

JING SHAO

Research Director @ SenseTime Group Limited

✉ amandashaojing@gmail.com
📄 <https://amandajshao.github.io/>

Summary

- My research lies at the computer vision and multimedia, aiming at endowing machines with the capability to generate, perceive, understand the 2D and 3D visual world including face, body, object and scene. The application areas focus on Video surveillance, Autonomous driving, and Artificial general intelligence.
- 4700+ citations and 28 h-index according to Google Scholar. 27 papers published in CVPR/ ICCV/ ECCV which are the top-3 conferences on computer vision, where 6 papers are oral presented. More than 40 patents licensed or in pending.

Working Experience

SenseTime **Research Director**, *Since 2020.04*.

Founded and led the General Vision Group to build general vision paradigm named INTERN based on multi-modal signals. And then acted as the project manager for autonomous driving (Level 4) and the lead several perception modules (Level 2 & Level 4). 2021 SenseTime's Best Team Award.

Senior Research Manager, *2018.04 - 2020.04*.

Led the Liveness Group which made the exponential growth in both accuracy and applicable usage of face anti-spoofing and face forgery detection. The solutions were applied to more than 10+ product lines for 200 customers that make cities safer and more efficient. 2019 SenseTime's Best Team Award.

Senior Researcher, *2016.11 - 2018.04*.

Founded and led the Intelligent Photo Group to build intelligent solutions on image and video recognition, especially for video surveillance.

Academic Positions

2021 - **Adjunct Ph.D. Supervisor**, School of Electronic, Information and Electrical Engineering, Shanghai Jiao Tong University, Shanghai, China.

2021 - 2022 **Co-PI**, Joint Lab of SenseTime and Shanghai AI Laboratory, Shanghai, China.

2020 - 2022 **Co-PI**, Joint Lab of SenseTime and Nanyang Technological University, Singapore.

Education

2012–2016 **Ph.D.**, Department of Electronic Engineering, The Chinese University of Hong Kong, Hong Kong, China.

○ Thesis: Scene-independent crowd understanding and crowd behavior analysis

○ Supervisor: Prof. Xiaogang Wang

2010–2012 **Exchange Student**, Beijing International Center of Mathematical Research, Peking University, Beijing, China.

○ Supervisor: Prof. Guanxiang Wang

2009–2012 **M.S. Degree**, Department of Mathematics, Faculty of Science, Hebei University of Technology, Tianjin, China.

○ Thesis: An intelligent fire-detection based on video surveillance process

○ Supervisor: Prof. Wei Guo

2005–2009 **B.S. Degree**, Department of Mathematics, Faculty of Science, Hebei University of Technology, Tianjin, China.

○ Thesis: Object recognition and localization based on color and texture

○ Advisor: Prof. Wei Guo

Government Project

2018-2022 **A Giant Scale of Visual Analysis for Smart City**, Shenzhen, Guangdong, China.

Research Publications

- [1] Dong An, Zun Wang, Yangguang Li, Yi Wang, Yicong Hong, Yan Huang, Liang Wang, and Jing Shao. “1st Place Solutions for RxR-Habitat Vision-and-Language Navigation Competition (CVPR 2022)”. In: (2022). arXiv: 2206.11610.
- [2] Yinan He, Gengshi Huang, Siyu Chen, Jianing Teng, Kun Wang, Zhenfei Yin, Lu Sheng, Ziwei Liu, Yu Qiao, and Jing Shao. “X-Learner: Learning Cross Sources and Tasks for Universal Visual Representation”. In: *ECCV*. 2022.
- [3] Yubo Ma, Zehao Wang, Yixin Cao, Mukai Li, Meiqi Chen, Kun Wang, and Jing Shao. “Prompt for Extraction? PAIE: Prompting Argument Interaction for Event Argument Extraction”. In: *ACL*. 2022.
- [4] Yubo Ma, Zehao Wang, Mukai Li, Yixin Cao, Meiqi Chen, Xinze Li, Wenqi Sun, Kunquan Deng, Kun Wang, Aixin Sun, and Jing Shao. “MMEKG: Multi-modal Event Knowledge Graph towards Universal Representation across Modalities”. In: *ACL*. 2022.
- [5] Luya Wang, Feng Liang, Yangguang Li, Honggang Zhang, Wanli Ouyang, and Jing Shao. “RePre: Improving Self-Supervised Vision Transformer with Reconstructive Pre-training”. In: *IJCAI*. 2022.
- [6] Yi Wang, Menghan Xia, Lu Qi, Jing Shao, and Yu Qiao. “PalGAN: Image Colorization with Palette Generative Adversarial Networks”. In: *ECCV*. 2022.
- [7] Xingrun Xing, Yangguang Li, Wei Li, Wenrui Ding, Yalong Jiang, Yufeng Wang, Jing Shao, Chulei Liu, and Xianglong Liu. “Towards Accurate Binary Neural Networks via Modeling Contextual Dependencies”. In: *ECCV*. 2022.
- [8] Yuanhan Zhang, Zhenfei Yin, Jing Shao, and Ziwei Liu. “Benchmarking Omni-Vision Representation through the Lens of Visual Realms”. In: *ECCV*. 2022.
- [9] Yinan He, Bei Gan, Siyu Chen, Yichun Zhou, Guojun Yin, Luchuan Song, Lu Sheng, Jing Shao, and Ziwei Liu. “ForgeryNet: A Versatile Benchmark for Comprehensive Forgery Analysis”. In: *CVPR*. 2021.
- [10] Yinan He, Lu Sheng, Jing Shao, Ziwei Liu, Zhaofan Zou, Zhizhi Guo, Shan Jiang, Curitis Sun, Guosheng Zhang, Keyao Wang, Haixiao Yue, Zhibin Hong, Wanguo Wang, Zhenyu Li, Qi Wang, Zhenli Wang, Ronghao Xu, Mingwen Zhang, Zhiheng Wang, Zhenhang Huang, Tianming Zhang, and Ningning Zhao. “ForgeryNet - Face Forgery Analysis Challenge 2021: Methods and Results”. In: (2021). arXiv: 2112.08325.
- [11] Juntong Pan, Siyu Chen, Mike Zheng Shou, Yu Liu, Jing Shao, and Hongsheng Li. “Actor-Context-Actor Relation Network for Spatio-Temporal Action Localization”. In: *CVPR*. 2021.
- [12] Jing Shao, Siyu Chen, Yangguang Li, Kun Wang, Zhenfei Yin, Yinan He, Jianing Teng, Qinghong Sun, Mengya Gao, Jihao Liu, Gengshi Huang, Guanglu Song, Yichao Wu, Yuming Huang, Fenggang Liu, Huan Peng, Shuo Qin, Chengyu Wang, Yujie Wang, Conghui He, Ding Liang, Yu Liu, Fengwei Yu, Junjie Yan, Dahua Lin, Xiaogang Wang, and Yu Qiao. “INTERN: A New Learning Paradigm Towards General Vision”. In: (2021). arXiv: 2111.08687.
- [13] Yuanhan Zhang, Zhenfei Yin, Jing Shao, Ziwei Liu, Shuo Yang, Yuanjun Xiong, Wei Xia, Yan Xu, Man Luo, Jian Liu, Jianshu Li, Zhijun Chen, Mingyu Guo, Hui Li, Junfu Liu, Pengfei Gao, Tianqi Hong, Hao Han, Shijie Liu, Xinhua Chen, Di Qiu, Cheng Zhen, Dashuang Liang, Yufeng Jin, and Zhanlong Hao. “CelebA-Spoof Challenge 2020 on Face Anti-Spoofing: Methods and Results”. In: (2021). arXiv: 2102.12642.
- [14] Zhao Zhong, Zichen Yang, Boyang Deng, Junjie Yan, Wei Wu, Jing Shao, and Cheng-Lin Liu. “BlockQNN: Efficient Block-Wise Neural Network Architecture Generation”. In: *T-PAMI* 43.7 (2021), pp. 2314–2328.
- [15] Siyu Chen, Juntong Pan, Guanglu Song, Manyuan Zhang, Hao Shao, Ziyi Lin, Jing Shao, Hongsheng Li, and Yu Liu. “1st place solution for AVA-Kinetics Crossover in ActivityNet Challenge 2020”. In: (2020). arXiv: 2006.09116.

- [16] Minghua Liu, Lu Sheng, Sheng Yang, Jing Shao, and Shi-Min Hu. “Morphing and Sampling Network for Dense Point Cloud Completion”. In: *AAAI*. 2020.
- [17] Yuyang Qian, Guojun Yin, Lu Sheng, Zixuan Chen, and Jing Shao. “Thinking in Frequency: Face Forgery Detection by Mining Frequency-Aware Clues”. In: *ECCV*. 2020.
- [18] Lu Sheng, Junting Pan, Jiaming Guo, Jing Shao, and Chen Change Loy. “High-Quality Video Generation from Static Structural Annotations”. In: *IJCV* 128.10 (2020), pp. 2552–2569.
- [19] Kun Yuan, Quanquan Li, Jing Shao, and Junjie Yan. “Learning Connectivity of Neural Networks from a Topological Perspective”. In: *ECCV*. 2020.
- [20] Yuanhan Zhang, Zhenfei Yin, Yidong Li, Guojun Yin, Junjie Yan, Jing Shao, and Ziwei Liu. “CelebA-Spoof: Large-Scale Face Anti-spoofing Dataset with Rich Annotations”. In: *ECCV*. 2020.
- [21] Xihui Liu, Zihao Wang, Jing Shao, Xiaogang Wang, and Hongsheng Li. “Improving Referring Expression Grounding With Cross-Modal Attention-Guided Erasing”. In: *CVPR*. 2019.
- [22] Xihui Liu, Guojun Yin, Jing Shao, Xiaogang Wang, and Hongsheng Li. “Learning to Predict Layout-to-image Conditional Convolutions for Semantic Image Synthesis”. In: *NeurIPS*. 2019.
- [23] Junting Pan, Chengyu Wang, Xu Jia, Jing Shao, Lu Sheng, Junjie Yan, and Xiaogang Wang. “Video Generation From Single Semantic Label Map”. In: *CVPR*. 2019.
- [24] 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”. In: *ICCV*. 2019.
- [25] Guojun Yin, Bin Liu, Lu Sheng, Nenghai Yu, Xiaogang Wang, and Jing Shao. “Semantics Disentangling for Text-To-Image Generation”. In: *CVPR*. 2019.
- [26] Guojun Yin, Lu Sheng, Bin Liu, Nenghai Yu, Xiaogang Wang, and Jing Shao. “Context and Attribute Grounded Dense Captioning”. In: *CVPR*. 2019.
- [27] 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”. In: *ECCV*. 2018.
- [28] Pengze Liu, Xihui Liu, Junjie Yan, and Jing Shao. “Localization Guided Learning for Pedestrian Attribute Recognition”. In: *BMVC*. 2018.
- [29] Xihui Liu, Hongsheng Li, Jing Shao, Dapeng Chen, and Xiaogang Wang. “Show, Tell and Discriminate: Image Captioning by Self-retrieval with Partially Labeled Data”. In: *ECCV*. 2018.
- [30] Yongcheng Liu, Lu Sheng, Jing Shao, Junjie Yan, Shiming Xiang, and Chunhong Pan. “Multi-Label Image Classification via Knowledge Distillation from Weakly-Supervised Detection”. In: *ACM MM*. 2018.
- [31] Yu Liu, Guanglu Song, Jing Shao, Xiao Jin, and Xiaogang Wang. “Transductive Centroid Projection for Semi-supervised Large-Scale Recognition”. In: *ECCV*. 2018.
- [32] Yu Liu, Fangyin Wei, Jing Shao, Lu Sheng, Junjie Yan, and Xiaogang Wang. “Exploring Disentangled Feature Representation Beyond Face Identification”. In: *CVPR*. 2018.
- [33] Lu Sheng, Ziyi Lin, Jing Shao, and Xiaogang Wang. “Avatar-Net: Multi-Scale Zero-Shot Style Transfer by Feature Decoration”. In: *CVPR*. 2018.
- [34] Guojun Yin, Lu Sheng, Bin Liu, Nenghai Yu, Xiaogang Wang, Jing Shao, and Chen Change Loy. “Zoom-Net: Mining Deep Feature Interactions for Visual Relationship Recognition”. In: *ECCV*. 2018.
- [35] Zhao Zhong, Junjie Yan, Wei Wu, Jing Shao, and Cheng-Lin Liu. “Practical Block-Wise Neural Network Architecture Generation”. In: *CVPR*. 2018.
- [36] 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”. In: *ICCV*. 2017.
- [37] Jing Shao, Chen Change Loy, Kai Kang, and Xiaogang Wang. “Crowded Scene Understanding by Deeply Learned Volumetric Slices”. In: *T-CSVT* 27.3 (2017), pp. 613–623.

- [38] Jing Shao, Chen Change Loy, and Xiaogang Wang. “Learning Scene-Independent Group Descriptors for Crowd Understanding”. In: *T-CST* 27.6 (2017), pp. 1290–1303.
- [39] 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”. In: *ICCV*. 2017.
- [40] Haiyu Zhao, Maoqing Tian, Shuyang Sun, Jing Shao, Junjie Yan, Shuai Yi, Xiaogang Wang, and Xiaoou Tang. “Spindle Net: Person Re-identification with Human Body Region Guided Feature Decomposition and Fusion”. In: *CVPR*. 2017.
- [41] Jing Shao, Chen Change Loy, Kai Kang, and Xiaogang Wang. “Slicing Convolutional Neural Network for Crowd Video Understanding”. In: *CVPR*. 2016.
- [42] Jing Shao, Kai Kang, Chen Change Loy, and Xiaogang Wang. “Deeply learned attributes for crowded scene understanding”. In: *CVPR*. 2015.
- [43] Jing Shao, Chen Change Loy, and Xiaogang Wang. “Scene-Independent Group Profiling in Crowd”. In: *CVPR*. 2014.

Awards and Honors

- 2022 Winner of Challenge on RxR-Habitat Vision-and-Language Navigation Competition
- 2020 Winner of ActivityNet Challenge on Spatio-temporal Action Localization (AVA)
- 2020 4th Place of DeepFake Detection Challenge (DFDC)
- 2012–2015 Postgraduate Studentship
- 2013 Commendation for Outstanding Tutor
- 2009 Excellent Bachelor Thesis Award
- 2007–2008 Outstanding Student Leader of Hebei University of Technology (Top 4%)
- 2007–2008 Excellent Student of Hebei University of Technology (Top 4%)
- 2006–2007 Scholarship of P.R. China (Rank 4/26)
- 2006–2007 Scholarship of Hebei University of Technology

Professional Services

- **Conference Reviewer:** CVPR, ICCV, ECCV, NeurIPS, ICLR, AAAI, IJCAI, ACM MM
- **Journal Reviewer:** International Journal on Computer Vision, Computer Vision and Image Understanding, Pattern Recognition, IEEE Trans on PAMI, IEEE Trans on Image Processing, IEEE Trans on CSVT, IEEE Trans on ITS, IEEE Trans on Multimedia
- **Senior Program Committee,** AAAI
- **Co-organizer,** ECCV 2022 Workshop on DeeperAction
- **Co-organizer,** ICCV 2021 Workshop on DeeperAction
- **Co-organizer,** ICCV 2021 Workshop on Sensing, Understanding and Synthesizing Humans
- **Challenge Chair,** OmniBenchmark Challenge (ECCV 2022)
- **Challenge Chair,** ForgeryNet - Face Forgery Analysis Challenge (ICCV 2021)
- **Challenge Chair,** CelebA-Spoof - Face Anti-Spoofing Challenge 2020 (ECCV 2020)

Teaching Experiences

2012–2015 Teaching Assistant

[Duties on weekly tutorials, lab exercises and office hours]

- ERG 2011: Advanced Engineering Mathematics, Fall 2012.
- ENGG 1110: Problem Solving by Java Programming, Spring 2013.
- ENGG 2420: Advanced Engineering Mathematics, Fall 2013.
- ENGG 1110: Problem Solving by Java Programming, Spring 2014.
- ENGG 2420: Complex Analysis and Differential Equations for Engineers, Fall 2014.
- ENGG 1110: Problem Solving by Java Programming, Spring 2015.