Li Niu

Contact Information	Department of Computer Science and Engineering Shanghai, China	⊠ ustcnewly@sjtu.edu.cn		
Research Directions	Transfer learning, Image editing			
Education	 Nanyang Technological University (NTU) <i>Ph.D.</i> in Computer Science and Engineering 	Aug 2013 – Mar 2017		
	University of Science and Technology of China (USTC<i>B.Sci.</i> in Computer Science) Sep 2007 – Jul 2011		
Professional Experience	Shanghai Jiaotong University, Shanghai, ChinaAssociate Professor	Sep 2018 – present		
	• Leading a research lab in Shanghai Jiao Tong University. The research projects in my lab involve a wide range of learning paradigms and computer vision tasks. The representative research works are concentrated in image/video composition.			
	Rice University, Houston, TX, U.S.<i>Postdoc Associate</i>	Apr 2017 – Aug 2018		
	• Working on FLASH (Family-Level Assessment of Screen use in the Home): create a platform to automatically, accurately and non-intrusively monitor the screen time usage of adults and children in their homes. Involved technics are including but not limited to face detection, face tracking, face recognition, and gaze estimation.			
	Amazon, Berlin, Germany<i>Research Scientist Intern</i>	Jul 2016 – Oct 2016		
	• Developing computer vision algorithms for "Amazon Fresh" project, specifically, exploiting multi-instance learning techniques for produce (<i>i.e.</i> , fruit and vegetable) quality classification and defect localization based on multi-spectrum image.			
	Nanyang Technological University, Singapore<i>Ph.D. Candidate</i>	Aug 2013 – Mar 2017		
	• Developing algorithms on learning from loosely labeled heterogeneous web data (<i>e.g.</i> , images, videos, and text) or multi-view data (<i>e.g.</i> , RGB-D data) for computer vision tasks (<i>e.g.</i> , image classification, video action recognition, and video event recognition).			
	Stony Brook University, New York, U.S.<i>Research Assistant</i>	Sep 2011 – May 2013		
	• Working on Flora-2 compiler in SILK (Semantic Inferencing on Large Knowledge) project, which is an advanced object-oriented reasoning system based on F-logic, HiLog, and Transaction logic.			

Motorola Solutions, Shanghai, China

- Engineer Intern
- Developing a software which can extract the textual region from a photo of envelope based on template matching.

	Chinese Academy of Sciences	, Beijing, China	Jul 2010 –	Jan 2011
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- Engineer Intern
- Developing a tool for visualizing the decoding procedure in machine translation and another tool for multi-lingual sentence segmentation/alignment.

University of Sci. and Tech. of China, Hefei, China Oct 2009 – May 2010

- B.Sci. Candidate
- Working on AOAB (Automated Optimization Algorithm Benchmarking) system which can evaluate the genetic algorithms uploaded by users on benchmark functions and then send the feedback report to users automatically.
- CONFERENCE PUBLICATIONS
 • Yuxuan Duan, Yan Hong, Bo Zhang, jun lan, Huijia Zhu, Weiqiang Wang, Jianfu Zhang, <u>Li Niu</u>*, Liqing Zhang*. "DomainGallery: Few-shot Domain-driven Image Generation by Attribute-centric Finetunin." *Advances in Neural Information Processing Systems (NeurIPS)*, 2024.
 - Zhaohe Liao, Jiangtong Li, <u>Li Niu</u>*, Liqing Zhang*. "Align and Aggregate: Compositional Reasoning with Video Alignment and Answer Aggregation for Video Question-Answering." *Proceedings of IEEE International Conference on Computer Vision and Pattern Recognition (CVPR)*, 2024.
 - Qingyang Liu, Junqi You, Jianting Wang, Xinhao Tao, Bo Zhang, <u>Li Niu</u>*. "Shadow Generation for Composite Image Using Diffusion Model." *Proceedings of IEEE International Conference on Computer Vision and Pattern Recognition (CVPR)*, 2024.
 - Xinhao Tao, Junyan Cao, Yan Hong, <u>Li Niu</u>*. "Shadow Generation with Decomposed Mask Prediction and Attentive Shadow Filling." *The AAAI Conference on Artificial Intelligence (AAAI)*, 2024.
 - Yuxuan Duan, <u>Li Niu</u>*, Yan Hong, Liqing Zhang*. "WeditGAN: Few-Shot Image Generation via Latent Space Relocation." *The AAAI Conference on Artificial Intelligence (AAAI)*, 2024.
 - <u>Li Niu</u>*, Junyan Cao, Yan Hong, Liqing Zhang. "Painterly Image Harmonization by Learning from Painterly Objects." *The AAAI Conference on Artificial Intelligence* (*AAAI*), 2024.
 - <u>Li Niu</u>*, Yan Hong, Junyan Cao, Liqing Zhang. "Progressive Painterly Image Harmonization from Low-level Styles to High-level Styles." *The AAAI Conference on Artificial Intelligence (AAAI)*, 2024.
 - Lingxiao Lu, Jiangtong Li, Junyan Cao, <u>Li Niu</u>*, Liqing Zhang*. "Painterly Image Harmonization using Diffusion Model." *Proceedings of ACM international conference on Multimedia (ACM MM)*, 2023.
 - Jieteng Yao, Junjie Chen, <u>Li Niu</u>*, Bin Sheng*. "Scene-aware Human Pose Generation using Transformer." *Proceedings of ACM international conference on Multimedia*

(ACM MM), 2023.

- Linfeng Tan, Jiangtong Li, <u>Li Niu</u>*, Liqing Zhang*. "Deep Image Harmonization in Dual Color Spaces." *Proceedings of ACM international conference on Multimedia (ACM MM)*, 2023.
- Bo Zhang, Jiacheng Sui, <u>Li Niu</u>*. "Foreground Object Search by Distilling Composite Image Feature." *Proceedings of IEEE International Conference on Computer Vision* (*ICCV*), 2023.
- Jiangtong Li, <u>Li Niu</u>*, Liqing Zhang*. "Knowledge Proxy Intervention for Deconfounded Video Question Answering." *Proceedings of IEEE International Conference on Computer Vision (ICCV)*, 2023.
- <u>Li Niu</u>*, Junyan Cao, Wenyan Cong, Liqing Zhang. "Deep Image Harmonization with Learnable Augmentation." *Proceedings of IEEE International Conference on Computer Vision (ICCV)*, 2023.
- Li Niu^{*}, Linfeng Tan, Xinhao Tao, Junyan Cao, Fengjun Guo, Teng Long, Liqing Zhang. "Deep Image Harmonization with Globally Guided Feature Transformation and Relation Distillation." *Proceedings of IEEE International Conference on Computer Vision (ICCV)*, 2023.
- <u>Li Niu</u>*, Xing Zhao, Bo Zhang, Liqing Zhang. "Fine-grained Visible Watermark Removal." *Proceedings of IEEE International Conference on Computer Vision (ICCV)*, 2023.
- Chao Wang, <u>Li Niu</u>*, Bo Zhang, Liqing Zhang*. "Image Cropping with Spatialaware Feature and Rank Consistency." *Proceedings of IEEE International Conference* on Computer Vision and Pattern Recognition (CVPR), 2023.
- Ziqi Pan, Jianfu Zhang, <u>Li Niu</u>*, Liqing Zhang*. "Isometric Manifold Learning using Hierarchical Flow." *The AAAI Conference on Artificial Intelligence (AAAI)*, 2023.
- Ziqi Pan, <u>Li Niu</u>*, Liqing Zhang*. "Geometric Inductive Biases for Identifiable Unsupervised Learning of Disentangled Representations." *The AAAI Conference on Artificial Intelligence (AAAI)*, 2023.
- Junjie Chen, <u>Li Niu</u>*, Jianfu Zhang, Jianlou Si, Chen Qian, Liqing Zhang*. "Amodal Instance Segmentation via Prior-guided Expansion." *The AAAI Conference on Artificial Intelligence (AAAI)*, 2023.
- Siyuan Zhou, Chunru Zhan, Biao Wang, Tiezheng Ge, Yuning Jiang, <u>Li Niu</u>*. "Video Object of Interest Segmentation." *The AAAI Conference on Artificial Intelligence (AAAI)*, 2023.
- Junyan Cao, Yan Hong, <u>Li Niu</u>*. "Painterly Image Harmonization in Dual Domains." *The AAAI Conference on Artificial Intelligence (AAAI)*, 2023.
- Yuxuan Duan, Yan Hong, <u>Li Niu</u>*, Liqing Zhang*. "Painterly Image Harmonization by Learning from Painterly Objects." *The AAAI Conference on Artificial Intelligence* (*AAAI*), 2023.
- Ziqi Pan, <u>Li Niu</u>*, Liqing Zhang*. "UniGAN: Reducing Mode Collapse in GANs using a Uniform Generator." Advances in Neural Information Processing Systems (NeurIPS), 2022.
- Junjie Chen, <u>Li Niu</u>*, Siyuan Zhou, Jianlou Si, Chen Qian, Liqing Zhang*. "Weakshot Semantic Segmentation via Dual Similarity Transfer." *Advances in Neural Infor-*

mation Processing Systems (NeurIPS), 2022.

- Yan Hong, <u>Li Niu</u>*, Jianfu Zhang, Liqing Zhang. "Few-shot Image Generation Using Discrete Content Representation." *Proceedings of ACM international conference on Multimedia* (ACM MM), 2022.
- Zhixin Ling, Zhen Xing, jiangtong li, <u>Li Niu</u>*. "Multi-Level Region Matching for Fine-Grained Sketch-Based Image Retrieval." *Proceedings of ACM international conference on Multimedia (ACM MM)*, 2022.
- Xinyuan Lu, Shengyuan Huang, <u>Li Niu</u>*, Wenyan Cong, Liqing Zhang*. "Deep Video Harmonization with Color Mapping Consistency." *The International Joint Conference on Artificial Intelligence (IJCAI)*, 2022.
- Wenyan Cong, Xinhao Tao, <u>Li Niu</u>*, Jing Liang, Xuesong Gao, Qihao Sun, Liqing Zhang*. "High-Resolution Image Harmonization via Collaborative Dual Transformations." *Proceedings of IEEE International Conference on Computer Vision and Pattern Recognition* (CVPR), 2022.
- Jiangtong Li, <u>Li Niu</u>*, Liqing Zhang*. "From Representation to Reasoning: Towards both Evidence and Commonsense Reasoning for Video Question-Answering." *Proceedings of IEEE International Conference on Computer Vision and Pattern Recognition* (*CVPR*), 2022.
- Wentao Wang, <u>Li Niu</u>*, Jianfu Zhang, Xue Yang, Liqing Zhang*. "Dual-path Image Inpainting with Auxiliary GAN Inversion." *Proceedings of IEEE International Confer*ence on Computer Vision and Pattern Recognition (CVPR), 2022.
- Jing Liang, <u>Li Niu</u>*, Penghao Wu, Fengjun Guo, Teng Long. "Inharmonious Region Localization by Magnifying Domain Discrepancy." *The AAAI Conference on Artificial Intelligence (AAAI)*, 2022.
- Jiangtong Li, <u>Li Niu</u>*, Liqing Zhang*. "Action-Aware Embedding Enhancement for Image-Text Retrieval." *The AAAI Conference on Artificial Intelligence (AAAI)*, 2022.
- Yan Hong, <u>Li Niu</u>*, Jianfu Zhang. "Shadow Generation for Composite Image in Real-world Scenes." *The AAAI Conference on Artificial Intelligence (AAAI)*, 2022.
- Yan Liu, Zhijie Zhang, <u>Li Niu</u>*, Junjie Chen, Liqing Zhang*. "Mixed Supervised Object Detection by Transferring Mask Prior and Semantic Similarity." *Advances in Neural Information Processing Systems (NeurIPS)*, 2021.
- Junjie Chen, <u>Li Niu</u>*, Liu Liu, Liqing Zhang*. "Weak-shot Fine-grained Classification via Similarity Transfer." *Advances in Neural Information Processing Systems (NeurIPS)*, 2021.
- Wentao Wang, Jianfu Zhang, <u>Li Niu</u>*, Haoyu Ling, Xue Yang, Liqing Zhang*. "Parallel Multi-Resolution Fusion Network for Image Inpainting." *Proceedings of IEEE International Conference on Computer Vision (ICCV)*, 2021.
- Jing Liang, <u>Li Niu</u>*, Fengjun Guo, Teng Long, Liqing Zhang. "Visible Watermark Removal via Self-calibrated Localization and Background Refinement." *Proceedings* of ACM international conference on Multimedia (ACM MM), 2021.
- Jiangtong Li, Wentao Wang, Junjie Chen, <u>Li Niu</u>*, Jianlou Si, Chen Qian, Liqing Zhang*. "Video Semantic Segmentation with Sparse Temporal Transformer." *Proceedings of ACM international conference on Multimedia (ACM MM)*, 2021.
- Lu He, Qianyu Zhou, Xiangtai Li, Li Niu*, Guangliang Cheng, Xiao Li, Wenxuan

Liu, Yunhai Tong, Lizhuang Ma, Liqing Zhang*. "End-to-End Video Object Detection with Spatial-Temporal Transformers." *Proceedings of ACM international conference on Multimedia (ACM MM)*, 2021.

- Liu Liu, Jiangtong Li, <u>Li Niu</u>*, Ruicong Xu, Liqing Zhang. "Activity Image-to-Video Retrieval by Disentangling Appearance and Motion." *The AAAI Conference on Artificial Intelligence (AAAI)*, 2021.
- Zhijie Zhang, Yan Liu, Junjie Chen, <u>Li Niu</u>*, Liqing Zhang* "Depth Privileged Object Detection in Indoor Scenes via Deformation Hallucination." *The AAAI Conference on Artificial Intelligence (AAAI)*, 2021.
- Ziqi Pan, <u>Li Niu</u>*, Jianfu Zhang, Liqing Zhang* "Disentangled Information Bottleneck." *The AAAI Conference on Artificial Intelligence (AAAI)*, 2021.
- Yan Hong, <u>Li Niu</u>*, Jianfu Zhang, Weijie Zhao, Chen Fu, Liqing Zhang. "F2GAN: Fusing-and-Filling GAN for Few-shot Image Generation." *Proceedings of ACM international conference on Multimedia (ACM MM)*, 2020.
- Zhangxuan Gu, Siyuan Zhou, <u>Li Niu</u>*, Zihan Zhao, Liqing Zhang*. "Context-aware Feature Generation For Zero-shot Semantic Segmentation." *Proceedings of ACM international conference on Multimedia (ACM MM)*, 2020.
- Wenyan Cong, Jianfu Zhang, <u>Li Niu</u>*, Liu Liu, Zhixin Ling, Weiyuan Li, Liqing Zhang. "DoveNet: Deep Image Harmonization via Domain Verification." *Proceedings of IEEE International Conference on Computer Vision and Pattern Recognition (CVPR)*, 2020.
- Yi Tu, <u>Li Niu</u>*, Junjie Chen, Dawei Cheng, Liqing Zhang*. "Learning from Noisy Web Data with Category-level Supervision." *Proceedings of IEEE International Conference on Computer Vision and Pattern Recognition (CVPR)*, 2020.
- Ruicong Xu, <u>Li Niu</u>*, Jianfu Zhang, Liqing Zhang* "A Proposal-based Approach for Activity Image-to-Video Retrieval." *The AAAI Conference on Artificial Intelligence* (*AAAI*), 2020.
- Yi Tu, <u>Li Niu</u>*, Weijie Zhao, Dawei Cheng, Liqing Zhang*. "Image Cropping with Composition and Saliency Aware Aesthetic Score Map." *The AAAI Conference on Artificial Intelligence (AAAI)*, 2020.
- Yiyi Zhang, <u>Li Niu</u>*, Ziqi Pan, Meichao Luo, Jianfu Zhang, Dawei Cheng, Liqing Zhang*. "Exploiting Motion Information from Unlabeled Videos for Image Action Recognition." *The AAAI Conference on Artificial Intelligence (AAAI)*, 2020.
- Jianfu Zhang, <u>Li Niu</u>*, Dexin Yang, Liwei Kang, Yaoyi Li, Weijie Zhao, Liqing Zhang*. "GAIN: Gradient Augmented Inpainting Network for Irregular Holes." *Proceedings* of ACM international conference on Multimedia (ACM MM), 2019.
- <u>Li Niu</u>, Qingtao Tang, Ashok Veeraraghavan, and Ashu Sabharwal. "Learning from Noisy Web Data with Category-level Supervision." *Proceedings of IEEE International Conference on Computer Vision and Pattern Recognition (CVPR)*, 2018.
- Li Niu, Ashok Veeraraghavan, and Ashu Sabharwal. "Webly Supervised Learning Meets Zero-shot Learning: A Hybrid Approach for Fine-grained Classification." *Proceedings of IEEE International Conference on Computer Vision and Pattern Recognition* (*CVPR*), 2018
- Li Niu, Wen Li, and Dong Xu. "Multi-view Domain Generalization for Visual Recog-

nition." Proceedings of IEEE International Conference on Computer Vision (ICCV), 2015.

- <u>Li Niu</u>, Wen Li, and Dong Xu. "Visual Recognition by Learning from Web Data: A Weakly Supervised Domain Generalization Approach." *Proceedings of IEEE International Conference on Computer Vision and Pattern Recognition (CVPR)*, 2015.
- Journal Publications
- Zhangxuan Gu, Ziyuan Zhou, <u>Li Niu</u>*, Zihan Zhao, Liqing Zhang*. "From Pixel to Patch: Synthesize Context-aware Features for Zero-shot Semantic Segmentation." *IEEE Transactions on Neural Networks and Learning Systems (T-NNLS)*, 2022.
- Junjie Chen, <u>Li Niu</u>*, Liqing Zhang*. "Depth Privileged Scene Recognition via Dual Attention Hallucination." *IEEE Transactions on Image Processing* (*T-IP*), 2021.
- Jiangtong Li, Liu Liu, <u>Li Niu</u>*, Liqing Zhang*. "Memorize, Associate and Match: Embedding Enhancement via Fine-grained Alignment for Image-Text Retrieval." *IEEE Transactions on Image Processing (T-IP)*, 2021.
- Zhangxuan Gu, <u>Li Niu</u>*, Haohua Zhao, Liqing Zhang*. "Hard Pixel Mining for Depth Privileged Semantic Segmentation." *IEEE Transactions on Multimedia* (*T-MM*), 2020.
- Jianfu Zhang, <u>Li Niu</u>*, Liqing Zhang*. "Person Re-Identification with Reinforced Attribute Attention Selection." *IEEE Transactions on Image Processing* (*T-IP*), 2020.
- <u>Li Niu</u>, Jianfei Cai, and Ashok Veeraraghavan. "Zero-Shot Learning via Category-Specific Visual-Semantic Mapping." *IEEE Transactions on Image Processing* (*T-IP*), 2018.
- <u>Li Niu</u>, Wen Li, Dong Xu, and Jianfei Cai. "An Exemplar-based Multi-view Domain Generalization Framework for Visual Recognition." *IEEE Transactions on Neural Networks and Learning Systems (T-NNLS)*, 2017.
- <u>Li Niu</u>, Wen Li, and Dong Xu. "Visual Recognition by Learning from Web Data via Weakly Supervised Domain Generalization." *IEEE Transactions on Neural Networks and Learning Systems (T-NNLS)*, 2016.
- <u>Li Niu</u>, Wen Li, and Dong Xu. "Exploiting Privileged Information from Web Data for Action and Event Recognition." *International Journal of Computer Vision (IJCV)*, 2015.
- <u>Li Niu</u>, Xinxing Xu, Lin Chen, Lixin Duan, and Dong Xu. "Action and Event Recognition in Videos by Learning from Heterogeneous Web Sources." *IEEE Transactions on Neural Networks and Learning Systems* (*T-NNLS*), 2015.

Research Project

- National Natural Science Foundation of China General Program: Research on Controllable Image Editing with Disentangled Representation, 2025-2028, Principal Investigator
 - National Natural Science Foundation of China Young Scientist Program: An Interpretable Transfer Learning Framework Based on Disentangled Attribute Representation, 2019-2022, Principal Investigator
 - Shanghai Sailing Program Project: Interpretable Transfer Learning for Computer Vision, 2019-2022, Principal Investigator
 - Major Science and Technology Project of Shanghai: Frontier Basic Theory and Key Technologies of Artificial Intelligence, 2020-2023, Participant

 Science and Technology Innovation 2030 "New Generation Artificial Intelligence" Major Project: Causality Computing Based on Cross-Media Knowledge Graph, 2019-2022, Participant