Wenfang Sun | Résumé

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Education

University of Science and Technology of China **Hefei**
Master, Computer Science *2021-present*
GPA: 3.56

Anhui University **Hefei**
Bachelor, Communication Engineering *2017-2021*
GPA: 86.25/100

Research Interests

My previous research was primarily focused on few-shot learning, where I employed a novel method within the meta-learning framework to address the challenge of limited tasks in few-shot scenarios. Currently, I am enthusiastic about visual language models and large language models. I have proposed a novel approach for text-supervised semantic segmentation using supervision from a large language model, eliminating the need for additional training. Additionally, my research involves the exploration of prompt learning and test-time adaptation.

Research Experience

Few-shot Learning with Fewer Tasks **USTC**
Supervision of Dr. Xiantong Zhen and Prof. Cees G. M. Snoek. *2022.06–2023.01*
⋆ Proposed MetaModulation, an innovative approach for few-shot learning, tackles the constraint of limited meta-training tasks by employing neural networks to modulate batch normalization parameters during training.

⋆ Proposed a variational extension of MetaModulation, introducing uncertainty-aware meta-learning through treating modulation parameters as latent variables.

⋆ Introduced learning variational feature hierarchies within the framework of variational MetaModulation, enabling modulation of features at all network layers.

Multimodal Prompt Learning for Referring Image Segmentation **USTC**
Supervision of Yingjun Du. *2023.03–2023.06*
⋆ Proposed employing a multimodal prompt learning paradigm to effectively exploit the synergistic information present in both visual and textual modalities for the task of Referring Image Segmentation.

⋆ Introduced test-time adaptation to enhance the performance of Referring Image Segmentation by incorporating it into the multimodal prompts during testing.

Training-Free Semantic Segmentation via LLM-Supervision **USTC**
Supervision of Yingjun Du and Prof. Cees G. M. Snoek. *2023.07–2023.11*
⋆ Proposed a novel text-supervised semantic segmentation framework leveraging large language model supervision for enhanced class descriptors and improved segmentation accuracy.

⋆ Proposed an advanced subclass generation technique using a large language model, such as GPT-3, to refine class representations in text-supervised semantic segmentation.

⋆ Proposed an effective ensembling strategy that merges diverse segmentation maps from generated subclass descriptors, ensuring a comprehensive representation of unique characteristics in test images.

Publications

⋆ [1] **Wenfang Sun***,Yingjun Du*, Xiantong Zhen, Fan Wang, Ling Wang and Cees GM Snoek. MetaModulation: Learning Variational Feature Hierarchies for Few-Shot Learning with Fewer Tasks(**ICML**), 2023. (Equal contribution)

⋆ [2] **Wenfang Sun**, Yingjun Du, Gaowen Liu, Ramana Rao Kompella, and Cees GM Snoek. Training-Free Semantic Segmentation via LLM-Supervision (**submitted**), 2024.

Awards

2023: National Scholarship USTC

2023: First-class Academic Scholarship USTC

2022: First-class Academic Scholarship USTC

2021: First-class Academic Scholarship USTC

2021: Excellent Graduates from Anhui Province AHU

Skills

Proficient: Python, ML/CV libraries (PyTorch, Tensorflow, OpenCV)

Partial experience: C/C++, Ros

Academic References

⋆ **Dr. Xiantong Zhen**

Dr. Xiantong Zhen is currently the Director of AI Research at Central Research Institute, United Imaging Healthere, Co., Ltd. Previously, he was an Assistant Professor and Scientific Manager at the AI for Medical Imaging Lab at the University of Amsterdam, The Netherlands.

⋆ **Dr. Gaowen Liu**

Dr. Gaowen Liu is a distinguished researcher at Cisco Research. With a Ph.D. in Computer Science from the University of Trento, she has significantly expanded her research horizons as a visiting scholar at Carnegie Mellon University and the University of Michigan. Her impactful contributions span computer vision, machine learning, and multimedia, resulting in the publication of over 20 research papers.

⋆ **Prof. Cees G. M. Snoek**

Prof. Cees G. M. Snoek is currently a Professor at the University of Amsterdam, specializing in computer vision through machine learning. With a decade of experience, he has authored over 250 papers, mentored 30 PhD students and postdocs, and serves as an associate editor for the IEEE Transactions on Pattern Analysis and Machine Intelligence. Additionally, he holds senior memberships in both the IEEE and the ACM and is recognized as an Ellis Fellow.