Ming Li

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Education

University of Maryland — Maryland, US
Ph.D. in Computer Science — *Aug. 2023 – present*

Texas A&M University — Texas, US
M.S. in Computer Science — *Sep. 2021 – May 2023*

Xi'an Jiaotong University — Xi'an, China
B.S. in Computer Science — *Aug. 2016 – June 2020*

Research & Internship experience

(Academia) Research Assistant — Aug. 2023 – present
University of Maryland — *Maryland, US*
- Supervisor: Prof. Tianyi Zhou
- Focus: Instruction-tuning on Large Language models

(Industry) Research Scientist/Engineer Internship — May 2024 – present
Adobe Systems Inc. — *San Jose, US*
- Vision Language Model supervised finetuning
- Document level LLM Agent

(Industry) Research Scientist/Engineer Internship — May 2023 – Aug. 2023
Ping An Technology (Shenzhen) Co., Ltd. — *Shenzhen, China*
- Data selection for instruction-tuning on LLMs
- Black-Box Large Language Models for Retrieval Question Answering

(Academia) Research Assistant — Sep. 2021 – May 2023
Texas A&M University — *Texas, US*
- Supervisor: Prof. Ruihong Huang
- Focus: General Discourse Parsing in Natural Language Processing

(Academia) Research Assistant — Jun. 2019 – Jun. 2021
Shenzhen Institutes of Advanced Technology, Chinese Academy of Science — *Shenzhen, China*
- Supervisor: Prof. Yu Qiao
- Focus: Scene Text Recognition and Text Detection

Selected Publications

[1] **Ming Li**, Yanhong Li, Tianyi Zhou. **What Happened in LLMs Layers when Trained for Fast vs. Slow Thinking: A Gradient Perspective.**

[2] **Ming Li**, Han Chen, Chenguang Wang, Dang Nguyen, Dianqi Li, Tianyi Zhou. **RuleR: Improving LLM Controllability by Rule-based Data Recycling.**

[3] **Ming Li**, Pei Chen, Chenguang Wang, Hongyu Zhao, Yijun Liang, Yupeng Hou, Fuxiao Liu, Tianyi Zhou. **Mosaic IT: Enhancing Instruction Tuning with Data Mosaics.**

[4] (ACL 2024) **Ming Li**, Yong Zhang, Shwai He, Zhitao Li, Hongyu Zhao, Jianzong Wang, Ning Cheng, Tianyi Zhou. **Superfiltering: Weak-to-Strong Data Filtering for Fast Instruction-Tuning.**

[5] (ACL 2024) **Ming Li**, Lichang Chen, Jiuhai Chen, Shwai He, Jiuxiang Gu, Tianyi Zhou. **Selective Reflection-Tuning: Student-Selected Data Recycling for LLM Instruction-Tuning .**

[6] (ACL 2024) **Ming Li**, Jiuhai Chen, Lichang Chen, Tianyi Zhou. **Can LLMs Speak For Diverse People? Tuning LLMs via Debate to Generate Controllable Controversial Statements.**

[7] (NAACL 2024) **Ming Li**, Yong Zhang, Zhitao Li, Jiuhai Chen, Lichang Chen, Ning Cheng, Jianzong Wang, Tianyi Zhou, Jing Xiao. **From Quantity to Quality: Boosting LLM Performance with Self-Guided Data Selection for Instruction Tuning.**

[8] (NeuRIPS 2023 Workshop) **Ming Li**, Lichang Chen, Jiuhai Chen, Shwai He, Tianyi Zhou. **Reflection-tuning: Recycling data for better instruction-tuning.**

[9] (EMNLP 2023) Haoyan Yang, Zhitao Li, Yong Zhang, Jianzong Wang, Ning Cheng, **Ming Li**, Jing Xiao. **PRCA: Fitting Black-Box Large Language Models for Retrieval Question Answering via Pluggable Reward-Driven Contextual Adapter.**

[10] (AACL) **Ming Li**, Ruihong Huang. **Semi-supervised News Discourse Profiling with Contrastive Learning.**.

[11] (TMM) **Ming Li**, Bin Fu, Zhengfu Zhang, Yu Qiao. **Character-Aware Sampling and Rectification for Scene Text Recognition.**

[12] (TMM) **Ming Li**, Bin Fu, Han Chen, Junjun He, Yu Qiao. **Dual Relation Network for Scene Text Recognition.**

Research Projects

Text-rich document grounding for MLLM May. 2024 – present

Adobe Inc. *San Jose, US*

- Proposed the first visual grounding benchmark for text-rich document images
- Proposed a large-scale high-quality visual instruction tuning datasets for this task and got the SOTA performance for this document visual grounding
- Conducted thorough analysis on existing MLLMs capability on document grounding, and proposed a model with supreme grounding capability

Data Synthesis for instruction-tuning on LLM [Project Repo] Aug. 2023 – Dec. 2023

University of Maryland *Maryland, US*

- Proposed the Reflection-Tuning and Selective Reflection-Tuning, a data recycle method for instruction tuning
- Got a win rate of 83% on Alpaca Eval Leaderboard, best 7B model with only a little recycled instruction data

Data selection for instruction-tuning on LLM [Project Repo] May 2023 – Dec. 2023

University of Maryland *Maryland, US*

- Used approximately 5% or 10% of the data to have comparable performances to the models trained on full data, which is experimented on the Alpaca and WizardLM datasets
- The selection of cherry data is entirely self-guided and does not need ANY extra outside models, ranging from BERT to chatGPT

How Chain-of-Thaught affects the instruction-tuning on LLM Apr. 2023 – June 2023

University of Maryland *Maryland, US*

- Implemented Chain-of-Thaught during the instruction-tuning of LLM
- Exprimentd on how paraphrasing of COT affects LLM's performance on following COT

Natural Language Processing on Neural Discourse Parsing Jan. 2022 – Jan. 2023

Texas A&M University *Texas, US*

- Proposed a simple yet effective model that achieves promising performance in several discourse parsing tasks with lower parameters and processing time
- Proposed to construct the rhetorical structure with the high-level event-related representation of each sentence, achieved state-of-the-art performance on RST-Discourse Parsing
- Designed Knowledge Distillation and Contrastive Learning based methods and achieved state-of-the-art performance on News Discourse Profiling

Computer Vision on Scene Text Recognition and Detection Jun. 2019 – Jun. 2021

Shenzhen Institutes of Advanced Technology, Chinese Academy of Science *Shenzhen, China*

- A paper is accepted which focuses on recognizing curved texts in natural scene
- A paper is accepted where local visual and long-range contextual information are utilized simultaneously to get a better recognition performance
- A paper is accepted where effective multi-scale contextual features are utilized for locating text instances

Technical Skills

Programming Languages: Python, C/C++, Java, MATLAB, SQL // Pytorch, TensorFlow
Languages: Chinese (Native), English (TOEFL: 100; GRE: 322)