PING LUO

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Google Scholar: https://scholar.google.com/citations?user=aXdjxb4AAAAJ

EDUCATION

2011.07—2014.11	**Ph. D.**, Department of Information Engineering, The Chinese University of Hong Kong (CUHK). Supervisors: Xiaoou Tang (founder of SenseTime) and Xiaogang Wang.
2008.09—2010.07	**M. Eng.**, School of Software, Sun Yat-Sen University (SYSU). Supervisors: Liang Lin, Hongyang Chao, and Songchun Zhu (founder of DMAI).
2004.09—2008.07	**B. Eng.**, School of Software, Sun Yat-Sen University (SYSU). Supervisors: Liang Lin, Hongyang Chao.

WORK EXPERIENCE

2019—now	**Assistant Professor**, Department of Computer Science, *The University of Hong Kong*
2016—2019	**Research Director**, *SenseTime Group Ltd.*

AWARD

- **2021 – #1 in CSRankings in the Department of Computer Science, HKU**
  - see http://csrankings.org/#/index?all&hk
- **2021 – The 7th edition of Top Scientists Ranking for Computer Science & Electronics (CSE 6000)**
  - rank #82 in Hong Kong, #9 in HKU
  - see https://guide2research.com/scientists/uni-311
- **2021 – Global Most Influential Scholar Annual List (AI 2000)**
  - rank #64 in computer vision and #88 in multimedia
  - see https://www.aminer.cn/ai2000
- **2020 – MIT Technology Review Innovators Under 35 Asia Pacific, MIT TR 35**
- **2018 – 1st place** in WAD 2018 Drivable Area Segmentation Challenge in CVPR2018.
- **2017 – Bronze medal** in Large-scale Video/Action Recognition Challenge in ACM MM 2017.
- **2017 – Gold medal** in Kaggle Youtube-8M Video Classification Challenge (top 1.5% = 9/650).
- **2017 – 1st place** in Tusimple Lane Detection for Autonomous Driving Challenge in CVPR 2017.
- **2017 – 1st place** in 2017 DAVIS Challenge on Video Object Segmentation.
- **2015 – Easily Accessible Paper Award in AAAI** (acceptant rate 1.5%)
- **2014 – 1st runner up**, ImageNet ILSVRC 2014, Object Detection Challenge**.**
- **2014 – NIPS Travel Award.**
- **2013 – Microsoft Research Asia Fellowships Award.**
  - 10 PhD candidates in the Asia-Pacific region are awarded.
  - *Press:* http://research.microsoft.com/en-us/collaboration/global/asia-pacific/talent/fellowship.aspx
- **2011 – Hong Kong PhD Fellowship Award (HKPF).** The award is established by the Research Grants Council (RGC) of Hong Kong and 100 PhD applicants over the world will be awarded each year.
- **2011 – Best Master Thesis Award** of Guangdong Province for my master thesis "*Object Detection and Recognition by Learning Shape Manifold*". Only 99 graduate students at Guangdong Provinces were awarded. (acceptant rate 0.1%)

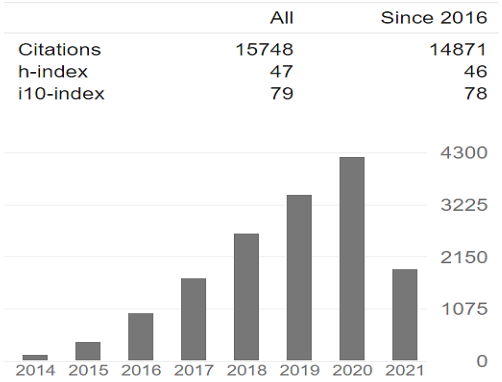
- **2008 – Best Bachelor Thesis Award** of Sun Yat-sen University for my bachelor thesis "*3D Cartoon Modeling and Parsing*". 90 out of 4500 undergraduate students were awarded.

STUDENT ACHIEVEMENTS

- **2020, 2021 –** *Ten PhD students* primarily supervised by me were awarded the **HKPFS** and **HKU-PS**.
- **2020 – Yao Mu** (1st year PhD) achieves the Student Best Paper Award in the 20th International Conference on Control, Automation and Systems (ICCAS).
- **2020 – Enze Xie** (2nd year PhD) ranks the 1st in Remote Sensing Segmentation, National Artificial Intelligence Competition and his team was awarded RMB 1 million.
- **2019 – Mingyu Ding** (2nd year PhD) achieves the Best Student Paper Runner-up Award in 25th International Conference on Neural Information Processing (ICNOIP).
- **2019 – Mingyu Ding** (2nd year PhD) achieves the Microsoft Research Fellowship Honorable Mention (only 20 PhDs in Asia).

RESEARCH HIGHLIGHT

- My researches focus on **Big Data Analysis**, **Computer Vision**, and **Deep Learning** including but not limited to **(1)** **Human-centric Visual Perception** (understanding object, human face, human body, human pose, human re-identification, human image generation) [4-8,23,25,31,34,37-40]; **(2)** Scene Understanding for **Autonomous Driving** [24,36,42]; **(3)** Theoretical understanding optimization and generalization of deep learning [12,13,18,19,20,22,32,33]; **(4)** Urban Video Surveillance [3,27-29,54,57,61]; and **(5)** **FashionAI**: understanding fashion images [10,15,35,38,41,55]. Please refer to my Publication List.
- I have published **more than 100 papers** in top-tier conferences and journals, including **20 first/co-first authored papers** (such as 2 ICML, 2 ICLR, 2 NIPS, 5 ICCV and 4 CVPR). H-index is 47 with 15000 citations according to Google Scholar.
- I have **co-authored a book** "*Deep Learning for Human Centric Visual Analysis*" with Liang Lin and Wangmeng Zuo. (ISBN 978-9811323867).
- I am working on a new book of "*Foundations of Normalizations for Deep Learning*".
- I have applied more than **70 patents** including **15 granted US patents**.



- I have built **many important benchmarks** for the computer vision and machine learning community such as CelebA [47], CelebA-Mask, DeepFashion1 [41], DeepFashion2 [15], and WIDERFace [40]. **CelebA has 3500+ citations** and it was used to train DeepID, which was the first face recognition system that outperformed human performance in 2014 for the first time, featured by BBC, ABC, Science, MIT Technology news. CelebA was selected as the top-100 most cited computer vision paper.

PROFESSIONAL SERVICE

- Area Chair of ICCV'21
- TPC Member of CVPR'17,18, AAAI'16, ICME'14, ICONIP'14, ACCV'14
- Associate Editor of IET Computer Vision
- Reviewer for Journals

  - IEEE Transactions on Pattern Analysis and Machine Intelligence
  - International Journal of Computer Vision
- Reviewer for Conferences
  - AAAI Conference on Artificial Intelligence (AAAI)
  - Computer Vision and Pattern Recognition (CVPR)
  - European Conference on Computer Vision (ECCV)
  - IEEE International Conference on Computer Vision (ICCV)
  - Conference on Neural Information Processing Systems (NeurIPS)

TEN REPRESENTATIVE WORK IN RECENT TWO YEARS

[1] L. Lin, **P. Luo**, and W. Zuo, "Deep Learning for Human Centric Visual Analysis", *1st ed. Edition*, *Springer*, ISBN 978-9811323867, 2019
- A book summarized my work in computer vision and deep learning.

[2] **P. Luo**, R. Zhang, J. Ren, Z. Peng, J. Li, "Switchable normalization for learning-to-normalize deep representation", IEEE transactions on pattern analysis and machine intelligence (***TPAMI***), 2020

[3] **P. Luo**, Z. Peng, R. Zhang, "Differentiable Learning to Normalize via Dynamic Nomarlization", *International Conference on Machine Learning (**ICML**)*, 2019 Oral presentation
- The first unified formulation of normalization methods in deep learning and open up new research direction to understand all normalization methods.

[4] **P. Luo**, W. Shao, X. Wang, Z. Peng, "Towards Understanding Regularization in Batch Normalization", *International Conference on Learning Representation (**ICLR**)*, 2019
- The first work that theoretically understands batch normalization.
- **#1 conference in AI**
- see https://scholar.google.com.hk/citations?view_op=top_venues&hl=en&vq=eng_artificialintelligence

[5] **P. Luo**, J. Ren, Z. Peng, R. Zhang, J. Li, "Differentiable learning-to-normalize via switchable normalization", *International Conference on Learning Representation (**ICLR**)*, 2019
- The first work that opens up a new research direction where different convolutional layers have different normalization methods.
- **#1 conference in AI**

[6] **P. Luo**, G. Wang, L. Lin, X. Wang, "Deep Dual Learning for Semantic Image Segmentation", *IEEE International Conference on Computer Vision (**ICCV**),* 2017
- The first weakly-supervised model outperforms strongly-supervised ones.

[7] **P. Luo**, "Learning Deep Architectures via Generalized Whitened Neural Networks", *Thirty-fourth International Conference on Machine Learning **(ICML)**,* 2017, Oral presentation (**solo author**)
- Deep network turns optimization problem into forward computations.

[8] **P. Luo**, "EigenNet: Towards Fast and Structural Learning of Deep Neural Networks", *International Joint Conference on Artificial Intelligence **(IJCAI)**,* 2017, Oral presentation (**solo author**)
- The first normalization in back-propagation.

[9] Z. Liu, X. Li, **P. Luo***, C. C. Loy, X. Tang, "Deep Learning Markov Random Field for Semantic Segmentation ", *IEEE Transactions on Pattern Analysis and Machine Intelligence (**TPAMI**)*, 2018
- *corresponding author. The first work of MRF in ConvNet

[10] Z. Zhang, **P. Luo***, C. C. Loy, and X. Tang, "Learning Deep Representation for Face Alignment with Auxiliary Attributes", *IEEE Transactions on Pattern Analysis and Machine Intelligence (**TPAMI**)*, No. 05 - May (vol. 38), 2016

- *corresponding author. The first work of multitask deep learning for face analysis.

PUBLICATION LIST

Book

[1] L. Lin, **P. Luo**, and W. Zuo, "Deep Learning for Human Centric Visual Analysis", *1st ed. Edition*, *Springer*, ISBN 978-9811323867, 2019
Springer: https://www.springer.com/us/book/9789811323867
Amazon: https://www.amazon.com/Learning-Human-Centric-Visual-Analysis/dp/9811323860

Book Chapter

[2] C. C. Loy, **P. Luo**, and C. Huang, "Deep Learning Face Attributes for Detection and Alignment" in the book "Visual Attributes" by Rogerio Feris, Christoph Lampert, and Devi Parikh.

Refereed Journals (*correspondence author)

[3] **P. Luo***, J. Ren, Z. Peng, R. Zhang, and J. Li, "Differentiable Switchable Normalization for learning-to-normalize deep representation", IEEE Transactions on Pattern Analysis and Machine Intelligence (***TPAMI***), 2020 (**IF: 17.8**)

[4] Enze Xie, Wenhai Wang, Mingyu Ding, Ruimao Zhang, **Ping Luo***, PolarMask++: Enhanced Polar Representation for Single-Shot Instance Segmentation and Beyond, IEEE Transactions on Pattern Analysis and Machine Intelligence (***TPAMI***), 2021 (**IF: 17.8**)

[5] Hang Yu, Aishan Liu, Xianglong Liu, Gengchao Li, **Ping Luo**, Ran Cheng, Jichen Yang, Chongzhi Zhang, Progressive Diversified Augmentation for General Robustness of DNNs: A Unified Approach, IEEE Transactions on Image Processing (***TIP***), 2021 (**IF: 10.5**)

[6] Shixiong Zhao, Fanxin Li, Xusheng Chen, Xiuxian Guan, Jianyu Jiang, Dong Huang, Yuhao Qing, Sen Wang, Peng Wang, Gong Zhang, Cheng Li, **Ping Luo**, Heming Cui, VPIPE: A Virtualized Acceleration System for Achieving Efficient and Scalable Pipeline Parallel DNN Training, IEEE Transactions on Parallel and Distributed Systems (***TPDS***), 2021 (**IF: 4.15**)

[7] Y. Gao, Z. Kuang, G Li, **P. Luo**, Y. Chen, L. Lin, W. Zhang, Fashion Retrieval via Graph Reasoning Networks on a Similarity Pyramid, IEEE Transactions on Pattern Analysis and Machine Intelligence (***TPAMI***), 2020 (**IF: 17.8**)

[8] W. Shao, T. Meng, J. Li, R. Zhang, Y. Li, X. Wang, **P. Luo***, "SSN: Learning sparse switchable normalization via sparsestmax", International Journal of Computer Vision (***IJCV***), 2019 (**IF: 9.79**)

[9] R. Zhang, J. Li, L. Lin, **P. Luo***, X. Wang, "SCAN: Self-and-Collaborative Attention Network for Video Person Re-identification", IEEE Transactions on Image Processing (***TIP***), 2019 (**IF: 10.5**)

[10] Z. Liu, X. Li, **P. Luo***, C. C. Loy, X. Tang, "Deep Learning Markov Random Field for Semantic Segmentation ", *IEEE Transactions on Pattern Analysis and Machine Intelligence (**TPAMI**)*, 2018 (**IF: 17.8**)

[11] Z. Zhang, **P. Luo**, C. C. Loy, and X. Tang, "From Facial Expression Recognition to Interpersonal Relation Prediction", *International Journal of Computer Vision (**IJCV**)*, 2018 (**IF: 9.79**)

[12] S. Yang, **P. Luo**, C. C. Loy, and X. Tang, "Faceness-Net: Face Detection through Deep Facial Part Responses", *IEEE Transactions on Pattern Analysis and Machine Intelligence (**TPAMI**)*, 2018 (**IF: 17.8**)

[13] W. Ouyang, X. Zeng, X. Wang, S. Qiu, **P. Luo** et al., "DeepID-Net: Object Detection with Deformable Part Based Convolutional Neural Networks", *IEEE Transactions on Pattern Analysis and Machine Intelligence (**TPAMI**),* No. 07 - July (vol. 39), 2017 (**IF: 17.8**)

[14] Z. Zhang, **P. Luo***, C. C. Loy, and X. Tang, "Learning Deep Representation for Face Alignment with Auxiliary Attributes", *IEEE Transactions on Pattern Analysis and Machine Intelligence (**TPAMI**)*, No. 05 - May (vol. 38), 2016 (**IF: 17.8**)

[15] **P. Luo**, L. Lin, and X. Liu, "Compositional Shape Model Learning with Multiple Distance Metrics", *IEEE Transactions on Neural Network and Learning System (**TNNLS**),* 2016 (**IF: 10.5**)

[16] X. Liang, L. Lin, W. Yang, **P. Luo**, J. Huang, and S. Yan, "Clothes Co-Parsing via Joint Image Segmentation and Labeling with Application to Clothing Retrieval", *IEEE Transactions on Multimedia (**TMM**)*, 2016 (**IF: 7.8**)

[17] L. Lin, **P. Luo**, X. Chen, and K. Zeng, "Representing and Recognizing Objects with Massive Local Image Patches", *Pattern Recognition (**PR**)*, 45(1): 231-240, 2012 (**IF: 9.559**)

Refereed Conferences

[1] Zhaoyang Zhang, Wenqi Shao, Jinwei Gu, Xiaogang Wang, **Ping Luo**, Differentiable Dynamic Quantization with Mixed Precision and Adaptive Resolution, *International Conference on Machine Learning (**ICML**)*, 2021

[2] Peize Sun, Yi Jiang, Enze Xie, Wenqi Shao, Zehuan Yuan, Changhu Wang, **Ping Luo**, What Makes for End-to-End Object Detection?, *International Conference on Machine Learning (**ICML**)*, 2021

[3] Yuanfeng, Huijie Wang, Ruimao Zhang, Zhen Li, Lingyun Wu, Shaoting Zhang, **Ping Luo**, Multi-Compound Transformer for Accurate Biomedical Image Segmentation, *Proc. of Medical Image Computing and Computer-Assisted Interventions* (***MICCAI***), 2021

[4] Xuesong Chen, Canmiao Fu, Feng Zheng, Yong Zhao, Hongsheng Li, **Ping Luo**, Guo-Jun Qi, A Unified Multi-Scenario Attacking Network for Visual Object Tracking, *AAAI Conference on Artificial Intelligence (**AAAI**),* 2021

[5] Enze Xie, Wenjia Wang, Wenhai Wang, Peize Sun, Hang Xu, Ding Liang, **Ping Luo**, Segmenting Transparent Objects in the Wild with Transformer, *International Joint Conference on Artificial Intelligence (**IJCAI**),* 2021

[6] Xingang Pan, Bo Dai, Ziwei Liu, Chen Change Loy, **Ping Luo**, "Do 2D GANs Know 3D Shape? Unsupervised 3D Shape Reconstruction from 2D Image GANs", *International Conference on Learning Representations (**ICLR**),* 2021 Oral

[7] Mingyu Ding, Xiaochen Lian, Linjie Yang, Peng Wang, Xiaojie Jin, Zhiwu Lu, **Ping Luo**, "HR-NAS: Searching Efficient High-Resolution Neural Architectures With Lightweight Transformers", *Computer Vision and Pattern Recognition (**CVPR**)*, 2021 Oral

[8] Yuying Ge, Yibing Song, Ruimao Zhang, Chongjian Ge, Wei Liu, **Ping Luo**, "Parser-Free Virtual Try-On via Distilling Appearance Flows", *Computer Vision and Pattern Recognition (**CVPR**),* 2021

[9] Lumin Xu, Yingda Guan, Sheng Jin, Wentao Liu, Chen Qian, **Ping Luo**, Wanli Ouyang, Xiaogang Wang, "ViPNAS: Efficient Video Pose Estimation via Neural Architecture Search", *Computer Vision and Pattern Recognition (**CVPR**)*, 2021

[10] Chongjian Ge, Yibing Song, Yuying Ge, Han Yang, Wei Liu, **Ping Luo**, "Disentangled Cycle Consistency for Highly-Realistic Virtual Try-On", *Computer Vision and Pattern Recognition (**CVPR**)*, 2021

[11] Peize Sun, Rufeng Zhang, Yi Jiang, Tao Kong, Chenfeng Xu, Wei Zhan, Masayoshi Tomizuka, Lei Li, Zehuan Yuan, Changhu Wang, **Ping Luo**, Sparse R-CNN: End-to-End Object Detection With Learnable Proposals, *Computer Vision and Pattern Recognition* (***CVPR***), 2021

[12] Jiahang Wang, Sheng Jin, Wentao Liu, Weizhong Liu, Chen Qian, **Ping Luo**, When Human Pose Estimation Meets Robustness: Adversarial Algorithms and Benchmarks, Computer Vision and Pattern Recognition (***CVPR***), 2021

[13] Yuanfeng Ji, Ruimao Zhang, Zhen Li, Jiamin Ren, Shaoting Zhang, **Ping Luo**, "UXNet: Searching Multi-level Feature Aggregation for 3D Medical Image Segmentation", *Proc. of Medical Image Computing and Computer-Assisted Interventions* (***MICCAI***), 2020 Oral

[14] J. Yang, L. Feng, W. Chen, X. Yan, H. Zheng, **P. Luo**, W. Zhang, "Webly supervised image classification with self-contained confidence", *European Conference on Computer Vision (**ECCV**),* 2020

[15] Xingang Pan, Xiaohang Zhan, Bo Dai, Dahua Lin, Chen Change Loy, **Ping Luo**, Exploiting Deep Generative Prior for Versatile Image Restoration and Manipulation, *European Conference on Computer Vision (**ECCV**),* 2020

[16] Sheng Jin, Wentao Liu, Enze Xie, Wenhai Wang, Chen Qian, Wanli Ouyang, **Ping Luo**, Differentiable Hierarchical Graph Grouping for Multi-Person Pose Estimation, *European Conference on Computer Vision (**ECCV**),* 2020

[17] Sheng Jin, Lumin Xu, Jin Xu, Can Wang, Wentao Liu, Chen Qian, Wanli Ouyang, **Ping Luo**, Whole-Body Human Pose Estimation in the Wild, *European Conference on Computer Vision (**ECCV**),* 2020

[18] Enze Xie, Wenjia Wang, Wenhai Wang, Mingyu Ding, Chunhua Shen, **Ping Luo**, Segmenting Transparent Objects in the Wild*, European Conference on Computer Vision (**ECCV**),* 2020

[19] Wenhai Wang, Xuebo Liu, Xiaozhong Ji, Enze Xie, Ding Liang, ZhiBo Yang, Tong Lu, Chunhua Shen, **Ping Luo**, AE TextSpotter: Learning Visual and Linguistic Representation for Ambiguous Text Spotting, *European Conference on Computer Vision (**ECCV**),* 2020

[20] Chaofan Tao, Qinhong Jiang, Lixin Duan, **Ping Luo**, Dynamic and Static Context-aware LSTM for Multi-agent Motion Prediction, *European Conference on Computer Vision (**ECCV**),* 2020

[21] Zhouxia Wang, Jiawei Zhang, Mude Lin, Jiong WANG, **Ping Luo**, Jimmy Ren, "Learning a Reinforced Agent for Flexible Exposure Bracketing Selection", *IEEE Conference on Computer Vision and Pattern Recognition* (***CVPR***), 2020

[22] Han Yang, Ruimao Zhang, Xiaobao Guo, Wei Liu, Wangmeng Zuo, **Ping Luo**, "Towards Photo-Realistic Virtual Try-On by Adaptively Generating and Preserving Image Content", IEEE Conference on Computer Vision and Pattern Recognition (***CVPR***), 2020

[23] Ruimao Zhang, Zhanglin Peng, Lingyun Wu, Zhen Li, **Ping Luo**, "Exemplar Normalization for Learning Deep Representation", IEEE Conference on Computer Vision and Pattern Recognition (***CVPR***), 2020

[24] Mingyu Ding, Yuqi Huo, Hongwei Yi, Zhe Wang, Jianping Shi, Zhiwu Lu, **Ping Luo**, "Learning Depth-Guided Convolutions for Monocular 3D Object Detection", IEEE Conference on Computer Vision and Pattern Recognition (***CVPR***), 2020

[25] Enze Xie, Peize Sun, Xiaoge Song, Wenhai Wang, Xuebo Liu, Ding Liang, Chunhua Shen, **Ping Luo**, "PolarMask: Single Shot Instance Segmentation with Polar Representation", IEEE Conference on Computer Vision and Pattern Recognition (***CVPR***), 2020 Oral

[26] Wang ZENG, Wei Yang, Wanli Ouyang, **Ping Luo**, Wentao Liu, Xiaogang Wang, "3D Human Mesh Regression with Dense Correspondence", IEEE Conference on Computer Vision and Pattern Recognition (***CVPR***), 2020

[27] Qiushan Guo, Xinjiang Wang, Yichao Wu, Zhipeng Yu, Ding Liang, Xiaolin Hu, **Ping Luo**, Online Knowledge Distillation via Collaborative Learning, IEEE Conference on Computer Vision and Pattern Recognition (***CVPR***), 2020 Oral

[28] Cheng-Han Lee, Ziwei Liu, Lingyun Wu, **Ping Luo**, MaskGAN : Toward Diverse and Interactive Facial Image Manipulation, IEEE Conference on Computer Vision and Pattern Recognition (***CVPR***), 2020

[29] X. Pan, X. Zhan, J. Shi, X. Tang, **P. Luo**, "Switchable whitening for deep representation learning", Proceedings of the IEEE International Conference on Computer Vision (***ICCV***), 2019

[30] Z. Kuang, Y. Gao, G. Li, **P. Luo**, Y. Chen, L. Lin, W. Zhang, "Fashion Retrieval via Graph Reasoning Networks on a Similarity Pyramid", Proceedings of the IEEE International Conference on Computer Vision (***ICCV***), 2019

[31] M. Ding, Z. Wang, J. Sun, J. Shi, **P. Luo**, "CamNet: Coarse-to-Fine Retrieval for Camera Re-Localization", Proceedings of the IEEE International Conference on Computer Vision (***ICCV***), 2019

[32] J. Han, **P. Luo**, X. Wang, "Deep Self-Learning from Noisy Labels", Proceedings of the IEEE International Conference on Computer Vision (***ICCV***), 2019

[33] Z. Zhang, J. Li, W. Shao, Z. Peng, R. Zhang, X. Wang, **P. Luo**, "Differentiable Learning-to-Group Channels via Groupable Convolutional Neural Networks", Proceedings of the IEEE International Conference on Computer Vision (***ICCV***), 2019

[34] **P. Luo**, Z. Peng, W. Shao, R. Zhang, J. Ren, L. Wu, "Differentiable Learning to Normalize via Dynamic Nomarlization", *International Conference on Machine Learning (**ICML**)*, 2019

[35] **P. Luo**, Z. Peng, J. Ren, R. Zhang, "Do Normalization Layers in a Deep ConvNet Really Need to Be Distinct?", *arXiv:1811.07727*, 2019

[36] Y. Shen, B. Zhou, **P. Luo**, X. Tang, "FaceFeat-GAN: a Two-Stage Approach for Identity-Preserving Face Synthesis", *arXiv:1812.01288*, 2019

[37] Y. Ge, R. Zhang, X. Tang, X. Wang, **P. Luo***, "DeepFashion2: A Versatile Benchmark for Detection, Pose Estimation, Segmentation and Retrieval of Clothing Images", *International Conference on Computer Vision and Pattern Recognition (**CVPR**)*, 2019, code: https://github.com/switchablenorms/DeepFashion2

[38] H. Zhou, Z. Liu, **P. Luo**, X. Tang, "Vision-Infused Deep Audio Inpainting", Proceedings of the IEEE International Conference on Computer Vision (***ICCV***), 2019

[39] J. Han, R. Zhang, **P. Luo**, X. Wang, "Once a MAN: Towards Multi-target Attack via Learning Multi-target Adversarial Network Once", Proceedings of the IEEE International Conference on Computer Vision (***ICCV***), 2019

[40] W. Shao, T. Meng, J. Li, R. Zhang, X. Wang, **P. Luo***, "SSN: Learning Sparse Switchable Normalization via SparsestMax", *International Conference on Computer Vision and Pattern Recognition (**CVPR**)*, 2019

[41] **P. Luo**, W. Shao, X. Wang, Z. Peng, "Towards Understanding Regularization in Batch Normalization", *International Conference on Learning Representation (**ICLR**)*, 2019

[42] **P. Luo**, J. Ren, Z. Peng, R. Zhang, J. Li, "Differentiable learning-to-normalize via switchable normalization", *International Conference on Learning Representation (**ICLR**)*, 2019

[43] H. Zhou, Y. Liu, Z. Liu, **P. Luo**, X. Wang, "Talking Face Generation by Adversarially Disentangled Audio-Visual Representation", *AAAI Conference on Artificial Intelligence (**AAAI**)*, 2019, Oral

[44] G. Wang, J. Peng, **P. Luo**, L. Lin, "Kalman Normalization: Normalizing Internal Representations Across Network Layers", *Advances in Neural Information Processing Systems (**NeurIPS**)*, 2018

[45] X. Zhan, Z. Liu, **P. Luo**, X Tang, C. C. Loy, "Mix-and-Match Tuning for Self-Supervised Semantic Segmentation", *AAAI Conference on Artificial Intelligence (**AAAI**)*, 2018

[46] X. Pan, **P. Luo**, J. Shi, X. Tang, "Spatial As Deep: Spatial CNN for Traffic Scene Understanding", *AAAI Conference on Artificial Intelligence (**AAAI**)*, 2018, winning entry in CVPR17 Tusimple Lane Detection Challenge

[47] Y. Shen, **P. Luo**, J. Yan, X. Wang, X. Tang, "FaceID-GAN: Learning a Symmetry Three-Player GAN for Identity-Preserving Face Synthesis", *International Conference on Computer Vision and Pattern Recognition (**CVPR**)*, 2018

[48] X. Pan, **P. Luo**, J. Shi, X. Tang, "Two at Once: Enhancing Learning and Generalization Capacities via IBN-Net", *European Conference on Computer Vision (**ECCV**),* 2018, winning entry in CVPR18 Workshop on Autonomous Driving.

[49] Z. Zhang, Z. Kuang, **P. Luo**, L. Feng, W. Zhang, "Temporal Sequence Distillation: Towards Few-Frame Action Recognition in Videos", *ACM Multimedia Conference (**ACM MM**)*, 2018

[50] Z. Peng, L. Wu, J. Ren, R. Zhang, **P. Luo***, "CUImage: A Never Ending Learning Platform on a Convolutional Knowledge Graph of Billion Web Images", *IEEE Conference on Big Data (**BigData**)*, 2018, acceptance rate: 17%, Oral

[51] Z. Peng, J. Ren, R. Zhang, L. Wu, **P. Luo***, "Scheduling Large-scale Distributed Training via Reinforcement Learning", *IEEE Conference on Big Data (**BigData**)*, 2018, acceptance rate: 17%, Oral

[52] Y. Zhou, **P. Luo***, "Video Classification via Relational Feature Encoding Networks", the 25th ACM Multimedia Conference (**ACM MM**) LSVC Workshop, MountainView CA, USA, 2017, Oral

[53] **P. Luo**, G. Wang, L. Lin, X. Wang, "Deep Dual Learning for Semantic Image Segmentation", *IEEE International Conference on Computer Vision (**ICCV**),* 2017

[54] **P. Luo**, "Learning Deep Architectures via Generalized Whitened Neural Networks", *Thirty-fourth International Conference on Machine Learning **(ICML)**,* 2017, Oral

[55] **P. Luo**, "EigenNet: Towards Fast and Structural Learning of Deep Neural Networks", *International Joint Conference on Artificial Intelligence **(IJCAI)**,* 2017, Oral

[56] **P. Luo**, G. Wang, L. Lin, X. Wang, "Learning Object Interactions and Descriptions for Semantic Image Segmentation", *International Conference on Computer Vision and Pattern Recognition (**CVPR**)*, 2017

[57] S. Yan, Z. Liu, **P. Luo**, S. Qiu, X. Wang, and X. Tang, "Unconstrained Fashion Landmark Detection via Hierarchical Recurrent Transformer Networks", *ACM Multimedia **(MM)**,* 2017

[58] X. Li, Z. Liu, **P. Luo**, C.C. Loy, X. Tang, "Not All Pixels Are Equal: Difficulty-Aware Semantic Segmentation via Deep Layer Cascade", *International Conference on Computer Vision and Pattern Recognition (**CVPR**)*, 2017

[59] Z. Zhang, **P. Luo**, C. C. Loy, and X. Tang, "Joint Representation Learning and Face Clustering in Videos", *European Conference on Computer Vision (**ECCV**)*, 2016

[60] Z. Liu, S. Yan, **P. Luo**, X. Wang, X. Tang, "Fashion Landmark Detection in the Wild", *European Conference on Computer Vision (**ECCV**)* , 2016

[61] **P. Luo**, Z. Zhu, Z. Liu, X. Wang, X. Tang, "Face Model Compression by Distilling Knowledge from Neurons", *AAAI Conference on Artificial Intelligence (**AAAI**)*, 2016, Oral, acceptance rate: 15%

[62] S. Yang, **P. Luo***, C. C. Loy, X. Tang, "WIDER FACE: A Face Detection Benchmark", *International Conference on Computer Vision and Pattern Recognition (**CVPR**)*, 2016, Oral, acceptance rate: 3.9%

[63] Z. Liu, **P. Luo***, Q. Shi, X. Wang, X. Tang, "DeepFashion: Powering Robust Clothes Recognition and Retrieval with Rich Annotations", *International Conference on Computer Vision and Pattern Recognition (**CVPR**)*, 2016

[64] Z. Liu, X. Li, **P. Luo***, C. C. Loy, X. Tang, "Semantic Image Segmentation via Deep Parsing Network," *IEEE International Conference on Computer Vision (**ICCV**),* 2015, Oral, acceptance rate: 3.5%

[65] Y. Tian, **P. Luo***, X. Wang, X. Tang, "Deep Learning Strong Parts for Pedestrian Detection", *IEEE International Conference on Computer Vision (**ICCV**)*, 2015

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