Muxin Wei

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Education

Harbin Institute of Technology Sep. 2023 – Present
M.Sc., Biomedical Engineering Harbin, China

Dongguang University of Technology Sep. 2018 – Jun. 2022
B.Eng., Computer Science and Technology Dongguang, China
– *Thesis: A Real-Time Vehicle Detection System Based on YOLOV5*

Publications

– **Wei, M.**, Chen, S., Wu, S., & Xu, D. (2024).Rep-MedSAM: Towards Real-time and Universal Medical Image Segmentation. (CVPR 2024 Workshop: Segment Anything In Medical Images On Laptop.)

Research Experience

CVPR 2024 Challenge: Segment Anything In Medical Images On Laptop
Leader May. 2024 – Jun. 2024

- Achieved **Winner Finalist Award** (3/102).
- Proposed an efficient knowledge distillation framework and gained a **2.7**% performance boost on the validation compared to the baseline.
- Adapted lightweight architectures for the resource-limited environment to promote model inference speed by almost **2**× for segmentation in medical images.
- Increased inference speed for 3D volume with multi-object **2.7**× by caching embeddings in slices.
- Curated over **10** datasets of different modalities with uniformed preprocessing scripts.

Projects

- Implementation of **MLPs**, **AlexNet**, **GoogLeNet**, **VGGNets**, **ResNets**, **RNNs**, **LSTMs** based Nets
- Implementation of **Autoencoders**, **VAEs**, **GANs**
- **Deep Convolutional GAN** retraining on ImageNet-1k
- Deep **CNN-LSTM** Networks for Image Captioning
- Implementation of **Logistic Regression**, **KNN**, **Ridge Regression**, **MCMC Sampling** (Machine Learning course)

Conference Activity

CVPR 2024 Workshop on Foundation Models For Medical Vision

- Oral presentation for summary of our method and results analysis for the challenge.

Skills

Programming Language: Python, C/C++, LaTeX, Bash Script

Libraries: NumPy, PyTorch, Matplotlib, OpenCV, PIL, ITK, Pandas

Tools: Git, Docker, AWS S3, 3D Slicer

Language: Chinese (Native), English