LINGJUN ZHAO

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SUMMARY

Research area: Natural language processing (NLP). Topics: Multimodal learning, trustworthiness, human-AI collaboration. Papers accepted by ACL, EMNLP, ICML, SIGIR.

EDUCATION

University of Maryland, College Park *Jan 2021 - Present*
Ph.D. student in Computer Science
Advisor: Prof. Hal Daumé III
Courses: Human-AI Interaction, Computational Linguistics, Foundation of Deep Learning, Advanced Numerical Optimization, Computational Imaging

Columbia University, New York *Sep 2016 - Feb 2018*
M.S. in Computer Science. Track: Machine learning

Sun Yat-Sen University, Guangzhou, China *Sep 2012 - Jun 2016*
B.S. in Computational Mathematics

SELECTED PUBLICATIONS

L. Zhao, M. Xie, P. Cascante, H. Daumé III, K. Lee. "Can Hallucination Correction Improve Video-Language Alignment?", in submission to ACL 2025.

L. Zhao, K. Nguyen, H. Daumé III. "Successfully Guiding Humans with Imperfect Instructions by Highlighting Potential Errors and Suggesting Alternatives", Empirical Methods in Natural Language Processing (EMNLP **Oral**), 2024. (link)

L. Zhao, K. Nguyen, H. Daumé III. "Hallucination Detection for Grounded Instruction Generation." Findings of Empirical Methods in Natural Language Processing (EMNLP), 2023. (link)

L. Zhao, K. Nguyen, H. Daumé III. "Define, Evaluate, and Improve Task-Oriented Cognitive Capabilities for Instruction Generation Models." Findings of Association for Computational Linguistics (ACL), 2023. Presented in international Conference on Machine Learning (ICML) Theory-of-Mind Workshop (**Outstanding Paper Award**), 2023. (link)

L. Zhao, R. Zbib, Z. Jiang, D. Karakos, Z. Huang. "Weakly Supervised Attentional Model for Low Resource Ad-hoc Cross-lingual Information Retrieval." Empirical Methods in Natural Language Processing (EMNLP) Deep Learning Approaches for Low-Resource NLP Workshop, 2019. (link)

R. Zbib, **L. Zhao**, D. Karakos, W. Hartmann, J. DeYoung, Z. Huang, Z. Jiang, N. Rivkin, L. Zhang, R. Schwartz, J. Makhoul. "Neural-Network Lexical Translation for Cross-lingual IR from Text and Speech." ACM Special Interest Group in Information Retrieval (SIGIR), 2019. (link)

PROJECTS

Evaluating and Improving Free-text Explanation Consistency In submission to ACL 2025

- Formulated and applied a consistency metric for free-text explanation to analyze its correlation with prediction accuracy
- Optimized models using DPO and consistency metric to improve the explanation consistency

Guiding Humans With Falliable Mutimodal Models EMNLP 2024

- Developed contrastive learning-based visual-language models to detect and correct hallucinations in AI-generated grounded instructions
- Generated synthetic training data using ChatGPT to enhance model performance
- Designed uncertainty communication system within a web interface, improving human performance by 29% in AI-assisted visual-language navigation within situated environments.

Pragmatic Instruction Generation for Navigation ACL 2023

- Fine-tuned GPT-2 and T5 models to develop grounded instruction generation models, achieving state-of-the-art performance in guiding humans through indoor navigation tasks
- Enhanced instruction generation with pragmatic reasoning, by integrating reinforcement learning-based navigation agents to simulate human behavior, resulting in an 11% improvement in guiding humans in real-world environments
- Developed web interface and design human experiments to evaluate model performance

EXPERIENCES

Research Intern May 2024 - Aug 2024
Honda Research Institute *San Jose, CA*

- Analyzed why video-language models cannot understand temporal information, including Video-LLaVA
- Proposed and developed models to assist model temporal understanding, and demonstrated improved performance on two benchmarks
- Paper in submission to ACL 2025

Staff Scientist II Mar 2018 - Dec 2020
Raytheon BBN Technologies *Cambridge, MA*

- Designed and built a character-level CNN context-aware lexical translation model for low resource cross-lingual information retrieval, achieved state-of-the-art in the IARPA MATERIAL program
- Developed a model using attention mechanism to estimate document cross-lingual relevance to an English query. Designed synthetic data generation using translation sentence pairs as training data.

SKILLS

Programming Languages	Python, C++, Matlab
Machine Learning Libraries	Pytorch, Tensorflow, Keras, scikit-learn, NLTK
Other Tools	Git, Vim, Jupyter, JavaScript

SELECTED AWARDS

Travel Award, University of Maryland 2024

Outstanding Student Award, China Scholarship Council 2024

Outstanding Paper Award, International Conference on Machine Learning (ICML) workshop 2023

E Prize & First Prize, Asia Student Supercomputer Challenge 2015

Outstanding Student Scholarship, Sun Yat-Sen University 2015