Guangrui Li

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Education

University of Technology Sydney Sydney, Australia
Ph.D. *in Computer Science* *July 2019 – April. 2024 (Expected)*

Chongqing University Chongqing, China
B.E. *in Software Engineering* *Sep. 2014 – June 2018*

Research Interest

Keywords: Transfer Learning, Multi-Modal Learning, Open-world Learning.

- **Transfer Learning to novel visual structures** seeks to generalize the model to novel visual domains in terms of dynamic visual structures/geometries, i.e., rigid 2D / 3D scenes, and non-rigid poses.
- **Transfer Learning with Foundation Models** encapsulates two aspects regarding transfer learning, *i.e.*,, transferring FM's knowledge to specialized models, and retaining FM's generalizabilties during fine-tuning.

Professional Experience

AWS AI Rekognition Seattle, US
Research Intern on Vision Foundation Models *Nov. 2023 – Feb. 2024*

- Focused on improving the robustness and generalizabilities during the fine-tuning of vision foundation models (CLIP, DINOv2, etc), striking the balance between on in-distribution (ID) recognition and robustness to out-of-distribution (OOD) samples.
- Achieving state-of-art performance on the ImageNet benchmark, iWildsCam and FMoW. Especially, on ImageNet, our method can obtain 2% gain on the OOD performance while keeping the ID performance.
- Authored a research paper currently in the submission to ECCV 2024.

Sony AI Research Remote
Research Intern on Vision Foundation Models *Aug. 2023 – Oct. 2023*

- Studied Federated Knowledge Distillation for visual foundation models, i.e., gathering and distilling detection knowledge from multiple distributed detectors.
- Collaborated with a team of researchers to develop and integrate a all-in-one vision foundation models.
- Implemented novel techniques for effective class aggregation in federated knowledge distillation.

Baidu Research Beijing, China
Research Intern on Multi-Modal Learning *Sep 2021 – Aug 2022*

- Developed novel methodologies for open-vocabulary detection to identify and localize novel/unseen objects based on language prompts.
- Achieved state-of-the-art results on COCO and LVIS benchmarks, authored a research paper currently under review of a top-tire conference.
- The developed approach has been examined and deployed in Baidu Services.

Publications

1. Robustness Preserving Fine-tuning using Neuron Importance
European Conference on Computer Vision (**ECCV**), 2024 (In submission).
Guangrui Li, Rahul Duggal, Aaditya Singh, Kaustav Kundu, Bing Shuai, Jonathan Wu.
2. Decouple to Contrast: Orthogonalized Ambiguity Reduction for Open-Vocabulary Object Detection
European Conference on Computer Vision (**ECCV**), 2024 (In submission).
Guangrui Li, Yifan Sun,Yi Yang

3. Construct to Associate: Cooperative Context Learning for Domain Adaptive Point Cloud Segmentation
   IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**), 2024.
   Guangrui Li.
4. Adversarially Masking Synthetic to Mimic Real: Adaptive Noise Injection for Point Cloud Segmentation Adaptation
   IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**), 2023.
   Guangrui Li, Guoliang Kang, Xiaohan Wang, Yunchao Wei, and Yi Yang
5. Decompose to Generalize: Species-Generalized Animal Pose Estimation
   International Conference on Learning Representations (**ICLR**), 2023.
   Guangrui Li, Yifan Sun, Zongxin Yang, and Yi Yang
6. Taking a Closer Look into Cross-Domain Consensus: a Clustering-based Approach for Universal Domain Adaptation
   International Journal of Computer Vision (**IJCV**), 2022. (Under Review)
   Guangrui Li, Guoliang Kang, Yi Zhu, Yunchao Wei, and Yi Yang
7. VSPW: A Large-scale Dataset for Video Scene Parsing in the Wild
   IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**), 2021.
   Jiaxu Miao, Yunchao Wei, Yu Wu, Chen Liang, Guangrui Li, Yi Yang
8. Domain Consensus Clustering for Universal Domain Adaptation
   IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**), 2021.
   *Application to Lesion Tracing of Circulating Tumor Cells. **[Nature comm.]***
   Guangrui Li, Guoliang Kang, Yi Zhu, Yunchao Wei, and Yi Yang
9. Content-Consistent Matching for Domain Adaptive Semantic Segmentation
   European Conference on Computer Vision (**ECCV**), 2020.
   Guangrui Li, Guoliang Kang, Wu Liu, Yunchao Wei, and Yi Yang

Academic services and Awards

Google Travel Grant, 2023
ICLR financial assistance award, 2023
Semi-finalist in Valeo International Challenge [24/1376], 2017
Reviewer of IEEE TPAMI, TKDE, TIP, and TNNLS.
Programme Committee of CVPR, ECCV, ICCV, ICLR, ICML, and NeurIPS.

Skills

Programming: Python (Numpy, Pytorch, Caffe), C/C++, Shell, LaTeX.
Languages: Native in Chinese (Mandarin), Fluent in English.