

Jian Liang

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EXPERIENCE

- **Associate Professor, Institute of Automation, Chinese Academy of Sciences** Beijing, China
working with Prof. Ran He and Prof. Tieniu Tan
keywords: trustworthy machine learning, knowledge transfer; federated learning; AI security
June 2021 - now
- **Research Fellow, National University of Singapore** Singapore
working with Dr. Jiashi Feng
keywords: transfer learning; domain adaptation; federated learning
June 2019 - April 2021

EDUCATION

- **Ph.D., University of the Chinese Academy of Sciences** Beijing, China
Pattern Recognition and Intelligent Systems; Advisor: Prof. Tieniu Tan
Thesis: Multi-domain learning and its applications in retrieval, clustering, and classification
July 2013 - Jan. 2019
- **B.Eng., Xi'an Jiaotong University** Shaanxi, China
Automation; Thesis Advisor: Prof. Sibó Ge
July 2009 - June 2013

SELECTED PUBLICATIONS

Conferences ([†]corresponding authors; *co-first authors):

1. Zhengbo Wang, **Jian Liang**[†], Ran He, Zilei Wang, Tieniu Tan. “Taming Momentum: Rethinking Optimizer States Through Low-Rank Approximation.” In Proc. ICLR, 2026. (**Oral**)
2. Dong Yan, **Jian Liang**[†], Ran He, Tieniu Tan. “Stop Tracking Me! Proactive Defense Against Attribute Inference Attack in LLMs.” In Proc. ICLR, 2026.
3. Lijun Sheng, **Jian Liang**[†], Ran He, Zilei Wang, Tieniu Tan. “The Illusion of Progress? A Critical Look at Test-Time Adaptation for Vision-Language Models.” In Proc. NeurIPS D&B Track, 2025.
4. Zhengbo Wang, **Jian Liang**[†], Ran He, Zilei Wang, Tieniu Tan. “LoRA-Pro: Are Low-Rank Adapters Properly Optimized?” In Proc. ICLR, 2025. (**Spotlight**)
5. Lijun Sheng, **Jian Liang**[†], Zilei Wang, Ran He. “R-TPT: Improving Adversarial Robustness of Vision-Language Models through Test-Time Prompt Tuning.” In Proc. CVPR, 2025.
6. Yanbo Wang, Jiyang Guan, **Jian Liang**[†], Ran He. “Do We Really Need Curated Malicious Data for Safety Alignment in Multi-modal Large Language Models?” In Proc. CVPR, 2025.
7. Kuangpu Guo, Lijun Sheng, Yongcan Yu, **Jian Liang**[†], Zilei Wang, Ran He. “Cooperative Pseudo Labeling for Unsupervised Federated Classification.” In Proc. ICCV, 2025.
8. Lijun Sheng, **Jian Liang**[†], Ran He, Zilei Wang, Tieniu Tan. “Protecting Model Adaptation from Trojans in the Unlabeled Data.” In Proc. AAAI, 2025.
9. Kuangpu Guo, Yuhe Ding, **Jian Liang**[†], Ran He, Zilei Wang, Tieniu Tan. “Exploring Vacant Classes in Label-Skewed Federated Learning.” In Proc. AAAI, 2025.
10. Shuo Lu, Yanyin Chen, Wei Feng, Jiahao Fan, Fengheng Li, Zheng Zhang, Jingjing Lv, Junjie Shen, Ching Law, **Jian Liang**[†]. “Uni-Layout: Integrating Human Feedback in Unified Layout Generation and Evaluation.” In Proc. ACM MM, 2025.
11. Dapeng Hu, Mi Luo, **Jian Liang**[†], Chuan-Sheng Foo. “Towards Reliable Model Selection for Unsupervised Domain Adaptation: An Empirical Study and A Certified Baseline.” In Proc. NeurIPS D&B Track, 2024.
12. **Jian Liang**, Lijun Sheng, Zhengbo Wang, Ran He, Tieniu Tan. “Realistic Unsupervised CLIP Fine-tuning with Universal Entropy Optimization.” In Proc. ICML, 2024. (**Spotlight**)
13. Zhengbo Wang, **Jian Liang**[†], Ran He, Zilei Wang, Tieniu Tan. “Connecting the Dots: Collaborative Fine-tuning for Black-Box Vision-Language Models.” In Proc. ICML, 2024.
14. Dapeng Hu, **Jian Liang**, Xinchao Wang, Chuan-Sheng Foo. “Pseudo-Calibration: Improving Predictive Uncertainty Estimation in Unsupervised Domain Adaptation.” In Proc. ICML, 2024.
15. Yanbo Wang, **Jian Liang**, Ran He. “Towards Eliminating Hard Label Constraints in Gradient Inversion Attacks.” In Proc. ICLR 2024.

16. Jiyang Guan, **Jian Liang**, Ran He. “Backdoor Defense via Test-Time Detecting and Repairing.” In Proc. ICLR 2024.
17. Yongcan Yu, Lijun Sheng, Ran He, **Jian Liang**[†]. “Outlier-Aware Test-Time Adaptation with Stable Memory Replay.” In Proc. ECCV 2024.
18. Zhengbo Wang, **Jian Liang**[†], Lijun Sheng, Ran He, Zilei Wang, Tieniu Tan. “A Hard-to-Beat Baseline for Training-free CLIP-based Adaptation.” In Proc. ICLR 2024.
19. Yujun Shi, **Jian Liang**, Wenqing Zhang, Vincent Tan, Song Bai. “Towards Understanding and Mitigating Dimensional Collapse in Heterogeneous Federated Learning.” In Proc. ICLR, 2023.
20. Yi-Fan Zhang, Xue Wang, **Jian Liang**, Zhang Zhang, Liang Wang, Rong Jin, Tieniu Tan. “Free Lunch for Domain Adversarial Training: Environment Label Smoothing.” In Proc. ICLR, 2023.
21. Dapeng Hu, **Jian Liang**[†], Jun Hao Liew, Chuhui Xue, Song Bai, **Xinchao Wang**[†]. “Mixed Samples as Probes for Unsupervised Model Selection in Domain Adaptation.” In Proc. NeurIPS, 2023.
22. Junchi Yu, **Jian Liang**, Ran He. “Mind the Label Shift for Augmentation-based Graph Out-of-Distribution Generalization.” In Proc. CVPR, 2023.
23. Lijun Sheng, **Jian Liang**[†], Ran He, Zilei Wang, Tieniu Tan. “AdaptGuard: Defending Against Universal Attacks for Model Adaptation. In Proc. ICCV, 2023.
24. Zhengbo Wang, **Jian Liang**[†], Ran He, Nan Xu, Zilei Wang, Tieniu Tan. “Improving Zero-Shot Generalization for CLIP with Synthesized Prompts.” In Proc. ICCV, 2023.
25. Yuxi Wang, **Jian Liang**, Yuran Yang, Zhaoxiang Zhang. “Informative Data Mining for One-shot Cross-Domain Semantic Segmentation.” In Proc. ICCV, 2023.
26. Yuting Xu, **Jian Liang**, Ziming Yang, Gengyun Jia, Yanhao Zhang, Ran He. “TALL: Thumbnail Layout for Deepfake Video Detection.” In Proc. ICCV, 2023.
27. Yi-Fan Zhang, Jindong Wang, **Jian Liang**, Zhang Zhang, Baosheng Yu, Liang Wang, Xing Xie, Dacheng Tao. “Domain-Specific Risk Minimization for Domain Generalization.” In Proc. KDD, 2023.
28. Kaiwei Zhang, Junchi Yu, Haichao Shi, **Jian Liang**, Xiao-Yu Zhang. “Rumor Detection with Diverse Counterfactual Evidence.” In Proc. KDD, 2023.
29. Jiyang Guan, **Jian Liang**, Ran He. “Are You Stealing My Model? Sample Correlation for Fingerprinting Deep Neural Networks.” In Proc. NeurIPS, 2022.
30. **Jian Liang**, Dapeng Hu, Jiashi Feng, Ran He. “DINE: Domain Adaptation from Single and Multiple Black-box Predictors.” In Proc. CVPR, 2022. (**Oral**)
31. Yujun Shi, Kuangqi Zhou, **Jian Liang**, Zihang Jiang, Jiashi Feng, Philip Torr, Song Bai, Vincent Y. F. Tan. “Mimicking the Oracle: An Initial Phase Decorrelation Approach for Class Incremental Learning.” In Proc. CVPR, 2022.
32. Boqiang Xu, **Jian Liang**, Lingxiao He, Zhenan Sun. “Mimicking Embedding via oThers’ Aggregation for Generalizable Person Re-identification.” In Proc. ECCV, 2022.
33. **Jian Liang**, Dapeng Hu, Jiashi Feng. “Domain Adaptation with Auxiliary Target Domain-Oriented Classifier.” In Proc. CVPR, 2021.
34. Mi Luo, Fei Chen, Dapeng Hu, Yifan Zhang, **Jian Liang**[†], Jiashi Feng[†]. “No Fear of Heterogeneity: Classifier Calibration for Federated Learning with Non-IID Data.” In Proc. NeurIPS, 2021.
35. Yifan Zhang, Bryan Hooi, Dapeng Hu, **Jian Liang**, Jiashi Feng. “Unleashing the Power of Contrastive Self-Supervised Visual Models via Contrast-Regularized Fine-Tuning.” In Proc. NeurIPS, 2021.
36. **Jian Liang**, Dapeng Hu, Jiashi Feng. “Do We Really Need to Access the Source Data? Source Hypothesis Transfer for Unsupervised Domain Adaptation.” In Proc. ICML, 2020. (**Oral**)
37. **Jian Liang**, Yunbo Wang, Dapeng Hu, Ran He, and Jiashi Feng. “A Balanced and Uncertainty-aware Approach for Partial Domain Adaptation.” In Proc. ECCV, 2020.
38. **Jian Liang**, Ran He, Zhenan Sun, and Tieniu Tan. “Distant Supervised Centroid Shift: A Simple and Efficient Approach to Visual Domain Adaptation.” In Proc. CVPR, 2019.
39. Lingxiao He*, **Jian Liang***, Haiqing Li, Zhenan Sun. “Deep Spatial Feature Reconstruction for Partial Person Re-Identification: Alignment-Free Approach.” In Proc. CVPR, 2018.

40. Jianze Wei*, **Jian Liang***[†], Ran He, Jinfeng Yang. “Learning Discriminative Geodesic Flow Kernel for Unsupervised Domain Adaptation.” In Proc. ICME, 2018. (**Oral**)
41. Yanbo Fan, Ran He, **Jian Liang**, Bao-Gang Hu. “Self-Paced Learning: an Implicit Regularization Perspective.” In Proc. AAAI, 2017. (**Oral**)
42. **Jian Liang***, Zhihang Li*, Dong Cao, Ran He, Jingdong Wang “Self-Paced Cross-Modal Subspace Matching.” In Proc. SIGIR, 2016. (**Oral**)
43. **Jian Liang**, Ran He, Zhenan Sun, Tieniu Tan. “Group-Invariant Cross-Modal Subspace Learning.” In Proc. IJCAI, 2016. (**Oral**)
44. Dekui Ma*, **Jian Liang***[†], Xiangwei Kong, Ran He. “Frustratingly Easy Cross-Modal Hashing.” In Proc. ACM MM, 2016.
45. Dekui Ma*, **Jian Liang***[†], Xiangwei Kong, Ran He, Ying Li. “Discrete Cross-Modal Hashing for Efficient Multimedia Retrieval.” In Proc. ISM, 2016. (**Best Paper Candidate**)

Journals ([†] *corresponding authors*; * *co-first authors*):

1. Boqiang Xu, Jinlin Wu, **Jian Liang**, Zhenan Sun, Hongbin Liu, Jiebo Luo, Zhen Lei. “Procedure-Aware Hierarchical Alignment for Open Surgery Video-Language Pretraining.” IEEE Transactions on Image Processing (TIP), in press, 2026.
2. Yuhe Ding, Bo Jiang, Aihua Zheng, Qin Xu, **Jian Liang**. “Ranking Vision-Language Models in Fully Unlabeled Tasks.” IEEE Transactions on Multimedia (TMM), in press, 2026.
3. **Jian Liang**, Ran He, Tieniu Tan. “A Comprehensive Survey on Test-Time Adaptation under Distribution Shifts.” International Journal of Computer Vision (IJCV), 2025.
4. Jiyang Guan, **Jian Liang**, Yanbo Wang, Ran He. “Sample Correlation for Fingerprinting Deep Face Recognition.” International Journal of Computer Vision (IJCV), 2025.
5. Shuo Lu*, Yingsheng Wang*, Lijun Sheng, Aihua Zheng, Lingxiao He, **Jian Liang**[†]. “Out-of-Distribution Detection: A Task-Oriented Survey of Recent Advances.” In ACM Computing Surveys (CSUR), 2025.
6. Yuxi Wang, **Jian Liang**, Zhaoxiang Zhang. “A Curriculum-style Self-Training Approach for Source-Free Semantic Segmentation.” IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI), 2024.
7. Yuting Xu, **Jian Liang**[†], Lijun Sheng, Xiao-Yu Zhang[†]. “Learning Spatiotemporal Inconsistency via Thumbnail Layout for Face Deepfake Detection.” International Journal of Computer Vision (IJCV), 2024.
8. Yujun Shi, **Jian Liang**, Wenqing Zhang, Vincent Tan, and Song Bai. “Understanding and Mitigating Dimensional Collapse in Federated Learning.” IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI), 2024.
9. Ziming Yang, **Jian Liang**, Yuting Xu, Xiao-Yu Zhang, Ran He. “Masked Relation Learning for DeepFake Detection.” IEEE Transactions on Information Forensics and Security (TIFS), 2024.
10. Yuhe Ding, **Jian Liang**[†], Bo Jiang, Aihua Zheng, Ran He. “MAPS: A Noise-Robust Progressive Learning Approach for Source-Free Domain Adaptive Keypoint Detection.” IEEE Transactions on Circuits and Systems for Video Technology (TCSVT), 2023.
11. Zhiyong Huang, Kekai Sheng, Ke Li, **Jian Liang**, Taiping Yao, Weiming Dong, Dengwen Zhou, Xing Sun. “Reciprocal Normalization for Domain Adaptation.” Pattern Recognition, 2023.
12. Yuhe Ding, Lijun Sheng, **Jian Liang**[†], Aihua Zheng, and Ran He. “ProxyMix: Proxy-based Mixup Training with Label Refinery for Source-Free Domain Adaptation.” Neural Network, 2023.
13. Boqiang Xu, **Jian Liang**[†], Lingxiao He, Jinlin Wu, Chao Fan, Zhenan Sun. “Color-Unrelated Head-Shoulder Networks for Fine-Grained Person Re-identification.” ACM Transactions on Multimedia Computing, Communications, and Application (TOMM), 2023.
14. **Jian Liang**, Dapeng Hu, Yunbo Wang, Ran He, and Jiashi Feng. “Source Data-absent Unsupervised Domain Adaptation through Hypothesis Transfer and Labeling Transfer.” IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI), 2022.
15. Boqiang Xu, Lingxiao He, **Jian Liang**[†], Zhenan Sun. “Learning Feature Recovery Transformer for Occluded Person Re-identification.” IEEE Transactions on Image Processing (TIP), 2022.
16. Ziming Yang, Jian Liang, Chaoyou Fu, Mandi Luo, Xiao-Yu Zhang. “Heterogeneous Face Recognition via Face Synthesis with Identity-Attribute Disentanglement.” IEEE Transactions on Information Forensics and Security (TIFS), 2022.

17. Dapeng Hu, **Jian Liang**[†], Qibin Hou, Hanshu Yan, and Yunpeng Chen. “Adversarial Domain Adaptation With Prototype-Based Normalized Output Conditioner.” *IEEE Transactions on Image Processing (TIP)*, 2021.
18. Yafeng Zhan*, Jianze Wei*, **Jian Liang**, Xiu Xu, Ran He, Trevor W Robbins, Zheng Wang. “Diagnostic Classification for Human Autism and Obsessive-Compulsive Disorder Based on Machine Learning From a Primate Genetic Model.” *American Journal of Psychiatry*, 2021.
19. Yunbo Wang, Xianfeng Ou, **Jian Liang**, Zhenan Sun. “Deep Semantic Reconstruction Hashing for Similarity Retrieval.” *IEEE Transactions on Circuits and Systems for Video Technology (TCSVT)*, 2021.
20. **Jian Liang**, Ran He, Zhenan Sun, and Tieniu Tan. “Aggregating Randomized Clustering-Promoting Invariant Projections for Domain Adaptation.” *IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)*, 2019.
21. Yunbo Wang, **Jian Liang**, Dong Cao, Zhenan Sun. “Local Semantic-aware Deep Hashing with Hamming-isometric Quantization.” *IEEE Transactions on Image Processing (TIP)*, 2019.
22. **Jian Liang**, Ran He, Zhenan Sun, and Tieniu Tan. “Exploring Uncertainty in Pseudo-label Guided Unsupervised Domain Adaptation.” *Pattern Recognition*, 2019.
23. Dekui Ma*, **Jian Liang**^{*†}, Ran He, Xiangwei Kong. “Nonlinear Discrete Cross-Modal Hashing for Visual-Textual Data.” *IEEE MultiMedia*, 2017.
24. Shu Zhang*, **Jian Liang**^{*†}, Ran He, Zhenan Sun. “Code Consistent Hashing Based on Information-Theoretic Criterion.” *IEEE Transactions on Big Data (TBD)*, 2015.

HONORS AND AWARDS

- Young Elite Scientists Sponsorship Program by CAST 2023
- ICCV 2023 GeoNet Challenge Winner 2023
- NeurIPS Top Reviewer 2023
- Beijing Nova Program 2021
- Chinese Academy of Sciences Special Research Assistant Program 2021
- Chinese Academy of Sciences Excellent Doctoral Thesis Award 2020
- Chinese Academy of Sciences Presidential Scholarship 2018
- IJCAI-ECAI Distinguished PC Awards 2018
- IEEE ISM Conference Best Paper Candidate Award 2016

TEACHING

- **Instructor, Graduate Course @ University of the Chinese Academy of Sciences** Beijing, China
 “*Machine Learning*” March 2025 - July 2025
 “*Machine Learning*” March 2024 - July 2024
- **Instructor, Graduate Course @ University of the Chinese Academy of Sciences** Beijing, China
 “*Deep Learning and Its Applications in Computer Vision and Natural Language Processing*” July 2025 - Aug 2025
 “*Deep Learning and Its Applications in Computer Vision and Natural Language Processing*” July 2024 - Aug 2024
 “*Deep Learning and Its Applications in Computer Vision and Natural Language Processing*” July 2023 - Aug 2023
 “*Deep Learning and Its Applications in Computer Vision and Natural Language Processing*” July 2022 - Aug 2022
 “*Deep Learning and Its Applications in Computer Vision and Natural Language Processing*” July 2021 - Aug 2021

ACADEMIC SERVICES

- **Associate Editor for Academic Journals**
 Pattern Recognition (PR)
- **Area Chair for Academic Conferences**
 ICML, ICLR, NeurIPS, CVPR, ICCV, IJCAI, ACM MM, WACV, ICME, PRCV, ICIG