

Dongwei Jiang

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With six years of industry and research experience in speech processing and self-supervised speech models, my focus is now shifting to LLM, with a particular interest in reasoning and self-improvement.

EDUCATION

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| JOHNS HOPKINS UNIVERSITY | M.Eng. in Computer Science | Aug 2023 - Till Now |
| PEKING UNIVERSITY | B.S. in Geographic Information System | Sep 2011 - June 2016 |

RESEARCH EXPERIENCE

Mentor: Prof. Greg Durrett UTA, Jul 2024 - Till Now

Research Intern. Investigating how and when CoT works and whether LLMs know when to use CoT

Mentors: Prof. Daniel Khashabi, Benjamin Van Durme JHU, Sep 2023 - Till Now

Research Assistant. (1) Understanding the underlying reason that prevents LLMs from effective self-improvement (2) Distilling rationales from unlabelled data to provide process feedback for various reasoning problems (3) Formulating a consistent and theoretically grounded method for annotating decompositional entailment datasets

Mentor: Prof. Shay B. Cohen EDINBURGH, Apr 2023 - Dec 2023

Research Intern. Solving complex natural language logical reasoning problems with the help of theorem prover Lean

Mentor: Dr. Xiangang Li DiDi, Jan 2018 - Dec 2020

Research Scientist. Advancing self-supervised speech processing with MPC and Speech-SimCLR

SELECTED PUBLICATIONS

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- [1] Dongwei Jiang, Marcio Fonseca, Shay B. Cohen. *LeanReasoner: Boosting Complex Logical Reasoning with Lean*, in NAACL, 2024
- [2] Dongwei Jiang, Jingyu Zhang, Orion Weller, Nathaniel Weir, Benjamin Van Durme, Daniel Khashabi. *SELF-[IN]CORRECT: LLMs Struggle with Refining Self-Generated Responses*, in submission to AAAI, 2024
- [3] Dongwei Jiang, Guoxuan Wang, Yining Lu, Andrew Wang, Benjamin Van Durme, Daniel Khashabi. *RATIONALLYST: Supervising Reasoning via Self-Supervised Rationale Extraction*, in submission to AAAI, 2024
- [4] Nathaniel Weir, Kate Sanders, Orion Weller, Shreya Sharma, Dongwei Jiang, Zhengping Jiang, Bhavana Dalvi Mishra, Oyvind Tafjord, Peter Jansen, Peter Clark, Benjamin Van Durme. *Enhancing Systematic Decompositional Natural Language Inference Using Informal Logic*, in EMNLP, 2024
- [5] Dongwei Jiang, Wubo Li, Miao Cao, Wei Zou, Xiangang Li. *Speech simclr: Combining contrastive and reconstruction objective for self-supervised speech representation learning*, in InterSpeech 2021
- [6] Dongwei Jiang, Wubo Li, Ruixiong Zhang, Miao Cao, Ne Luo, Yang Han, Wei Zou, Kun Han, Xiangang Li. *A further study of unsupervised pretraining for transformer based speech recognition*, in ICASSP 2021
- [7] Dongwei Jiang, Xiaoning Lei, Wubo Li, Ne Luo, Yuxuan Hu, Wei Zou, Xiangang Li. *Improving transformer-based speech recognition using unsupervised pre-training*, arxiv

WORK EXPERIENCE

SHOPEE Beijing, Nov 2021 - Nov 2022

Led a team of four. Responsible for low-resource ASR and its application in products

- Low Resource ASR optimization: Used Youtube data crawling and filtration to accumulate weakly supervised training data for the base model. Used self-training to accumulate target domain training data
- Low Resource ASR annotation: Established best practices and helped training of local agents
- Product Support: Supported live stream clipping and live stream ongoing content search on various markets. The model was used as an extra source of supply for product introductory videos, which increased 23,000 orders each day

YUANFUDAO Beijing, Dec 2020 - Oct 2021

Led a team of six. Responsible for the application of End-to-End ASR and Talking Face Generation

- Education ASR Optimization: Implemented relevant techniques including code switch and children speech recognition
- Product Support: Supported quality assurance and content understanding for various applications including children's short videos, live lesson streaming, and voice communication, leading to a monthly saving of 900,000 RMB in costs

DIDICHUXING TECHNOLOGY

Beijing, Jan 2018 - Dec 2020

Led a team of five. Responsible for the development and deployment of ASR and TTS

- End-to-End ASR: Implemented LAS and Speech Transformer with Attention + CTC multi-task loss. Implemented AED + CTC joint decoding and word-level WFST with contextual-graph based hotword-fix. Being one of the first to bring end-to-end ASR model online in China, Speech Transformer replaced all hybrid/CTC models for internal products
- End-to-End Streaming ASR: Investigated and implemented prevalent end-to-end streaming speech recognition solutions including neural transducer, RNN-T, and Mocha
- End-to-End TTS: Implemented Tacotron2 and FastSpeech end-to-end Speech Synthesis model with multi-speaker TTS and GST for personalized TTS

JD.COM INC

Beijing, Jan 2017 - Dec 2017

- Read through Kaldi source code. Became proficient in the concept and implementation of hybrid ASR system. Followed early CTC work from Google and experimented with different network structures, modeling units, and subsampling rate