Xihui Liu

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Google Scholar

Education

- **Multimedia Lab (MMLab), Chinese University of Hong Kong** — **Hong Kong, China**
  PhD student advised by Prof. Xiaogang Wang and Prof. Hongsheng Li. — *08/2017–now*
  Research area: Computer Vision and Deep Learning
- **Tsinghua University** — **Beijing, China**
  B.S. in Electronic Engineering — *08/2013–07/2017*
  Excellent undergraduate awardee.

Publications

Xihui Liu, Zhe Lin, Jianming Zhang, Handong Zhao, Quan Tran, Xiaogang Wang, and Hongsheng Li. "Open-Edit: Open-Domain Image Manipulation with Open-Vocabulary Instructions." *European Conference on Computer Vision (**ECCV**)*, 2020.

Xihui Liu, Guojun Yin, Jing Shao, Xiaogang Wang, and Hongsheng Li. "Learning to Predict Layout-to-image Conditional Convolutions for Semantic Image Synthesis." *Thirty-third Conference on Neural Information Processing Systems (**NeurIPS**)*, 2019.

Zihao Wang*, **Xihui Liu***, Hongsheng Li, Lu Sheng, Junjie Yan, Xiaogang Wang, and Jing Shao. "CAMP: Cross-Modal Adaptive Message Passing for Text-Image Retrieval." *International Conference on Computer Vision (**ICCV**)*, 2019.

Xihui Liu, Zihao Wang, Hongsheng Li, Jing Shao, and Xiaogang Wang. "Improving Referring Expression Grounding with Cross-modal Attention-guided Erasing." *The IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**)*, 2019.

Xihui Liu, Hongsheng Li, Jing Shao, Dapeng Chen, and Xiaogang Wang. "Show, tell and discriminate: Image captioning by self-retrieval with partially labeled data." *European Conference on Computer Vision (**ECCV**)*, 2018.

Dapeng Chen, Hongsheng Li, **Xihui Liu**, Yantao Shen, Jing Shao, Zejian Yuan, and Xiaogang Wang. "Improving deep visual representation for person re-identification by global and local image-language association." *European Conference on Computer Vision (**ECCV**)*, 2018.

Pengze Liu, **Xihui Liu**, Junjie Yan, and Jing Shao. "Localization guided learning for pedestrian attribute recognition." *The British Machine Vision Conference (**BMVC**)*, 2018.

Xihui Liu, Haiyu Zhao, Maoqing Tian, Lu Sheng, Jing Shao, Shuai Yi, Junjie Yan, and Xiaogang Wang. "Hydraplus-net: Attentive deep features for pedestrian analysis." *International Conference on Computer Vision (**ICCV**)*, 2017.

Zhongdao Wang, Luming Tang, **Xihui Liu**, Zhuliang Yao, Shuai Yi, Jing Shao, Junjie Yan, Shengjin Wang, Hongsheng Li, and Xiaogang Wang. "Orientation invariant feature embedding and spatial

temporal regularization for vehicle re-identification." *International Conference on Computer Vision (**ICCV**)*, 2017.

Kai Kang, Hongsheng Li, Tong Xiao, Wanli Ouyang, Junjie Yan, **Xihui Liu**, and Xiaogang Wang. "Object detection in videos with tubelet proposal networks." *The IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**)*, 2017.

Working Experience

- **Adobe Research** **San Jose, US**
  Research Intern *05/2019–09/2019*
  - Collaborated with Dr. Zhe Lin, Dr. Jianming Zhang, Dr. Handong Zhao, and Dr. Quan Tran.
  - Proposed an open-vocabulary open-domain image manipulation framework trained in an unsupervised way, which is the first work to manipulate color, texture, and semantic attributes of open-domain images with arbitrary open-vocabulary instructions.
- **Multimedia Lab (MMLab), Chinese University of Hong Kong** **Hong Kong, China**
  Research Assistant *07/2016–09/2016*
  - Worked on object detection in videos with Dr. Kai Kang, supervised by Prof. Xiaogang Wang.
  - Our team won first place in ImageNet Video Object Detection Challenge with provided data, 2016.

Awards and Honors

- **Adobe Research Fellowship 2020.**
- CVPR 2019 outstanding reviewer award.
- CUHK Postgraduate Scholarship, 2017-now.
- Excellent undergraduate in Tsinghua University, 2017.
- Comprehensive Excellent Scholarship in Tsinghua University, in years 2014, 2015, and 2016.
- Research and Innovation Excellent Scholarship in Tsinghua University, 2016.
- Academic Excellent Scholarship in Tsinghua University, in years 2014, 2015 and 2016.

Professional Services

Outstanding reviewer of CVPR 2019.
Reviewer of NeurIPS 2020, ECCV 2020, CVPR 2020, AAAI 2020, ICCV 2019, CVPR 2019.
Reviewer of IJCV, TCVST, NeuroComputing.

Selected Projects

- **Open-Edit: Open-Domain Image Manipulation with Open-Vocabulary Instructions (ECCV 2020)**
  - Propose an open-vocabulary open-domain image manipulation framework trained in an unsupervised way.
  - This is the first work to manipulate color, texture, and semantic attributes of open-domain images with arbitrary open-vocabulary instructions.
- **Learning to Predict Layout-to-image Conditional Convolutions for Semantic Image Synthesis (NeurIPS 2019)**
  - Design a image generator with predicted layout-to-image conditional convolution kernels and feature pyramid semantics embedding discriminator for semantic image sythesis.

- Achieve state-of-the-art performance on referring expression grounding datasets.

- **CAMP: Cross-Modal Adaptive Message Passing for Text-Image Retrieval (ICCV 2019)**
  - Propose a Cross-Modal Message Passing approach to explore deeper cross-modal interactions for text-image retrieval.
  - The CAMP model is composed of the Cross-Modal Message Aggregation module and the Cross-modal Gated Fusion module. State-of-the-art results on COCO and Flickr30k cross-modal retrieval datasets.
- **Improving Referring Expression Grounding with Cross-modal Attention-guided Erasing (CVPR 2019)**
  - Design a cross-modal attention-guided erasing approach on both textual and visual domains, to encourage the model to discover full textual-visual alignments for referring expression grounding.
  - Achieve state-of-the-art performance on referring expression grounding datasets.
- **Show, Tell and Discriminate: Image Captioning by Self-retrieval with Partially Labeled Data (ECCV 2018)**
  - Proposed an image captioning framework with a self-retrieval training guidance, which encourages generating discriminative captions. It can be trained with partially labeled data.
  - State-of-the-art performance on current evaluation metrics, as well as more discriminative and novel captions.
- **HydraPlus-Net: Attentive Deep Features for Pedestrian Analysis (ICCV 2017)**
  - Proposed multi-directional attention modules to train multilevel and multi-scale attention-strengthened features for fine-grained tasks of pedestrian analysis.
  - Stage-of-the-art performance on both pedestrian attribute recognition and person re-identification.
  - Released a large-scale pedestrian attribute recognition dataset for academic research.