

LINGJUN ZHAO

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College Park, MD

SUMMARY

Research area: Natural language processing (NLP). Topics: Human-AI collaboration, multimodal learning. Papers accepted by ACL, EMNLP, ICML, SIGIR. Looking for research intern in Summer 2024.

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

Courses: Advanced Machine Learning, NLP, Deep Learning for Computer Vision

Sun Yat-Sen University, Guangzhou, China

Sep 2012 - Jun 2016

B.S. in Computational Mathematics

PUBLICATIONS

L. Zhao, K. Nguyen, H. Daumé III. “Successfully Guiding Humans with Imperfect Instructions by Highlighting Potential Errors and Suggesting Alternatives”, In submission. (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. International Conference on Machine Learning (ICML) Theory-of-Mind Workshop (**Outstanding Paper Award**), 2023. (link)

Z. Jiang, A. El-Jaroudi, W. Hartmann, D. Karakos, **L. Zhao**. “Cross-lingual Information Retrieval with BERT.” Language Resources and Evaluation Conference (LREC) Cross-Language Search and Summarization of Text and Speech Workshop, 2020. (link)

B. Min, Y. Chan, **L. Zhao**. “Towards Few-Shot Event Mention Retrieval: An Evaluation Framework and A Siamese Network Approach.” Language Resources and Evaluation Conference (LREC), 2020.

L. Zhang, D. Karakos, ... **L. Zhao**, ... J. Makhoul. “The 2019 bbn cross-lingual information retrieval system.” LREC workshop on Cross-Language Search and Summarization of Text and Speech, 2020.

L. Zhao, R. Zbib, Z. Jiang, D. Karakos, Z. Huang. “Weakly Supervised Attentional Model for Low Resource Ad-hoc Cross-lingual Information Retrieval.” Conference on 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

Hallucination Detection and Remedy for AI-assisted Navigation Submitted to ACL 2024

- Designed and built contrastive learning visual-language models, to detect and remedy hallucinations in AI generated instructions
- Designed communication mechanism to human, improved up to 29% human performance in AI-assisted visual-language navigation
- Generated synthetic data to train the models using ChatGPT
- Designed and performed human experiments

Pragmatic Instruction Generation for Grounded Navigation Findings of ACL 2023

- Designed and built multimodal models for grounded instruction generation to guide human 3D indoor navigation, finetuned models including GPT-2 and T5, achieved state-of-the-art from human evaluation
- Equipped instruction generation models with pragmatic reasoning capability, using visual-language reinforcement learning navigation agents. Improved the instruction generation models by 11% in guiding real humans in situated environment
- Designed web interface for user study, and performed human experiments

EXPERIENCES

Research Assistant / Teaching Assistant

University of Maryland

Jan 2021 - Now

College Park, MD

- RA for Triaged explainable AI project: finetune using Llama2 model
- RA for NIH computer vision project: finetuned visual question answering models to recognize streetview traffic signs
- RA for DARPA SemaFor project: analyzed, designed and developed adversarial training to mitigate multimodal semantic mismatch problem, finetuned models using OpenAI CLIP
- RA for IARPA MATERIAL project: applied monolingual retrieval models to improve cross lingual information retrieval on low resource languages
- TA for Human-AI Interaction, Intro to Machine Learning, Algorithms

Staff Scientist II

Raytheon BBN Technologies

Mar 2018 - Dec 2020

Cambridge, MA

- Cross-lingual Information Retrieval (CLIR) for low resource languages
- Designed and built a character-level CNN context-aware lexical translation model for low resource CLIR, achieved state-of-the-art in the IARPA MATERIAL program
- Designed and built a weakly supervised scheme and attentional model for CLIR, trained with samples extracted from parallel translation sentences to estimate CLIR relevance

Research Assistant

Columbia University

Sep 2016 - Dec 2016

New York, NY

- Applied Viola-Jones face detection to generate upper body bounding boxes for upper body pose estimation in TED Talk videos
- Derived upper bounding box scaling, performed statistical analysis for interesting frames distribution

SKILLS

Programming Languages

PYTHON, C++, MATLAB

Machine Learning Libraries

Pytorch, Tensorflow, Keras, scikit-learn, NLTK

Other Tools

Git, Vim, Jupyter, JavaScript