ZUJIE LIANG

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EDUCATION

Sun Yat-Sen University (SYSU), China *2019 - July 2022 (Expected)*
M.Phil. in Information and Communication Engineering

Wuhan University of Technology (WHUT), China *2015 - 2019*
B.Eng. in Communication Engineering

RESEARCH BACKGROUND

My previous research broadly lies at the intersection of Natural Language Processing and Computer Vision with a focus on bias reduction, which is a key problem to build a more explainable, generalizable and robust AI model. I am also interested in dialogue system. In my spare time, I maintain Awesome-Visual-Question-Answering, which is a curated list of papers in the field of Visual QA (360+ stars now).

PUBLICATIONS

1. **Zujie Liang***, Huang Hu*, Can Xu, Chongyang Tao, Xiubo Geng, Yining Chen, Fan Liang, Daxin Jiang. "Maria: A Visual Experience Powered Conversational Agent". *Proceedings of the 59th Annual Meeting of the Association for Computational Linguistics (**ACL**)*, 2021. [PDF] [Code] [Slides]

2. **Zujie Liang***, Huang Hu*, Can Xu, Jian Miao, Yingying He, Yining Chen, Xiubo Geng, Fan Liang, Daxin Jiang. "Learning Neural Templates for Recommender Dialogue System". *Proceedings of the 2021 Conference on Empirical Methods in Natural Language Processing (**EMNLP**)*, 2021. [Code] [PDF (To appear)]

3. **Zujie Liang**, Haifeng Hu, Jiaying Zhu. "LPF: A Language-Prior Feedback Objective Function for De-biased Visual Question Answering". *Proceeding of 44th International ACM SIGIR Conference on Research and Development in Information Retrieval (**SIGIR**)*, 2021. [PDF] [Code] [Slides]

4. **Zujie Liang**, Weitao Jiang, Haifeng Hu, Jiaying Zhu. "Learning to Contrast the Counterfactual Samples for Robust Visual Question Answering". *Proceedings of the 2020 Conference on Empirical Methods in Natural Language Processing (**EMNLP**)*, 2020. [PDF] [Code] [Slides]

RESEARCH & WORK EXPERIENCES

Microsoft Beijing, China
NLP Research Intern, Supervised by Huang Hu and Dr. Daxin Jiang *Oct. 2020 - June 2021*

- This group mainly investigates Conversational AI for *Chat with Bing* Project.
- One of my task was to explore how to build intelligent conversational agents that can not only converse freely with human but also have the ability to perceive the physical world. To achieve this, we present Maria, a neural conversational agent which can effectively capture the visual commonsense from images and accordingly generate informative and vivid responses.
- My another research topic is how to recommend proper items to users through natural conversations, which is called the Recommender Dialogue System. To achieve this, we present NTRD, a novel framework that decouples the response generation from the item recommendation via a two-stage strategy. The approach combines the strengths of both classical slot filling approaches (that are generally controllable) and modern neural NLG approaches (that are generally more natural and accurate).
- My works during internship are accepted by the main conference of *ACL 2021* and *EMNLP 2021* , respectively.

Sun Yat-Sen University Guangzhou, China
MAVAI Lab, Supervised by Dr. Haifeng Hu *Sept. 2019 - present*

- Visual Question Answering has been shown to contain lot of unwanted biases, that enables models to reach high accuracy, but fail to answer for the right reasons. My goal is to study the techniques to effectively alleviate the influence of language bias problem on VQA tasks.
- Specifically, we proposed a generic training method named LPF for overcoming language priors in VQA. The LPF assigns a dynamic weight to each training sample and reshapes the total VQA loss to a more balanced form through leveraging a bias-only model branch. This approach enables the existing VQA models to learn from both visual and language modalities evenly rather than biasing to the language modality.
- From the perspective of training data, we introduce a self-supervised contrastive learning mechanism to learn the relationship between factual samples and counterfactual samples so as to fully utilize the supervision information of synthesized counterfactual samples. We firstly prove the effectiveness of contrastive mechanism on counterfactual learning, and hence improves the reasoning ability and robustness of the VQA models.
- Our works are accepted by the main conference of *SIGIR 2021* and *EMNLP 2020*, respectively.

Alibaba Beijing, China
Ads Algorithm Engineer Intern *June 2021 - Sept. 2021*

- This group mainly investigates the AI techniques for Computational Ads in the E-commerce business.
- My job is to develop automatic biding mechanism/strategy/model for advertisers. I build the Click Quality Model (CQM) to mitigate the sparsity problem of the pCVR calibration.

HUAWEI Shenzhen, China
Software Development Engineer Intern *June 2018 - Aug. 2018*

- My job is to optimize the troubleshooting engine of HUAWEI's cellphones to obtain more accurate failure detection results and maintenance advice.

AWARDS AND HONORS

1. Offered an ACM SIGIR 2021 Student Travel Grant, Canada
2. ICCV 2019 Wider Challenge Track Four, invited for poster demonstration, Rank 5th, Korea [leaderboard]
3. Academic Excellence ScholarShip, SYSU, 2020-2021, China
4. Outstanding Graduate Award, WHUT, 2019, China
5. National University Student Science Contest on Energy Saving & Emission Reduction, 3rd Prize, China

PROFESSIONAL SERVICES

Program Committee: NLPCC 2021

SKILLS

Coding:
Python, C/C++, Linux, Pytorch, Tensorflow, Latex

Languages:
English (Fluent), Chinese (Native Speaker), Cantonese (Native Speaker)

MISCELLANOUS

I'm a big fan of basketball/NBA. I am impressed by the application progress of AI in basketball, such as the HomeCourt APP. I love traveling, hiking, and other outdoor events. Silicon Valley is the funniest TV series I have ever watched. Codes for my published papers are available on my GitHub (400+ stars, 32 followers).