JIEKE WANG

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EDUCATION

University of California San Diego *Fall 2019 - Summer 2023*
Department of Mathematics
Advisor: Zhuowen Tu

PUBLICATIONS

- Zheng Ding, **Jieke Wang**, and Zhuowen Tu. *Open-Vocabulary Panoptic Segmentation with MaskCLIP* (submitted to ICLR2023): open-vocabulary panoptic segmentation allows general segmentation by arbitrary texts. Previous methods for open-vocabulary detection or segmentation usually rely on distilling or finetuning a foundation model pretrained on vision-language (e.g. CLIP) and use the foundation model as a classifier that iterates the extracted regions. We first build a baseline method by directly adopting pre-trained CLIP models without finetuning nor distillation. We then develop MaskCLIP, a Transformer-based approach with a Relative Mask Attention (RMA) module. The RMA is an encoder-only module that seamless integrates mask tokens with a pre-trained ViT CLIP model for semantic/instance segmentation and class prediction. We obtain encouraging results for open-vocabulary panoptic/instance segmentation and state-of-the-art results for semantic segmentation on ADE20K and PASCAL datasets.

RESEEARCH INTEREST

- Computer Vision (CV) & Multi-Modal Learning (MM): open-vocabulary localization; vision-language models; prompt fine-tuning; video understanding; visual causalities ...

SELECTED INDEPENDENT PROJECTS

- In-progress: Multi-modal Prompt for Video Question Answering
- **Generative Adversarial Network** for Anime-Style Art
- **Semantic Segmentation** for Anime-Style Art from Domain-Adapted Training Data
- **Visual Question Answering** through Cross-Modal Transformer
- **Person Re-Identification** using Semi-Hard Negative Sampling and Soft-Labeled Triplet Loss
- Material & Emptiness Classification by SURF and Bag of Visual Words

SKILLS

- Fluent in Python (PyTorch), Mathematica
- Detectron2 and MMCV for Computer Vision Tasks
- Taichi Programming Language for Physics-based Computer Graphics

WORK EXPERIENCE

- January 2022 - present: Research assistant at mlPC Lab, UCSD.
- June 2020 - August 2020: Internship as Stock-Strategy Engineer in Shengang Securities, Shanghai.