



JUNFEI XIAO

Baltimore, Maryland

<https://lambert-x.github.io>

☎ 410-949-7876 ✉ xiaojf97@gmail.com  

Education

Johns Hopkins University

Ph.D. in Computer Science

2022 -

Baltimore, Maryland

Johns Hopkins University

M.S.E in Computer Science, GPA: 3.97/4.0

Sep. 2019 – May 2021

Baltimore, Maryland

Beihang University

B.E. in Mechanical Engineering, Double Degree in Mathematics, GPA: 3.8/4.0 (Top 2%)

Sep. 2015 – June 2019

Beijing, China

Research Interests

My current research interests are transfer learning with a focus on multi-domain/modal learning and weakly/semi/self-supervised learning in the area of computer vision.

Publications and Manuscripts

- [5] Yutong Bai, Zeyu Wang, **Junfei Xiao**, Chen Wei, Huiyu Wang, Alan Yuille, Yuyin Zhou, and Cihang Xie. “Masked Autoencoders Enable Efficient Knowledge Distillers”. In: *arXiv preprint arXiv:2208.12256* (2022).
- [4] **Junfei Xiao**, Yutong Bai, Alan Yuille, and Zongwei Zhou. “Delving into Masked Autoencoders for Multi-Label Chest X-ray Classification”. In: *Under review*. (2022).
- [3] **Junfei Xiao**, Longlong Jing, Lin Zhang, Ju He, Qi She, Zongwei Zhou, Alan Yuille, and Yingwei Li. “Learning from Temporal Gradient for Semi-supervised Action Recognition”. In: *Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR)* (2022).
- [2] **Junfei Xiao**, Lequan Yu, Lei Xing, Alan Yuille, and Yuyin Zhou. “DualNorm-UNet: Incorporating Global and Local Statistics for Robust Medical Image Segmentation”. In: *arXiv preprint. Under review*. (2021).
- [1] Siqi Wang, Lei Li, Yufeng Chen, Yueping Wang, Wenguang Sun, **Junfei Xiao**, Dylan Wainwright, Tianmiao Wang, Robert J Wood, and Li Wen. “A bio-robotic remora disc with attachment and detachment capabilities for reversible underwater hitchhiking”. In: *2019 International Conference on Robotics and Automation (ICRA)*. 2019.

Research Experience

CCVL Lab, Johns Hopkins University

Research Assistant, Advisor: Alan Yuille

Sep. 2021 – Present

Baltimore, Maryland

CCVL Lab, Johns Hopkins University

Research Intern, Advisor: Alan Yuille

June 2020 – Sep. 2021

Baltimore, Maryland

Medical Robotics Surgery Lab, Beihang University

Research Assistant, Advisor: Junchen Wang

Feb. 2019 – June 2019

Beijing, China

Biomechanics and Soft Robotics Lab, Beihang University

Research Assistant, Advisor: Li Wen

Sep. 2017 – Aug. 2018

Beijing, China

Selected Projects

Semi-supervised Learning for Action Recognition [\[Paper\]](#) [\[Code\]](#)

CVPR 2022

- Propose a method that explicitly distills the fine-grained motion representations from temporal gradient (TG) and imposes consistency across different modalities (i.e., RGB and TG).
- The performance of semi-supervised action recognition is significantly improved without additional computation or parameters during inference.
- Our method achieves the state-of-the-art performance on three video action recognition benchmarks (i.e., Kinetics-400, UCF-101, and HMDB-51) under several typical semi-supervised settings (i.e., different ratios of labeled data).

Multi-domain Learning for Medical Image Segmentation [\[Paper\]](#) [\[Code\]](#)

MICCAI Workshop 2022

- Propose a method to introduce the semantic class information into normalization layers by incorporating both global image-level statistics and local region-wise statistics.
- The method exploits semantic knowledge at normalization and yields more discriminative features for robust segmentation results.
- The method shows remarkable robustness to data from different domains.

Few-shot Food Detection [\[Report\]](#) [\[Code\]](#)

- Propose a method to learn a feature extractor with base classes and fine-tune the classifier and bounding box regressor with few shot examples from novel classes

SGD-based Annealing Algorithms for Neural Network Optimization [\[Report\]](#)

- Propose two different annealing strategies to improve SGD for neural network optimization.
- Experiment with the proposed algorithms on a 2-D point binary classification dataset and the Fashion-MNIST dataset. The two proposed algorithms with tuned scale of noise and initial temperature show remarkable performance.

Honors and Awards

Academic Excellence Award	2016, 2017, 2018
JJWorld Scholarship	2017
National Scholarship (Top 0.1% national wide)	2016

Service

Program Committee / Reviewer:

ICML 2021/2022 Workshop – Interpretable Machine Learning in Healthcare, **CVPR 2022**, **ECCV 2022**

Relevant Coursework

-
- | | | |
|--------------------------------------|----------------------------------|-----------------------------------|
| • Deep Learning | • Stochastic Optimization | • Algo. for Sensor-Based Robotics |
| • Computer Vision | • Augmented Reality | • Database |
| • Probabilistic Models Visual Cortex | • Robot Devices, Kin, Dyn & Ctrl | |

Technical Skills

Programming Languages: Python, Matlab, C/C++, SQL, Ocaml, Julia

Tools: L^AT_EX, Git, SolidWorks

Deep Learning Frameworks: Pytorch, Tensorflow