- **所在研究方向**

  人工智能 计算机视觉；

  AIGC与AI可靠性

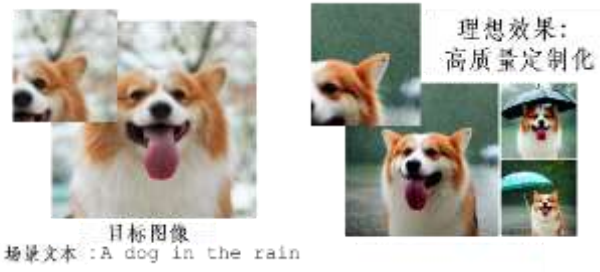
- **个人亮点**

  ✓ 发表 CVPR/ICCV/T-IP 等CCF-A类论文20篇，ECCV/ICASSP等CCF-B类论文15篇

  ✓ 参与国家重点基础研究发展计划项目及上海市重大专项项目，与工业界合作，参与自动驾驶、图像编辑项目，**系统研发能力强，落地高质量应用**

  ✓ 曾担任交大ACM-ICPC队教练，获得**区域赛冠军、世界总决赛第六名**

图像修复/增强：整合至“马卡龙玩图”App，获得**苹果 App Store “最佳本土应用”奖**

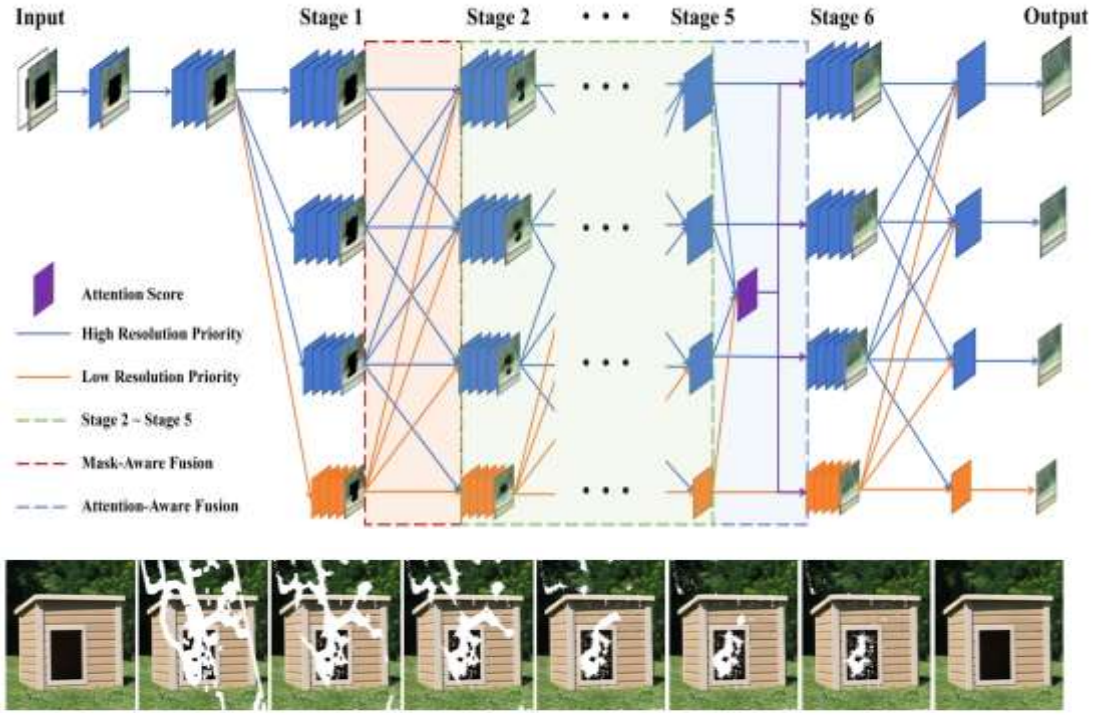


四维虚拟角色

少样本数据学习/生成：高质量图像生成、编辑，3/4D虚拟角色生成

虚拟服装试穿：公开代码为虚拟服装试穿领域目前最有影响力的公开工作。

代表工作：视觉内容修复/编辑

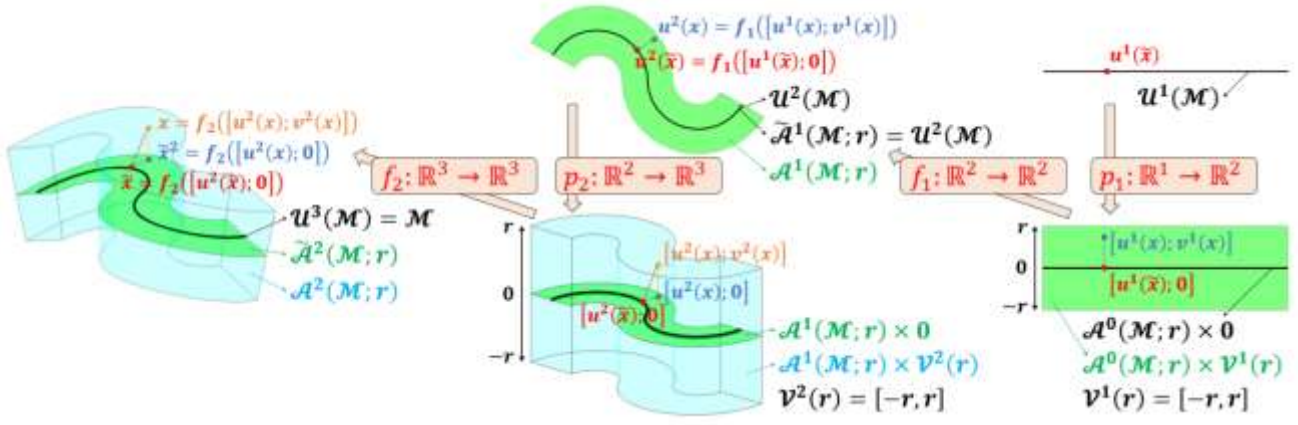


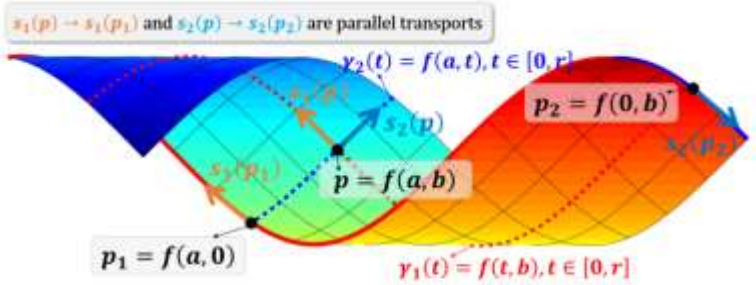
通过修复/编辑区域规划多视角/多尺度融合提升图像/视频修复编辑能力

合作开发马卡龙玩图 APP，获得Apple APP Store “最佳本土APP”

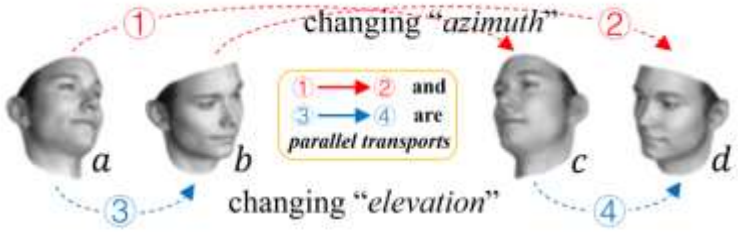
[ACM MM 2019] **J Zhang**, L Niu, D Yang, L Kang, Y Li, W Zhao, L Zhang. GAIN: Gradient Augmented Inpainting Network for Irregular Holes.
[ICCV 2021] *W Wang, ***J Zhang**, L Niu, H Ling, X Yang, L Zhang. Parallel Multi-Resolution Fusion Network for Image Inpainting.
[PR 2023] W Wang, L He, L Niu, **J Zhang**, Y Liu, H Ling, L Zhang. Diverse image inpainting with disentangled uncertainty.
[CVPR 2022] W Wang, L Niu, **J Zhang**, X Yang, L Zhang. Dual-path image inpainting with auxiliary gan inversion.

代表工作：少样本生成/生成模型理论





(a) β-结构流形示例



(b) β-结构在 3DFaces 数据集中的适用性

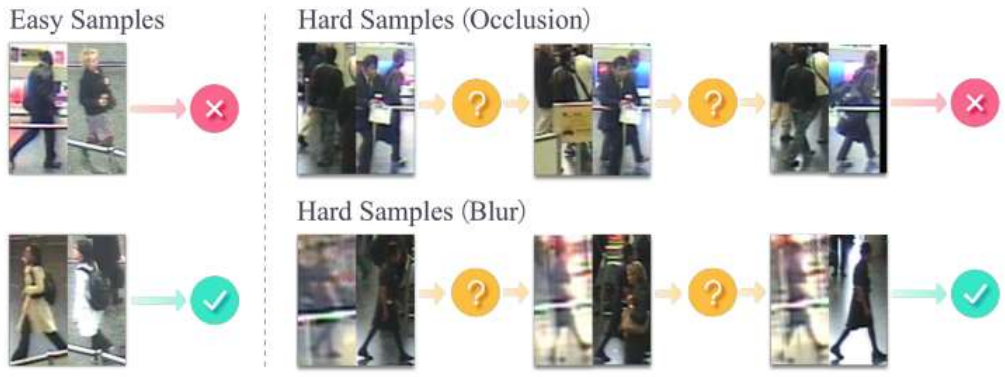
流形/解耦表征：

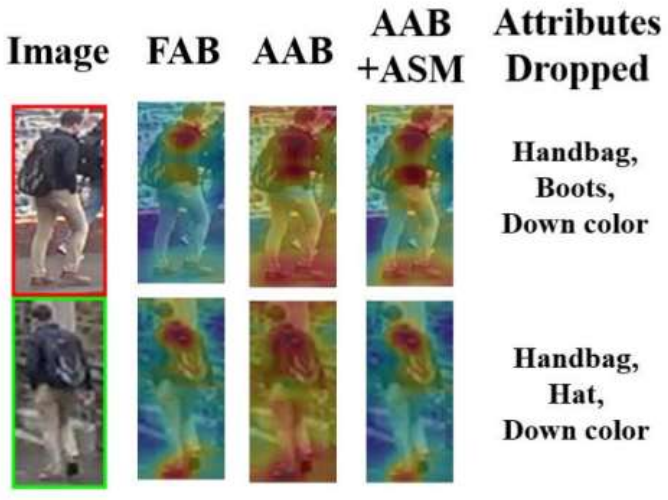
解耦表征提升生成模型在高维数据上的生成可控性。

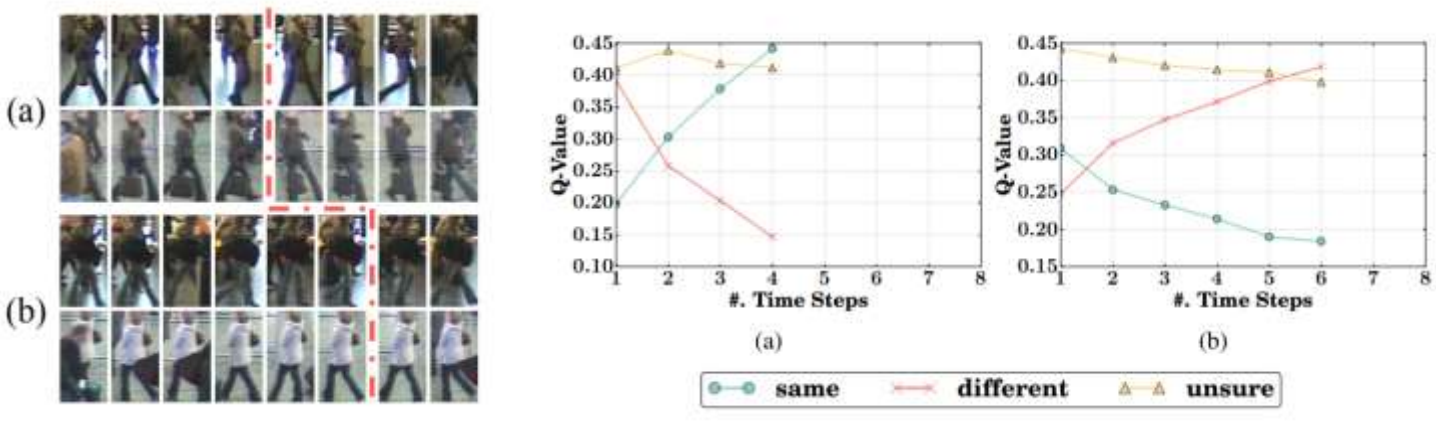
[AAAI 2021] Z Pan, L Niu, **J Zhang**, L Zhang. Disentangled information bottleneck
[AAAI 2023] Z Pan, L Niu, **J Zhang**, L Zhang. Isometric manifold learning using hierarchical flow.

[AAAI 2019] **J Zhang**, Y Huang, Y Li, W Zhao, L Zhang. Multi-attribute transfer via disentangled representation
[ECCV 2022] Y Hong, L Niu, **J Zhang**, L Zhang. Deltagan: Towards diverse few-shot image generation with sample-specific delta.

代表工作：零样本/少样本/长尾识别





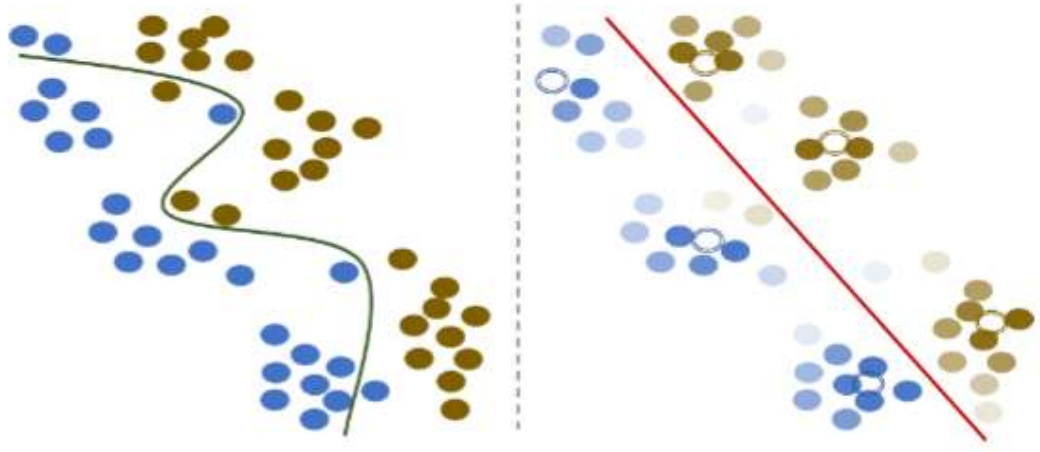


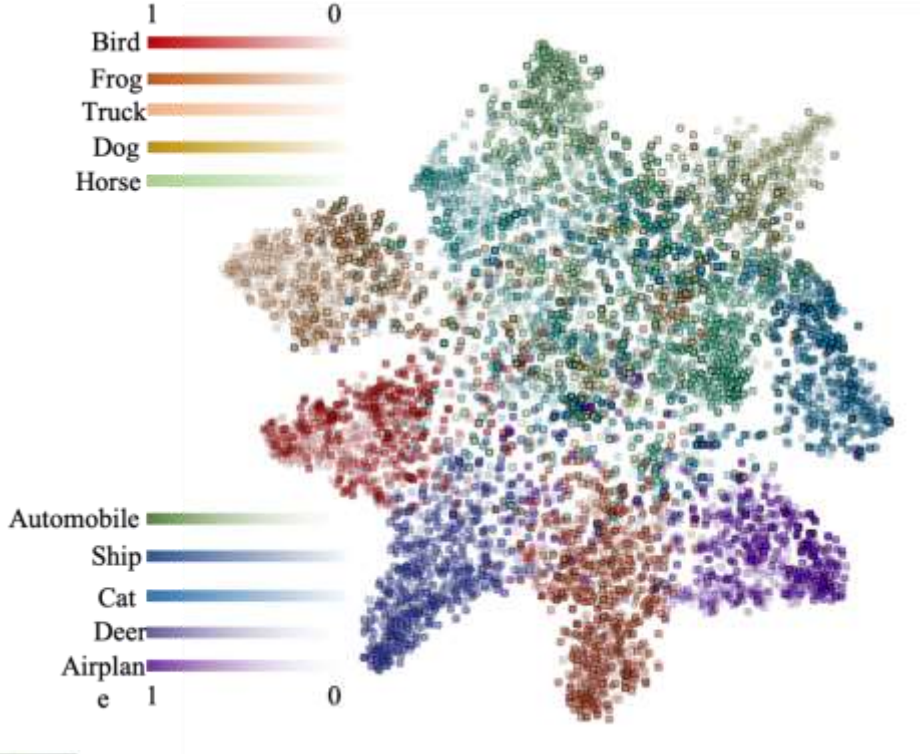
强化学习分析必要表征与不确定性：通过构造强化学习框架，提取不均衡数据/少样本数据中最重要的信息，分析决策不确定性，提升决策可靠性。

[CVPR 2018] J Zhang, W Wang, L Zhang. Multi-shot Pedestrian Re-identification via Sequential Decision Making.
[T-IP 2021] J Zhang, L Niu, L Zhang. Person Re-Identification With Reinforced Attribute Attention Selection.

[ECCV 2022] Y Hong, J Zhang, Z Sun, K Yan. SAFA: Sample-Adaptive Feature Augmentation for Long-Tailed Image Classification.

代表工作：视觉对抗攻击/防御





Typical Samples　　Atypical Samples

对图像、视频的攻击防御/方法：

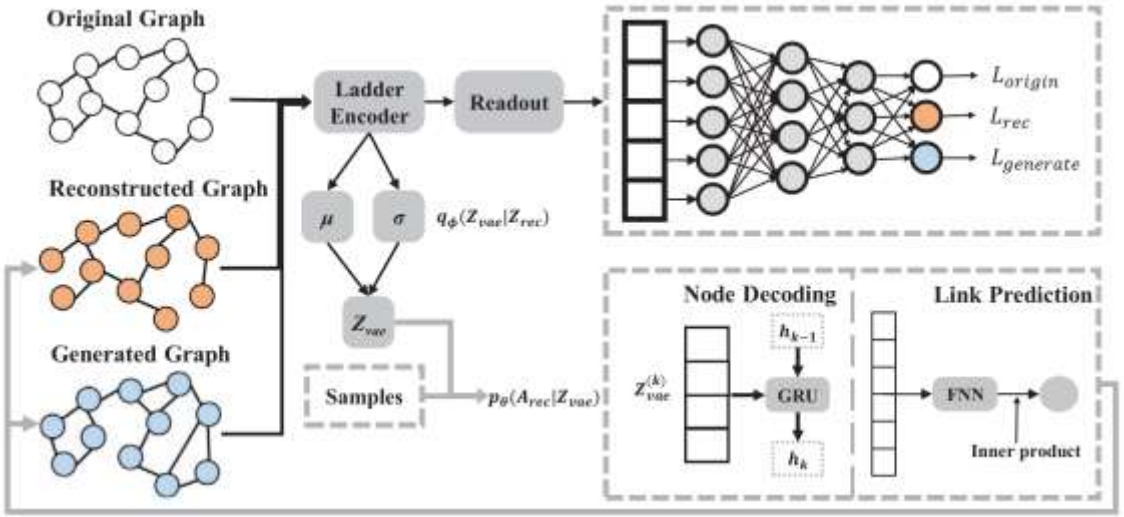
自监督判别常规样本和稀有样本，对不同的样本分配不同的权重，提升对抗防御鲁棒性。

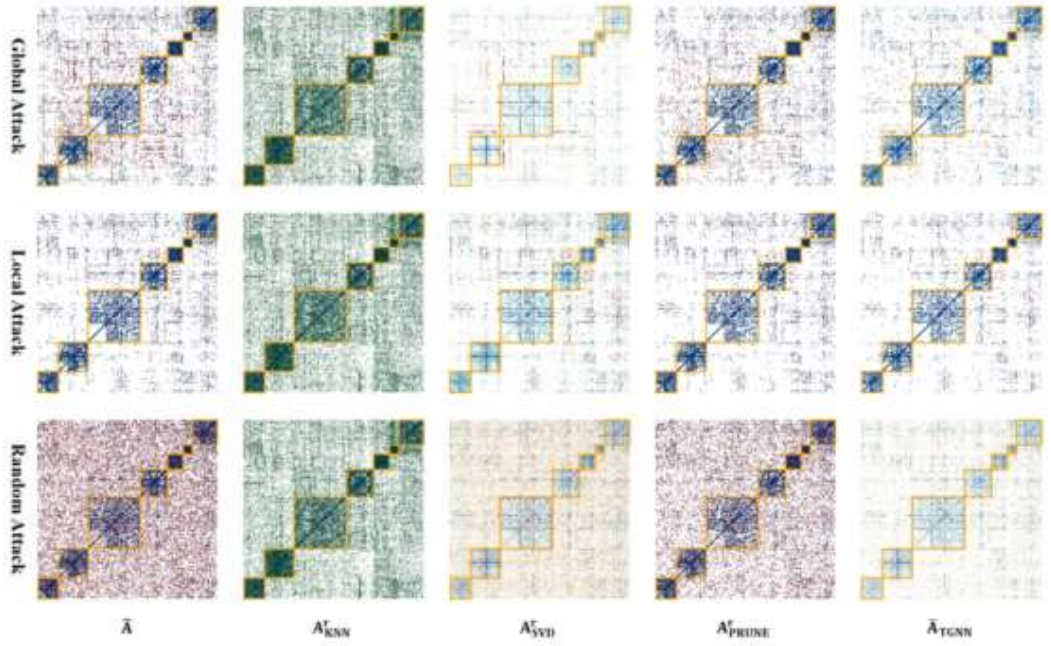
[AAAI 2023] J Zhang, Q Zhao, L Zhang. Memorization Weights for Instance Reweighting in Adversarial Training

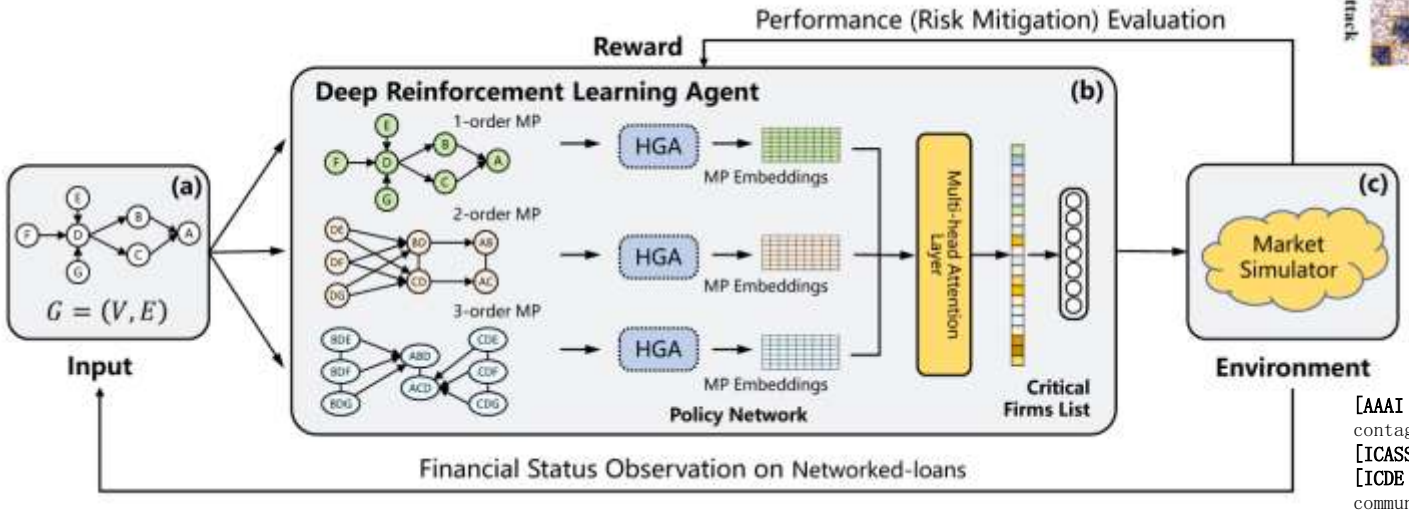
[NeuCom 2023] W Suttapak, J Zhang, L Zhang. Diminishing-feature attack: The adversarial infiltration on visual tracking.

[NPL 2024] W Suttapak, J Zhang, L Zhang. Multi-Model UNet: An Adversarial Defense Mechanism for Robust Visual Tracking.

代表工作：图网络攻击/防御与风险传播



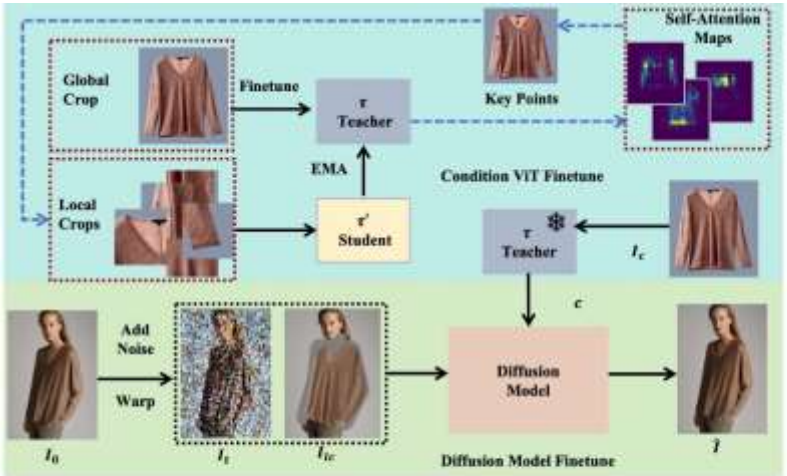




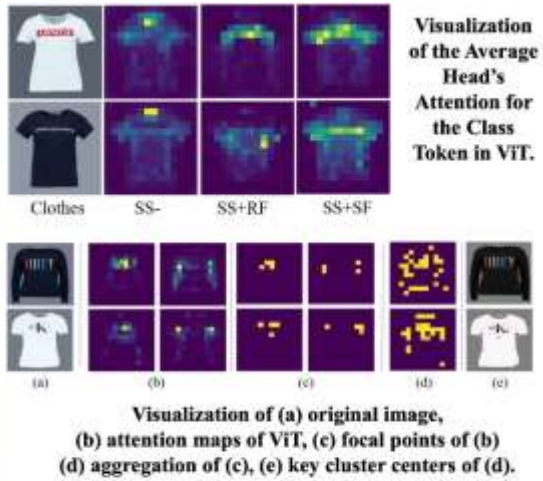
（与同济大学蒋昌俊院士团队合作）
探索基于生成模型/强化学习的大规模图网络上的攻击/防御/风险传播问题。

[AAAI 2023] D Cheng, Z Niu, **J Zhang**, Y Zhang, C Jiang. Critical firms prediction for stemming contagion risk in networked-loans through graph-based deep reinforcement learning
[ICASSP 2024] **J Zhang**, Q Zhao, D Cheng, L Zhang. Hierarchical Attack for large-scale graphs.
[ICDE 2022] S Xiang, D Cheng, **J Zhang**, Z Ma, X Wang, Y Zhang, C Jiang. Efficient learning-based community-preserving graph generation

近期工作：虚拟服装试穿



Overall framework of our network.



Visualization of the Average Head's Attention for the Class Token in ViT.

Visualization of (a) original image, (b) attention maps of ViT, (c) focal points of (b) (d) aggregation of (c), (e) key cluster centers of (d).

Qualitative comparisons with baselines.

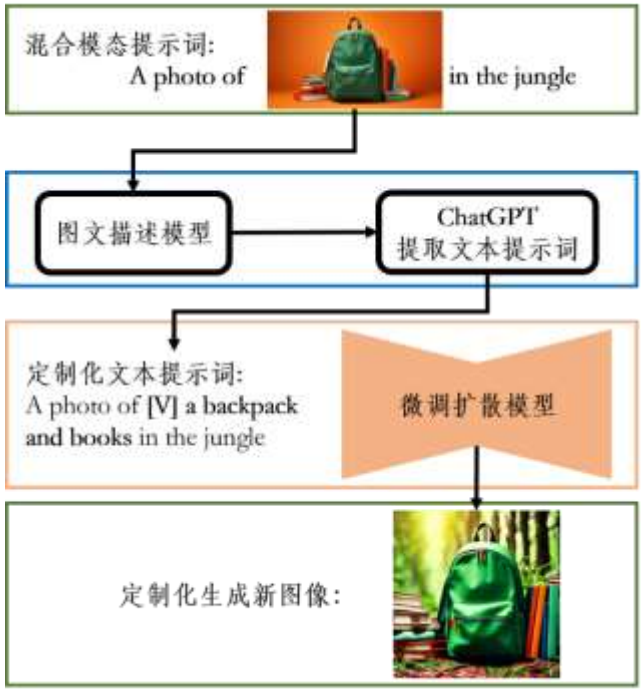
通过服装变形引导扩散模型生成高精度服装试穿图像，利用自监督ViT进一步提升对服装细节的处理。

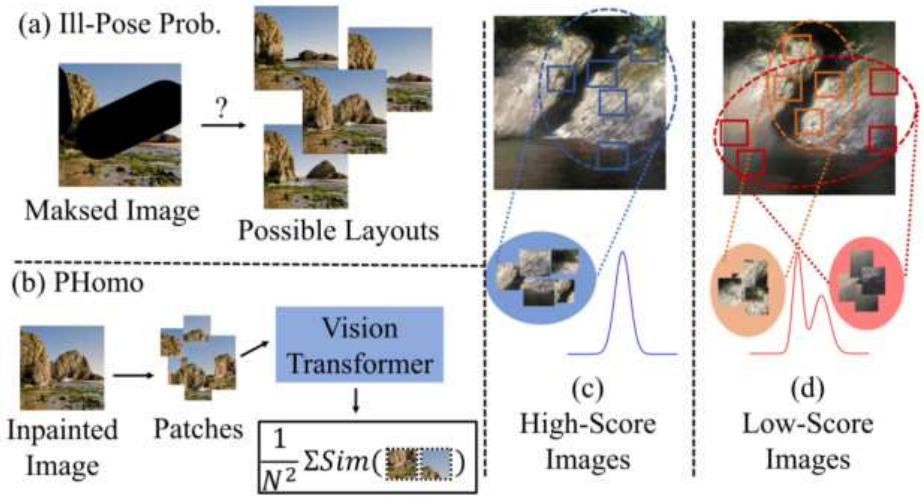
公开代码在GitHub半年内迅速获得350+ star，为虚拟服装试穿领域目前最有影响力的公开工作。

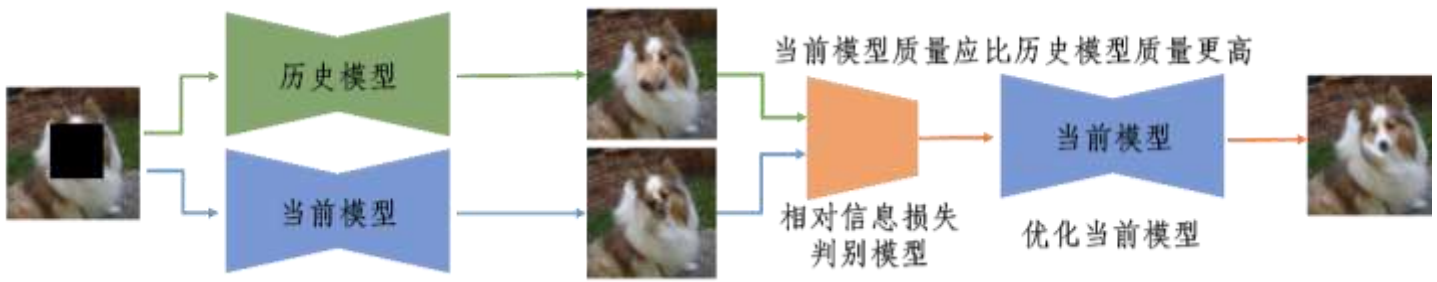
[ACM MM 2023] J Gou, S Sun, **J Zhang**, J Si, C Qian, L Zhang. Taming the Power of Diffusion Models for High-Quality Virtual Try-On with Appearance Flow

Arxiv: Virtual Accessory Try-On via Keypoint Hallucination; Dynamic Automatic Natural Image Matting with Refined Guidance and Consistent Training; Self-Supervised Vision Transformer for Enhanced Virtual Clothes Try-On

近期工作：可控生成/生成图像质量评估







自监督评价指标/生成可控性：
通过评价指标自主学习优化生成模型，自动化的、用户为中心的高质量定制化生成模型。

Arxiv:
User-Friendly Customized Generation with Multi-Modal Prompts;
ComFusion: Personalized Subject Generation in Multiple Specific Scenes From Single Image;
Assessing Image Inpainting via Re-Inpainting Self-Consistency Evaluation;
No-Reference Image Inpainting Evaluation Via Patch Homogeneity Assessment