JIANYANG GU

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EDUCATION

Zhejiang University   Hangzhou, China
Ph.D. in Control Science and Engineering   *Sep. 2019 – Jun. 2024*
- Supervised by Prof. Wei Jiang

Zhejiang University   Hangzhou, China
B.Eng. in Control Science and Engineering   *Sep. 2015 – Jun. 2019*

National University of Singapore   Singapore
Visiting Scholar in School of Computing   *Sep. 2022 – Oct. 2023*
- Supervised by Prof. Yang You

EXPERIENCE

Postdoctoral Researcher in the Ohio State University   Aug. 2024 – Now
- Topic: Imageomics.

OPPO Research Intern   Nov. 2021 – Jun. 2022
- Topic: generalizable object re-identification structure.

Alibaba Research Intern   Jun. 2020 – Apr. 2021
- Topic: unsupervised domain adaptive person re-identification.

Yitu Tech. CI Intern   May. 2018 – Aug. 2018
- Topic: automatic test pipeline for products.

RESEARCH INTEREST

Imageomics
- Build computational tools around biological knowledge bases to analyze image data.
- Develop multimodal foundation models for general biology questions on images.
- Design explainable and trustworthy models to advance biology development as well as public use.

Data-centric Efficient Training
- Reduce storage and computational data burden by synthesizing small surrogate datasets.
- Enhance the representativeness and diversity of generative diffusion techniques for data generation.
- Conduct more efficient training by selecting informative samples on both online and offline schemes.

Unsupervised Object Re-identification System (Ph.D. Project)
- Construct a network architecture generalizable for incoming unseen tasks.
- Design an unsupervised domain adaptation method to improve the accuracy on new tasks.
- Incorporate continual learning techniques to reduce the catastropic forgetting on previous tasks.

PUBLICATIONS

(* Equal contribution)

Imageomics
- Z. Zhang*, **J. Gu***, A. Chowdhury, Z. Mai, D. Carlyn, T. Berger-Wolf, Y. Su, W. Chao. Finer-CAM: Spotting the Difference Reveals Finer Details for Visual Explanation. To appear in *Arxiv* (2024).
- A. Chowdhury, D. Paul, Z. Mai, **J. Gu**, Z. Zhang, K.Mehrab, E. Campolongo, D. Rubenstein, C. Stewart, A. Karpatne, T. Berger-Wolf, Y. Su, W. Chao. Prompt-CAM: Prompt-Class Attention Map for Fine-grained Interpretation. To appear in *Arxiv* (2024).
- Z. Feng, Z. Wang, S. Bueno, T. Frelek, A. Ramesh, J. Bai, L. Wang, Z. Huang, **J. Gu**, J. Yoo, T. Pan, A. Chowdhury, M. Ramirez, E. Campolongo, M. Thompson, C. Lawrence, S. Record, N. Rosser, A. Karpatne, D. Rubenstein, H. Lapp, C. Stewart, T. Berger-Wolf, Y. Su, W. Chao. Static Segmentation by Tracking: A Frustratingly Label-Efficient Approach to Fine-Grained Segmentation. To appear in *Arxiv* (2024).

Data-centric Efficient Training

- V. Kungurtsev, Y. Peng, **J. Gu**, S. Vahidian, A. Quinn, F. Idlahcen, and Y. Chen. Dataset Distillation from First Principles: Integrating Core Information Extraction and Purposeful Learning. *Arxiv*, 2409.01410 (2024).
- **J. Gu**, S. Vahidian, V. Kungurtsev, H. Wang, W. Jiang, Y. You, and Y. Chen. Efficient Dataset Distillation via Minimax Diffusion. *CVPR*, 15793–15803 (2024).
- **J. Gu**, K. Wang, W. Jiang, and Y. You. Summarizing Stream Data for Memory-Restricted Online Continual Learning. *AAAI*, 12217–12225 (2024).
- Y. Lu, **J. Gu**, X. Chen, S. Vahidian, Q. Xuan. Exploring the Impact of Dataset Bias on Dataset Distillation. *CVPRW*, 7656–7663 (2024).
- S. Vahidian*, M. Wang*, **J. Gu***, V. Kungurtsev, W. Jiang, and Y. Chen. Group Distributionally Robust Dataset Distillation with Risk Minimization. *Arxiv*, 2402.04676 (2024).
- Z. Qin*, K. Wang*, Z. Zheng, **J. Gu**, X. Peng, D. Zhou, and Y. You. InfoBatch: Lossless Training Speed Up by Unbiased Dynamic Data Pruning. *ICLR* (2024).
- Y. Liu*, **J. Gu***, K. Wang, Z. Zhu, K. Zhang, W. Jiang, and Y. You. DREAM+: Efficient Dataset Distillation by Bidirectional Representative Matching. *Arxiv*, 2310.15052 (2023).
- Y. Lu, X. Chen, Y. Zhang, **J. Gu**, T. Zhang, Y. Zhang, X. Yang, Q. Xuan, K. Wang, Y. You. Can pre-trained models assist in dataset distillation?. *Arxiv*, 2310.03295 (2023).
- Y. Liu*, **J. Gu***, K. Wang, Z. Zhu, W. Jiang, and Y. You. DREAM: Efficient Dataset Distillation by Representative Matching. *ICCV*, 17314–17324 (2023).
- D. Zhou*, K. Wang*, **J. Gu***, D. Lian, X. Peng, Y. Zhang, Y. You, and J. Feng. Dataset Quantization. *ICCV*, 17205–17216 (2023).
- K. Wang*, **J. Gu***, D. Zhou, Z. Zhu, W. Jiang, and Y. You. DiM: Distilling Dataset into Generative Model. *Arxiv*, 2303.04707 (2023).

Unsupervised Object Re-identification System (Ph.D. Project)

- X. Pan, H. Luo, W. Chen, F. Wang, H. Li, W. Jiang, J. Zhang, **J. Gu**, and P. Li. Dynamic Gradient Reactivation for Backward Compatible Person Re-identification. *PR*, 146, 110000 (2024).
- **J. Gu**, H. Luo, K. Wang, W. Jiang, Y. You, and J. Zhao. Color Prompting for Data-Free Continual Unsupervised Domain Adaptive Person Re-Identification. *Arxiv*, 2308.10716 (2023).
- **J. Gu**, K. Wang, H. Luo, C. Chen, W. Jiang, Y. Fang, S. Zhang, Y. You, and J. Zhao. MSINet: Twins Contrastive Search of Multi-Scale Interaction for Object ReID. *CVPR*, 19243–19253 (2023).
- **J. Gu**, W. Chen, H. Luo, F. Wang, H. Li, W. Jiang, and W. Mao. Multi-view Evolutionary Training for Unsupervised Domain Adaptive Re-identification. *IEEE TIFS* 17, 344-356 (2022).
- R. Wei, **J. Gu**, S. He, and W. Jiang. Transformer-Based Domain-Specific Representation for Unsupervised Domain Adaptive Vehicle Re-Identification. *IEEE TITS*, 14 (2), 1-21 (2022).
- X. Pan, H. Luo, W. Jiang, J. Zhang, **J. Gu**, and P. Li. SFGN: Representing the sequence with one super frame for video person re-identification. *KnoSys*, 249, 108884 (2022).
- H. Xie, H. Luo, **J. Gu**, and W. Jiang. Unsupervised Domain Adaptive Person Re-Identification via Intermediate Domains. *Applied Science*, 12 (14), 6990 (2022).
- **J. Gu**, H. Luo, W. Chen, Y. Jiang, Y. Zhang, S. He, F. Wang. H. Li, and W. Jiang. 1st Place Solution to VisDA-2020: Bias Elimination for Domain Adaptive Pedestrian Re-identification. *ECCVW*, *ArXiv*, 2012.13498 (2021).
- **J. Gu**, W. Jiang, H. Luo, and H. Yu. An efficient global representation constrained by Angular Triplet loss for vehicle re-identification. *Pattern Anal Applic* 24, 367–379 (2021).
- H. Luo, W. Chen, X. Xu, **J. Gu**, Y. Zhang, C. Liu, Y. Jiang, S. He, F. Wang, and H. Li. An Empirical Study of Vehicle Re-Identification on the AI City Challenge. *CVPRW*, 4095-4102 (2021).
- H. Luo, W. Jiang, Y. Gu, F. Liu, X. Liao, S. Lai, and **J. Gu**. A strong baseline and batch normalization neck for deep person re-identification. *TMM* 22(10), 2597-2609 (2019).

Other Topics

- Q. Wang, S. Vahidian, H. Ye, **J. Gu**, J. Zhang, and Yiran Chen. CoreInfer: Accelerating Large Language Model Inference with Semantics-Inspired Adaptive Sparse Activation. *Arxiv*, 2410.18311 (2024).
- W. Li*, S. Chen*, **J. Gu***, N. Wang, C. Chen, and Y. Guo. MV-TAL: Mulit-view temporal action localization in naturalistic driving. *CVPRW*, 3242-3248 (2022).
- H. Wu, **J. Gu**, X. Fan, H. Li, L. Xie, and J. Zhao. 3D-Guided Frontal Face Generation for Pose-Invariant Recognition. *ACM TIST*, 14 (2), 1-21 (2022).
- S. Chen, W. Li, C. Chen, **J. Gu**, J. Chu, X. Tao, and Y. Guo. SEAL: A Large-scale Video Dataset of Multi-grained Spatio-temporally Action Localization. *ArXiv*, 2204.02688 (2022).

ADADEMIC SERVICE

Workshop Organization
- Co-chair   Second Workshop on Imageomics @ AAAI2025
- PC Member   First Workshop on Dataset Distillation @ CVPR2024

Conference Reviewer
- CVPR, ICCV, ECCV, ICLR, NeurIPS, ACMMM, ACCV

Journal Reviewer
- IEEE TPAMI, PR, CVIU, IEEE TCSVT

AWARDS & HONORS

- **AAAI Scholarship**   2024
- **Third Place, ActivityNet Temporal Action Localization Challenge in CVPR Workshop**   2022
- **Third Place, SoccerNet Challenge 2022 Action Spotting in CVPR Workshop**   2022
- **First Place, AICity Challenge 2021 Track 2 in CVPR Workshop**   2021
- **Alibaba Annual Outstanding Research Intern**   2020
- **Second Prize, National AI Challenge 2020 Person Re-Identification Track**   2020
- **First Place, Visual Domain Adaptation Challenge 2020 in ECCV Workshop**   2020
- **Annual Merit Graduate Student**   2020
- **First Place, Robocup Montreal**   2018

OTHER INFORMATION

- **President**, Student AI Association of Zhejiang University   Aug. 2020 - Jun. 2021