

Chia-Yuan (Scott) Chang

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Research Interests

- **Generative Models** [1]: Developing machine learning solutions based on data generation.
- **Large Language Models** [2]: Efficient training paradigms for LLMs.
- **Domain Generalization** [3]: Model-agnostic frameworks for domain generalization.
- **Fairness in Healthcare** [6]: 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 2026

National Cheng Kung University

Master of Science in Structures and Materials

Tainan, Taiwan

Sep. 2013 – Jun. 2015

Publications

- [1] **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’23 ([ICLR’24 \(submitted\)](#))
- [2] H. Jin, X. Han, J. Yang, Z. Jiang, **C.Y. Chang**, and X. Hu, “GrowLength: Accelerating LLMs Pretraining by Progressively Growing Training Length,” arXiv’23 ([ICLR’24 \(submitted\)](#))
- [3] **C.Y. Chang**, Y.N. Chuang, G. Wang, M. Du, and N. Zou, “DISPEL: Domain Generalization via Domain-Specific Liberating,” arXiv’23 ([ICLR’24 \(submitted\)](#))
- [4] 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](#))
- [5] **C.Y. Chang**, Y.N. Chuang, K.H. Lai, X. Han, X. Hu, N. Zou, “Towards Assumption-free Bias Mitigation,” arXiv ([AAAI’23 SRRAI \(submitted\)](#))
- [6] **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](#))
- [7] 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](#))
- [8] 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](#))
- [9] Y. Wang, X. Han, **C.Y. Chang**, D. Zha, U. Braga-Neto, and X. Hu, “Auto-PINN: Understanding and Optimizing Physics-Informed Neural Architecture,” arXiv’22 ([Preprint](#))
- [10] **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](#))
- [11] **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 College Station, TX
Graduate Research Assistant Aug. 2021 – Present

- 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 Online
Teaching Assistant Feb. 2021 – Jun. 2021

- 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 Taipei, Taiwan
Research Assistant Oct. 2019 – Dec. 2020

- 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 Taipei, Taiwan
Backend Engineer Jan. 2019 – Sep. 2019

- 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 | *E.SUN Bank* Nov. 2019 – Dec. 2020

- 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 [\[Link\]](#) | *Side Project* Sep. 2018 – Nov. 2018

- 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

The AMIA 2023 Best Student Paper Finalist Oct. 2023

NSF Travel Award for Quality and Productivity Research Conference (QPRC) 2023 Jun. 2023

2nd and 4th Place Award, TREC CAsT, Text REtrieval Conference [\[Link\]](#) Oct. 2020

National Chen Kung University Scholarship Award (Top 10%) 2014, 2015

Invited Talks

KDD 2023 Machine Learning in Finance Tutorial – *Algorithmic Fairness in Finance* [\[Link\]](#) Aug. 2023

QPRC 2023 Short Course – *Fair Machine Learning in Healthcare* [\[Link\]](#) Jun. 2023