

Yuchen Zhuang

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EDUCATION

Computer Science and Engineering, Georgia Institute of Technology

Machine Learning Ph.D., ECE Master of Science

Ph.D. Advisor: [Dr. Chao Zhang](#)

Research Interest: Text Mining; Applied Machine Learning; Information Extraction

Atlanta, Georgia

Aug 2019-Present

GPA: 3.80/4.00

School of Information Science and Engineering, Southeast University (SEU)

Bachelor of Engineering in Information Technology

Bachelor Advisor: Dr. Chuan Zhang

Research Interest: Mathematical Modeling in Multi-Scale Communication; Molecular Computing

Nanjing, China

Sept 2015-July 2019

GPA: 88.16/100

INDUSTRY EXPERIENCE

Data-Driven Media Systems Group, Adobe, San Jose, California

Research Scientist Intern, Manager: Saayan Mitra

Mentor: Xiang Chen, Tong Yu, Victor Soares Bursztyn, Ryan Rossi, Somdeb Sarkhel

Topic: ToolChain*: Efficient Action Space Navigation in Large Language Models with A* Search (ICLR'24)

May 2023-Aug 2023

Personalization Group, Amazon, Seattle, Washington

Applied Scientist Intern, Manager: Tong Zhao, Xin Shen, Mentor: Yan Zhao, Chaosheng Dong, Ming Wang

Topic: User Main Shopping Intention Identification from Historical Interactions

Publication: G-STO: Sequential Main Shopping Intention Detection via Graph-Regularized Stochastic Transformer (CIKM'23)

May 2022-Aug 2022

SELECTED PUBLICATIONS

(The full publication list can be found [this link](#). * denotes equal contributions)

- Yuchen Zhuang**, Xiang Chen, Tong Yu, Saayan Mitra, Victor Bursztyn, Ryan A. Rossi, Somdeb Sarkhel, Chao Zhang. [ToolChain*: Efficient Action Space Navigation in Large Language Models with A* Search](#). In *The Twelfth International Conference on Learning Representations (ICLR 2024)*.
- Yue Yu*, **Yuchen Zhuang***, Jieyu Zhang*, Yu Meng, Alexander Ratner, Ranjay Krishna, Jiaming Shen, Chao Zhang. [Large Language Model as Attributed Training Data Generator: A Tale of Diversity and Bias](#). In *Thirty-seventh Conference on Neural Information Processing Systems (NeurIPS 2023)*.
- Yuchen Zhuang***, Yue Yu*, Kuan Wang*, Haotian Sun, Chao Zhang. [ToolQA: A Dataset for LLM Question Answering with External Tools](#). In *Thirty-seventh Conference on Neural Information Processing Systems (NeurIPS 2023)*.
- Haotian Sun*, **Yuchen Zhuang***, Lingkai Kong, Bo Dai, Chao Zhang. [AdaPlanner: Adaptive Planning from Feedback with Language Models](#). In *Thirty-seventh Conference on Neural Information Processing Systems (NeurIPS 2023)*.
- Wenqi Shi, **Yuchen Zhuang**, Yuanda Zhu, Henry J. Iwinski, J. Michael Wattenbarger, May D. Wang. Retrieval-Augmented Large Language Models for Adolescent Idiopathic Scoliosis Patients in Shared Decision-Making. In *ACM Conference on Bioinformatics, Computational Biology, and Health Informatics (BCB 2023)*. (**Best Paper Award**).
- Yuchen Zhuang**, Xin Shen, Yan Zhao, Chaosheng Dong, Ming Wang, Jin Li, Chao Zhang. [G-STO: Sequential Main Shopping Intention Detection via Graph-Regularized Stochastic Transformer](#). In proceedings of *ACM International Conference on Information and Knowledge Management (CIKM 2023)*.
- Yuchen Zhuang**, Yue Yu, Lingkai Kong, Xiang Chen, Chao Zhang. [DyGen: Learning from Noisy Labels via Dynamics-Enhanced Generative Modeling](#). In proceedings of *29TH ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD 2023)*.
- Yue Yu, **Yuchen Zhuang**, Rongzhi Zhang, Yu Meng, Jiaming Shen, Chao Zhang. [ReGen: Zero-Shot Text Classification via Training Data Generation with Progressive Dense Retrieval](#). In proceedings of *Findings of The 61st Annual Meeting of the Association for Computational Linguistics (ACL-Findings 2023)*.
- Lingkai Kong, Jiaming Cui, Haotian Sun, **Yuchen Zhuang**, B Aditya Prakash, Chao Zhang. [Autoregressive Diffusion Model for Graph Generation](#). In proceedings of *The Fortieth International Conference on Machine Learning (ICML 2023)*.
- Yuchen Zhuang**, Yinghao Li, Junyang Zhang, Yue Yu, Yingjun Mou, Xiang Chen, Le Song, Chao Zhang. [ReSel: N-ary Relation Extraction from Scientific Text and Tables by Learning to Retrieve and Select](#). In proceedings of *The 2022 Conference on Empirical Methods in Natural Language Processing (EMNLP 2022)*.

11. Lingkai Kong, Jiaming Cui, **Yuchen Zhuang**, Rui Feng, B Aditya Prakash, Chao Zhang. [End-To-End Stochastic Programming with Energy-based Model](#). In proceedings of *Advances in Neural Information Processing Systems (NeurIPS 2022)*, **(Oral)**.
12. Lingkai Kong, Haoming Jiang, **Yuchen Zhuang**, Jie Lyu, Tuo Zhao, Chao Zhang. [Calibrated Language Model Fine-tuning for In- and Out-of-Distribution Data](#). In proceedings of *The 2020 Conference on Empirical Methods in Natural Language Processing (EMNLP 2020)*.

PREPRINTS & MANUSCRIPTS

(The full publication list can be found [this link](#). * denotes equal contributions)

1. Wenqi Shi, Ran Xu, **Yuchen Zhuang**, Yue Yu, Jieyu Zhang, Hang Wu, Yuanda Zhu, Joyce Ho, Carl Yang, May D. Wang. [EHRAgent: Code Empowers Large Language Models for Complex Tabular Reasoning on Electronic Health Records](#).
2. Lingkai Kong, Wenhao Mu, Jiaming Cui, **Yuchen Zhuang**, B Aditya Prakash, Bo Dai, Chao Zhang. [DF2: Distribution-Free Decision-Focused Learning](#).

RESEARCH EXPERIENCE

Researching Assistant, Data Mining and Machine Learning Group, Georgia Tech, Atlanta, Georgia Aug 2019-present

- **Large Language Models (LLMs) and Applications**
 - **LLMs for Decision Making:** Proposed a closed-loop framework designed to enable large language models (LLMs) to dynamically generate and adjust their plans throughout the decision-making process according to the feedback.
 - **Tool-Augmented LLMs:** Created a dataset for evaluation of tool-augmented LLMs. The dataset is designed to guarantee that the answers can only be answered correctly with compositional use of multiple external tools.
 - **LLMs for Dataset Generation:** Proposed an automatic framework to generate diverse data for smaller model training. The method can also be applied to mitigate the bias/imbalance between different categories of data.
- **Model Robustness and Generalization**
 - **Noisy Label Learning:** Observed a training dynamic pattern that can distinguish between noisy and clean samples. Proposed a generative model to compute the transition matrix from noisy labels to true labels, which can identify the noisy samples and correct them to right ones.
 - **Multi-Modal Learning:** Proposed a multi-modal architecture that can extract information from both text and tables in the scientific papers.
 - **Out-of-Distribution Detection and Uncertainty:** Discovered a problem that the pre-trained language models suffer from miscalibration. Designed regularization methods on both in- and out-of-distribution data to improve the calibration of the pretrained model.
 - **Zero-Shot Learning:** Designed a model combining modular network and graph neural network to accomplish a generalized zero-shot text classification on the existing and generated dataset.

HONORS AND AWARDS (SELECTED)

- NeurIPS 2023 Scholar Award *Oct. 2023*
- Best Paper Award, ACM Conference on Bioinformatics, Computational Biology, and Health Informatics. *Sep. 2023*
- Second Prize of Excellent Undergraduate Student Graduation Thesis in Jiangsu Province. *Jun, 2020*
- Most Influential Graduate Award Nomination (**20/4000**), Southeast University *Jun, 2019*
- Advanced Individual in Scientific Research, Southeast University *Jun. 2019*
- Qingyun Sun Innovation Scholarship, Southeast University *May2018, May 2019*
- International Collaboration Symposium on Information, Production & Systems **Excellent Paper Award** *Dec, 2017*
- Other Scholarship on Innovation or Scientific Research *Aug 2015-Jul 2019*
- First Prize, National High School Mathematical League *Feb 2014*
- First Prize, National Olympiad in Informatics in Provinces

SERVICES

- Teaching Assistant, CS 7641 Machine Learning* *Fall 2020*
- Teaching Assistant, CSE 8803 Deep Learning for Text Data* *Fall 2021*
- Teaching Assistant, GT Big Data Bootcamp* *Spring 2021,2022,2023*
- Teaching Assistant, GT Natural Language Processing Bootcamp* *Spring 2023*
- Conference Paper Reviewer, ARR (2023-), EMNLP (2022-), ICLR (2024), NeurIPS (2023), KDD (2021-), ACL (2023), AAAI (2023-), ICML (2021), AISTATS (2024), SDM (2024)*
- Workshop Program Committee, FMDM@NeurIPS (2023), DMLR@ICML (2023), SPIGM@ICML (2023)*