Feng Wang

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EDUCATION

Tsinghua University (THU), M.S. in Data Science Aug. 2019 - Present

- GPA: 3.98/4.0, ranked the 3rd in the Department of Automation, Tsinghua University.
- Major courses: Data Mining Theories and Algorithms (A) / Pattern Recognition (A-) / Big Data Modeling and Analysis (A+) / Optimization and System Engineering (A-) / Convex Optimization (A-).

Xi'an Jiaotong University (XJTU), B.S. in Electrical Engineering Aug. 2015 - Jun. 2019

- GPA (major): 3.88/4.3 (90.38/100), GPA (overall): 3.70/4.3 (87.97/100).
- Mathematics related courses: Advanced Mathematics (97) / Probability Theory and Mathematical Statistics (96) / Complex Analysis and Integral Transformation (98) / Mathematical and Physical Equations (99).
- 1st Prize in the National University Student Mathematics Competition (Shaanxi Province, Mar.2018)

PUBLICATIONS

[1] **Feng Wang**, Huiyu Wang, Chen Wei, et al. "CP2: Copy-Paste Contrastive Pretraining for Semantic Segmentation"
In ECCV, 2022. Link: *http://arxiv.org/abs/2203.11709*.

[2] **Feng Wang**, Guoyizhe Wei, Qiao Liu, et al. "Boost Neural Networks by Checkpoints"
In NeurIPS, 2021. Link: *http://arxiv.org/abs/2110.00959*.

[3] **Feng Wang**, Manling Li, Xudong Lin, et al. "Learning to Decompose Visual Features with Latent Textual Prompts"
In ICLR, 2023, under review. Link: *https://arxiv.org/abs/2210.04287*.

[4] **Feng Wang**, Jinxiang Ou, Hairong Lv. "Gradient Boosting Forest: A Two-Stage Ensemble Method Enabling Federated Learning of GBDTs" In ICONIP, 2021.

[5] Jinxiang Ou, Yunheng Shen, **Feng Wang**, et al. "AggEnhance: Aggregation Enhancement by Class Interior Points in Federated Learning with Non-IID Data" In ACM TIST, 2021.

INTERNSHIP

- **Microsoft Research** (in progress) / Mentor: ***Furu Wei, Li Dong*** / Topic: vision-language representation learning
- **University of Illinois**, **Urbana-Champaign** (2022) Advisor: ***Heng Ji, Alexander Schwing*** Topic: vision-language modeling
- **Johns Hopkins University** (2021) / Advisor: ***Alan Yuille*** / Topic: self-supervised learning for semantic segmentation

SELECTED RESEARCH

Decomposed Feature Extraction for Vision-Language Models (ICLR 2023, under review) Mar. 2022 - Aug. 2022

Advisor: Prof. Heng Ji & Prof. Alexander G. Schwing, University of Illinois Urbana-Champaign

- Presented a novel vision-language contrastive learning model that decouples visual features from semantic targets.
- Learned decomposed and interpretable visual features by leveraging vision-language alignment in the latent space.
- Attained significant improvements over CLIP on a variety of visual benchmarks (e.g., 15.0% higher acc. on ImageNet).

Self-Supervised Pretraining for Semantic Segmentation (ECCV 2022) May. 2021 - Mar. 2022

Advisor: Prof. Alan Yuille, Department of Computer Science, Johns Hopkins University

- Designed a dense contrastive learning method that enabled pretraining segmentation models on unannotated images.
- Addressed the issue of translation and scaling invariance by introducing copy-pasted images and pixel-wise loss.
- Obtained 78.6% mIoU with a RN-50 and 79.5% mIoU with a ViT-S by finetuning our pretrained model on VOC 2012.

Checkpoint-Based Boosting Ensemble for Deep Neural Networks (NeurIPS 2021) Mar. 2020 - May. 2021

Advisor: Prof. Hairong Lv, Department of Automation, Tsinghua University

- Proposed a neural network ensemble scheme with adaptive loss and proved its convergence in exponential loss.
- Systematically analyzed Checkpoint Ensemble techniques and studied the effect of sample reweighting on loss surface.
- Achieved state-of-the-art performance over the existing ensembles with ResNet, DenseNet and EfficientNet architectures.

OTHERS

- Programming: Python, Pytorch 1.x, Tensorflow 1.x/2.x, Matlab (5000+ lines), C/C++.
- English Proficiency: TOEFL (101).
- University Annual Outstanding Student (Top 10%, Oct.2017, Oct.2018).
- First Prize Scholarship (Top 5%), Yuying Scholarship (Top 5%), Siyuan Scholarship (Top 10%), etc.