’24 \(submitted\)](#))
- [3] H. Jin, X. Han, J. Yang, Z. Jiang, **C.Y. Chang**, and X. Hu, “GrowLength: Accelerating LLMs Pretraining by Progressively Growing Training Length,” arXiv ([ICML’24 \(submitted\)](#))
- [4] **C.Y. Chang**, Y.N. Chuang, G. Wang, M. Du, and N. Zou, “DISPEL: Domain Generalization via Domain-Specific Liberating,” arXiv’23 ([ICML’24 \(submitted\)](#))
- [5] Y. Wang, X. Han, **C.Y. Chang**, D. Zha, U. Braga-Neto, and X. Hu, “Auto-PINN: Understanding and Optimizing Physics-Informed Neural Architecture,” Thirty-seventh Conference on Neural Information Processing Systems ([NeurIPS’23 AI4Science](#))
- [6] Y.N. Chuang, G. Wang, **C.Y. Chang**, et al., and X. Hu, “DiscoverPath: A Knowledge Refinement and Retrieval System for Interdisciplinarity on Biomedical Research,” ACM International Conference on Information and Knowledge Management ([CIKM’23 Demo](#))
- [7] **C.Y. Chang**, Y.N. Chuang, K.H. Lai, X. Han, X. Hu, N. Zou, “Towards Assumption-free Bias Mitigation,” arXiv ([IJCAI’24 \(submitted\)](#))
- [8] **C.Y. Chang**, J. Yuan, S. Ding, Q. Tan, K. Zhang, X. Jiang, X. Hu, and N. Zou, “Towards Fair Patient-Trial Matching via Patient-Criterion Level Fairness Constraint,” AMIA 2023 Annual Symposium ([AMIA’23](#))
- [9] S. Ding, Q. Tan, **C.Y. Chang**, et al., and X. Hu, “Multi-Task Learning for Post-transplant Cause of Death Analysis: A Case Study on Liver Transplant,” AMIA 2023 Annual Symposium ([AMIA’23](#))
- [10] Y.N. Chuang, K.H. Lai, R. Tang, M. Du, **C.Y. Chang**, N. Zou, X. Hu, “Mitigating Relational Bias on Knowledge Graphs,” arXiv ([Preprint](#))
- [11] **C.Y. Chang***, C.W. Lu*, and C.J. Wang, “A Multi-step-ahead Markov Conditional Forward Model with Cube Perturbations for Extreme Weather Forecasting,” The 36th Annual AAAI Conference ([AAAI’21](#))
- [12] **C.Y. Chang**, and et al., “Query Expansion with Semantic-based Ellipsis Reduction for Conversational IR,” The Twenty-Ninth Text REtrieval Conference ([TREC’20](#))

Experience

Texas A&M University <i>Graduate Research Assistant</i>	College Station, TX Aug. 2021 – Present
<ul style="list-style-type: none">• Developed model-agnostic algorithms that focus on generalization issues in machine learning models.• Developed fairness machine learning frameworks for healthcare tasks by task-specific regularizations.• Proposed the efficient pre-training paradigm for large language models during pre-processing.	
WeHelp Bootcamp <i>Teaching Assistant</i>	Online Feb. 2021 – Jun. 2021
<ul style="list-style-type: none">• Gave the instructions for deploying MySQL and API servers on AWS.• Advised students to implement their own API server with Flask and Node.js.	
Academia Sinica <i>Research Assistant</i>	Taipei, Taiwan Oct. 2019 – Dec. 2020
<ul style="list-style-type: none">• Developed a ranking algorithm for financial news recommender systems to reduce 41% of traders' daily reading time.• Researched and published papers in time-series forecasting and large language model applications.• Won the 2nd place award in an information retrieval competition via a T5-based coreference and reranking framework.	
EZTABLE <i>Backend Engineer</i>	Taipei, Taiwan Jan. 2019 – Sep. 2019
<ul style="list-style-type: none">• Designed/developed APIs for the website and mobile app deployed on cloud services, including AWS and GCP.• Utilized CI/CD tools (Jenkins and Drone) for automatic testing and exporting reports.• Improved cloud infrastructures that reduced 19.2% server loading and 23.8% cost.	

Projects

Recommender System Algorithms <i>E.SUN Bank</i>	Nov. 2019 – Dec. 2020
<ul style="list-style-type: none">• Developed recommender system algorithms with the machine learning method.• Fine-tuned BERT pre-trained models for leveraging given limited labeled data.• Built and trained an RNN-based model to tackle a time-series problem.• Designed data pre-processing and post-processing pipelines to enhance the efficiency of experiments.• Led and organized the project members and communicated with E.SUN Bank partners.	
TripChat [Link] <i>Side Project</i>	Sep. 2018 – Nov. 2018
<ul style="list-style-type: none">• Developed front-end part with JavaScript library React.• Implemented RESTful APIs with Node.js and a real-time co-editing map with Socket.IO.• Implemented Cache for low updated frequency data with Redis.• Built the environment as a Docker Image and deployed on AWS EC2.	

Awards and Honors

CIKM 2023 Best Demo Paper Honorable Mention [6]	Oct. 2023
AMIA 2023 Best Student Paper Finalist [9]	Oct. 2023
NSF Travel Award for Quality and Productivity Research Conference (QPRC) 2023	Jun. 2023
2 nd and 4 th Place Award, TREC CAsT, Text REtrieval Conference [12] [Link]	Oct. 2020
National Chen Kung University Scholarship Award (Top 10%)	2014, 2015

Invited Talks

KDD 2023 Machine Learning in Finance Tutorial – <i>Algorithmic Fairness in Finance</i> [Link]	Aug. 2023
QPRC 2023 Short Course – <i>Fair Machine Learning in Healthcare</i> [Link]	Jun. 2023