Zujie Liang

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Education

Sun Yat-Sen University (SYSU), Guangzhou, China 2019 – 2022

M.S.(Recommended) in Information and Communication Engineering

Wuhan University of Technology (WHUT), Wuhan, China 2015 – 2019

B.S. in Information and Communication Engineering

Publications

Maria: A Visual Experience Powered Conversational Agent

Zujie Liang*, Huang Hu*, Can Xu, Chongyang Tao, Xiubo Geng, Yining Chen, Fan Liang and Daxin Jiang. **ACL 2021**

In this paper, we present Maria, a novel conversational agent powered by the visual world experiences. It is able to retrieve the "shared" visual world experiences with users and generate human-like responses with some visual commonsense. Extensive experiments demonstrate Maria achieves substantial improvements over the state-of-the-art methods in automatic and human evaluation.

LPF: A Language-Prior Feedback Objective Function for Out-of-distribution Generalization in Visual Question Answering

Zujie Liang, Haifeng Hu and Jiaying Zhu. **SIGIR 2021**

In this work, we proposed a generic training method named LPF for overcoming language priors in VQA. Leveraging a question-only model branch, the LPF assigns a dynamic weight to each training sample and reshapes the total VQA loss to a more balanced form. This approach enables the existing VQA models to learn from both visual and language modalities evenly rather than biasing to the language modality, which is crucial for a causal VQA system. Experiments on the VQA-CP v2 validate the effectiveness of our method.

Learning to Contrast the Counterfactual Samples for Robust Visual Question Answering

Zujie Liang, Weitao Jiang, Haifeng Hu and Jiaying Zhu. **EMNLP 2020**

In order to fully utilize the supervision information of synthesized counterfactual samples in robust VQA, we introduce a self-supervised contrastive learning mechanism to learn the relationship between factual samples and counterfactual samples. The experimental results prove that contrastive mechanism can be applied to the counterfactual learning, and hence improves the reasoning ability and robustness of the VQA models.

Experience

Microsoft CO., Asia-Pacific R&D Center Beijing, China Oct. 2020 – Present

NLP Research Intern Bing NLP Group

Research Interest: Open-Domain Dialog System, Conversational Recommendation System, Vision & Language

MOMO TECHNOLOGIES CO., LTD. Beijing, China Apr. 2019 – Sept. 2019

Deep Learning Algorithm Engineer Intern Deep Learning Lab

Brief introduction: Building No-Reference(Blind) **Image Quality Assessment** Algorithms, Building Deep Learning models on Narrowband HD System, Algorithm deployment using **TensorRT**

HUAWEI TECHNOLOGIES CO., LTD. Wuhan, China July. 2018 – Aug. 2018

Software Development Engineer Intern Consumer Business Group

Brief introduction: Optimizing the troubleshooting engine of HUAWEI's cellphones to obtain more accurate failure results and maintenance advice

Competition & Projects

Person Search by Language Seoul, South Korea July. 2019

Python, Linux **ICCV 2019** Wider Challenge

Brief introduction: The goal is to seek new approaches to search person by natural language, I finished **5th** place in ICCV 2019 Wider Challenge Track Four and was invited for poster demonstration.

Smart Swimmer Detection Beijing, China May. 2019

C++, Python, Linux National Aquatics Center (Water Cube)

Brief introduction: A smart system built with Computer Vision Technologies to help detect and recognize the swimmer, calculate and record the exercise data

- Built a robust and fast recognition model, accuracy from **70%**(YOLOv3-tiny) to **99.5%**(Resnet with tricks)
- Deployed Pytorch model and developed **C++** forward API with Pytorch C++ frontend to merge the code with **darknet** framework

Advanced Driving Assistance System Shenzhen, China Sept. 2019 – Dec. 2019

C++/C, Python, Linux Lab-Eenterprise Cooperative Project

Brief introduction: The system can monitor the fatigue degree (yawn detection, eye closure detection, *etc.*) of the drivers and their driving behavior (smoking detection, phone call detection, face recognition, face keypoint detection, *etc.*) so as to warn the drivers and correct the wrong driving behavior.

- Built appropriate models for near-infrared image data
- Deployed multiple models (LightCNN, LFFD, YOLOv3, *etc.*) into on-chip model files based on **Hisilicon(Hi3559A)** chip (TensorFlow/Pytorch -> caffe -> on-chip models) and refactoring the code (algorithm logic, post-processing, *etc.*) to a C++ version

Honors and Awards

ACM SIGIR 2021 Student Travel Grant	2021
5th place, ICCV 2019 Wider Challenge Track Four, invited for poster demonstration	2019
1st class, Academic Excellence ScholarShip, SYSU	2019
1st class, Outstanding Graduate Award, WHUT	2019
3rd prize, National University Student Science Contest on Energy Saving & Emission Reduction	2018
3rd class, Academic Excellence ScholarShip, WHUT	2017
3rd class, Academic Excellence ScholarShip, WHUT	2016

Skills

- Programming Languages: Python, C++/C, Java, Matlab
- Platform: Linux
- Academic Services: Reviewer of IJCAI 2021, NLPCC 2021

Miscellaneous

- Blog: http://jokieleung.github.io
- GitHub (about **380** STARs): https://github.com/jokieleung
- Zhihu : https://zhihu.com/people/jokielueng
- Linkedin: https://www.linkedin.com/in/zujie-liang-0b7b55158/
- Languages: **English** - Fluent, **Chinese** - Native speaker