Zhiqiang Hu

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Education

Singapore University of Technology and Design, Singapore 2021 – present

Ph.D. student in Computer Science (CS)

University of Electronic Science and Technology of China, Chengdu, China 2018 – 2021

Master student in Computer Science (CS)

University of Electronic Science and Technology of China, Chengdu, China 2014 – 2018

B.S. in Mathematics and Applied Mathematics

Research Experience

Singapore University of Technology and Design Singapore 2021.09.13 – present

Ph.D. Student Supervisor: Roy Ka-Wei Lee

Collaborator: Nancy F. Chen (Astar I2R)
Brief Introduction: We are interested in text style transfer and task-oriented (TOD) dialogue systems. First, we investigated impolite users' effects on TOD systems by constructing an impolite dialogue corpus and conducted extensive experiments to evaluate the state-of-the-art TOD systems on our impolite dialogue corpus. Second, we proposed Adapter-TST, a parameter-efficient framework that freezes the pre-trained model's original parameters and enables the development of a multiple-attribute text style transfer model.

Parameter-Efficient Fine-Tuning for LLMs 2023.04.01 – present

Supervisor: Roy Ka-Wei Lee
Collaborator: Lidong Bing (DAMO), Soujanya Poria (SUTD)
Brief Introduction: We are interested in Parameter-Efficient Fine-Tuning (PEFT) for LLMs. To enable further research on PEFT methods of LLMs, in this project, we propose LLM-Adapters [Github], an easy-to-use framework that integrates various adapters into LLMs and can execute these adapter-based PEFT methods of LLMs for different tasks. The framework includes state-of-the-art open-access LLMs such as LLaMA, BLOOM, and GPT-J, as well as widely used adapters such as Series adapters, Parallel adapter, Prompt-based learning and Reparametrization-based methods. Moreover, we conduct extensive empirical studies on the impact of adapter types, placement locations, and hyper-parameters to the best design for each adapter-based methods. We evaluate the effectiveness of the adapters on fourteen datasets from two different reasoning tasks, Arithmetic Reasoning and Commonsense Reasoning. The results demonstrate that using adapter-based PEFT in smaller-scale LLMs (7B) with few extra trainable parameters yields comparable, and in some cases superior, performance to powerful LLMs (175B) in zero-shot inference on both reasoning tasks.

University of Saskatchewan Saskatoon, SK, Canada 2019.11.28 – 2020.10.01

Visiting Research Student Supervisor: Roy Ka-Wei Lee

Collaborator: Charu C. Aggarwal(IBM), Aston Zhang (AWS)
Brief introduction: We are interested in Text Style Transfer. Firstly, We investigated deeply in this area and accomplished a survey paper which is accepted by SIGKDD Explorations. Moreover, we proposed a Syntax-Aware Controllable Generation model using syntactic information to generate more plausible sentences.

Authorship Attribution Project Jun. 2019 – Oct. 2019

Supervisor: Roy Ka-Wei Lee(SUTD) Collaborator: Ee-peng Lim(SMU)
Brief introduction: Authorship Attribution is important in Cyber Security and User analysis in Social Network. We proposed a deep learning model named DeepStyle, a novel embedding-based framework that learns the representations of users' salient writing styles. The paper has been accepted by APWEB-WAIM 2020.

Publications

- **Zhiqiang Hu**, Lei Wang, Yihuai Lan, Wanyu Xu, Ee-Peng Lim, Roy Ka-Wei Lee, Lidong Bing, Soujanya Poria. LLM-Adapters: An Adapter Family for Parameter-Efficient Fine-Tuning of Large Language Models (EMNLP 2023)
- **Zhiqiang Hu**, Roy Ka-wei Lee, Nancy F. Chen. Adapter-TST: A Parameter Efficient Method for Multiple-Attribute Text Style Transfer (EMNLP Findings 2023)
- Chia-Yu Hung, **Zhiqiang Hu**, Yujia Hu, Roy Ka-Wei Lee. Who Wrote it and Why? Prompting Large-Language Models for Authorship Verification (EMNLP Findings 2023)
- **Zhiqiang Hu**, Roy Ka-wei Lee, Charu C. Aggarwal, Aston Zhang. Text Style Transfer: A Review and Experimental Evaluation. (SIGKDD Explorations 2022)
- **Zhiqiang Hu**, Roy Ka-wei Lee, Charu C. Aggarwal. Syntax Matters! Syntax-Controlled in Text Style Transfer. (RANLP 2021)
- **Zhiqiang Hu**; Roy Ka-Wei Lee; Lei Wang; Ee-peng Lim; Bo Dai. DeepStyle: User Style Embedding for Authorship Attribution of Short Texts. Asia-Pacific Web (APWeb) and Web-Age Information Management (WAIM) Joint International Conference on Web and Big Data, 2020
- **Zhiqiang Hu**, Roy Ka-wei Lee, Nancy F. Chen. Are Current Task-oriented Dialogue Systems Able to Satisfy Impolite Users? (Arxiv)
- **Zhiqiang Hu**, Thao Thanh Nguyen, Yujia Hu, Chia-Yu Hung, Ming Shan Hee, Chun Wei Seah, Roy Ka-Wei Lee. Contrastive Disentanglement for Authorship Attribution (Submitted to BigData 2023)

♡ Honors and Awards

The Second Prize Scholarship Oct. 2018
The Third Prize Scholarship Oct. 2016
The Third Prize Scholarship Oct. 2015

Skills

- Programming Languages: Python > C
- Deep Learning Frameworks: PyTorch, Transformers
- Platform: Linux

Miscellaneous

- Languages: English - Fluent, Mandarin - Native speaker
- Google Scholar: `https://scholar.google.com/citations?user=vjQQUnwAAAAJ&hl=en`
- Github: `https://github.com/HZQ950419`
- Semantic Scholar: `https://www.semanticscholar.org/author/Zhiqiang-Hu/1557412457`