

# JIANYANG GU

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## EDUCATION

### Zhejiang University

*Ph.D. in Control Science and Engineering*

- Supervised by Prof. Wei Jiang

Hangzhou, China

Sep. 2019 – Jun. 2024

### Zhejiang University

*B.Eng. in Control Science and Engineering*

Hangzhou, China

Sep. 2015 – Jun. 2019

### National University of Singapore

*Visiting Scholar in School of Computing*

- Supervised by Prof. Yang You

Singapore

Sep. 2022 – Oct. 2023

## EXPERIENCE

### Postdoctoral Researcher in the Ohio State University

- Topic: Imageomics.

Aug. 2024 – Now

### OPPO Research Intern

- Topic: generalizable object re-identification structure.

Nov. 2021 – Jun. 2022

### Alibaba Research Intern

- Topic: unsupervised domain adaptive person re-identification.

Jun. 2020 – Apr. 2021

### Yitu Tech. CI Intern

- Topic: automatic test pipeline for products.

May. 2018 – Aug. 2018

## 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 catastrophic 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. *CVPR* (2025).
- 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. *CVPR* (2025).
- 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. *arXiv*, 2501.06749 (2024).

## Data-centric Efficient Training

- S. Vahidian\*, M. Wang\*, **J. Gu\***, V. Kungurtsev, W. Jiang, and Y. Chen. Group Distributionally Robust Dataset Distillation with Risk Minimization. *ICLR* (2025).
- 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).
- 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: Multit-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

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### Workshop Organization

- Co-chair Second Workshop on Imageomics @ AAAI2025
- Co-chair Anomaly Detection in Scientific Domains Workshop @ AAAI2025
- PC Member First Workshop on Dataset Distillation @ CVPR2024

### Conference Reviewer

- CVPR, ICCV, ECCV, ICLR, ICML, NeurIPS, ACMMM, ACCV

### Journal Reviewer

- IEEE TPAMI, PR, CVIU, IEEE TCSVT

## AWARDS & HONORS

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| • OSU CSE Research Staff Award   | 2025 |
| • 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

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