Dachuan Shi

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Education

Tsinghua University 08/2021 - 06/2024 (Expected)
Master in Computer Technology. China

Tsinghua University 08/2017 - 06/2021
B.Eng. in Computer Science and Technology. China

Publications and Preprints

- **Dachuan Shi**, Chaofan Tao, Anyi Rao, Zhendong Yang, Chun Yuan, Jiaqi Wang. CrossGET: Cross-Guided Ensemble of Tokens for Accelerating Vision-Language Transformers. **Submitted** to **ICLR 2024**. [PDF]
- **Dachuan Shi**, Chaofan Tao, Ying Jin, Zhendong Yang, Chun Yuan, Jiaqi Wang. UPop: Unified and Progressive Pruning for Compressing Vision-Language Transformers. **ICML 2023**. [PDF]
- **Dachuan Shi**, Ruiyang Liu, Linmi Tao, Chun Yuan. Heuristic Dropout: An Efficient Regularization Method for Medical Image Segmentation Models. **ICASSP 2022**. [PDF]
- **Dachuan Shi**, Ruiyang Liu, Linmi Tao, Zuoxiang He, Li Huo Multi-Encoder Parse-Decoder Network for Sequential Medical Image Segmentation. **ICIP 2021**. [PDF]
- Zhendong Yang, Zhe Li, Mingqi Shao, **Dachuan Shi**, Zehuan Yuan, Chun Yuan. Masked Generative Distillation. **ECCV 2022**. [PDF]
- Yaohua Bu, Tianyi Ma, Weijun Li, Hang Zhou, Jia Jia, Shengqi Chen, Kaiyuan Xu, **Dachuan Shi**, Haozhe Wu, Zhihan Yang, Kun Li, Zhiyong Wu, Yuanchun Shi, Xiaobo Lu, Ziwei Liu. PTeacher: a Computer-Aided Personalized Pronunciation Training System with Exaggerated Audio-Visual Corrective Feedback. **CHI 2021**. [PDF]

Research Experience

Shanghai AI Laboratory 02/2022 - Present
Research Intern at Open Algorithm Team [**Efficient Deep Learning, Multimodal Learning**] China

- Proposed a universal token ensemble framework *CrossGET* for accelerating various vision-language Transformers. For example, *CrossGET* saves 86% generation GFLOPs and improves 330% throughput on the Image Caption task with 0 SPICE drop. The work has been submitted to ICLR 2024.
- Proposed a universal structured pruning framework *UPop* for compressing various vision-language and unimodal Transformers. For example, *UPop* achieves 2x compression and 41% GFLOPs saving on the Visual Question Answer task with only 1.2% accuracy drop. The work was accepted by ICML 2023.

Tsinghua University 02/2020 - 06/2021
Research Assistant at HCI & Media Institute [**Efficient Deep Learning, Medical Image Analysis**] China

- Proposed *Heuristic Dropout* to efficiently drop features suffering from co-adaptation and more effectively mitigate the overfitting problem for medical image segmentation tasks. For example, it achieves 0.96 higher mIOU than the previous SOTA on the BAGLS dataset. The work was accepted by ICASSP 2022.
- Proposed *MEPDNet* that comprises efficient parameter-shared encoders and a lightweight decoder for sequential medical image segmentation. For example, *MEPDNet* achieves 0.28 higher DICE than the SOTA on the Lumbar-CT dataset while using only 3.8% parameters of it. The work was accepted by ICIP 2021.

Awards

- Tsinghua Outstanding Bachelor Thesis (Top 5%)
- Tsinghua Comprehensive Excellence Award (Top 10%)

Language Skills

English (TOFEL: 105); Mandarin (Native).