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 (overall): 3.70/4.3 (87.97/100), GPA (major): 3.88/4.3 (90.38/100).
- 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

F. Wang, et al. "CP2: Copy-Paste Contrastive Pretraining for Semantic Segmentation." European Conference on Computer Vision (ECCV 2022). arxiv: *http://arxiv.org/abs/2203.11709*.

F. Wang, et al. "Boost Neural Networks by Checkpoints." Neural Information Processing Systems (NeurIPS 2021). arxiv: *http://arxiv.org/abs/2110.00959*.

F. Wang, et al. "Learning to Decompose Visual Features with Latent Textual Representations." Submitting to ICLR 2023.

F. Wang, et al. "Gradient Boosting Forest: A Two-Stage Ensemble Method Enabling Federated Learning of GBDTs." International Conference on Neural Information Processing (ICONIP 2021).

J. Ou, Y. Shen, **F. Wang**, et al. "AggEnhance: Aggregation Enhancement by Class Interior Points in Federated Learning with Non-IID Data." ACM Transactions on Intelligent Systems and Technology (ACM TIST 2021).

SELECTED RESEARCH

Decomposed Feature Extraction for Vision-Language Models (submitting to ICLR 2023)　　Mar.2022 - Present

*Supervisor: **Prof. Heng Ji**, Department of Computer Science, **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

*Supervisor: **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% with a ViT-S by finetuning our pretrained model on PASCAL VOC.

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

*Supervisor: **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.

INTERNSHIP

- Microsoft Research　　　　　　　　　　　　self-supervised learning and vision backbones　　Jul.2022 - Present
- University of Illinois Urbana-Champaign　　vision-language models　　　　　　　　　　Apr.2022 - Present
- Johns Hopkins University　　　　　　　　　self-supervised learning for semantic segmentation　May.2021 - Mar.2022

OTHERS

- Programming: Python (20000+ lines), Pytorch 1.x, Tensorflow 1.x/2.x, Matlab (5000+ lines), C/C++.
- English Proficiency: TOEFL (101); Thesis writing: Latex and Microsoft Office software.
- University Annual Outstanding Student (Top 10%, Oct.2017, Oct.2018).
- First Prize Scholarship (Top 5%), Yuying Scholarship (Top 5%), Siyuan Scholarship (Top 10%), etc.