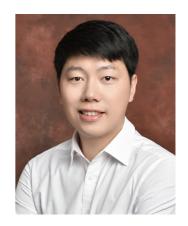# HE Shengfeng

School of Computing and Information Systems
Singapore Management University (SMU)
80 Stamford Road
Singapore 178902

Email: shengfenghe@smu.edu.sg

Education

PhD, City University of Hong Kong, China, 2015

Master of Science, Macau University of Science & Technology, China, 2011

Bachelor of Science, Macau University of Science & Technology, China, 2009

Visiting PhD, Georgia Institute of Technology, United States of America, 2015

Academic Appointments

Associate Professor of Computer Science, School of Computing and Information Systems, SMU, Feb 2023 - Present

Associate Professor, School of Computer Science and Engineering, South China University of Technology, China, Nov 2016 - Jan 2023

Research Fellow, Department of Computer Science, City University of Hong Kong, China, Sep 2015 - Oct 2016

Research Assistant, Department of Computer Science, City University of Hong Kong, China, Oct 2011 - Oct 2012

Awards and Honors

Google South Asia & Southeast Asia Research Award, Singapore Management University, 2024

World's Top 2% Scientists, Stanford University, 2023

Undergraduate Teaching Excellence Award, South China University of Technology, 2022, 2021, 2020, 2019, 2018, 2017

Guangdong Distinguished Young Scholars, Guangdong Natural Science Funds, 2022

CCF-Tencent Open Research Fund Honorable Mention (8/200), China Computer Federation, 2022

CCF-Tencent Open Research Fund Outstanding Patent Award (1/200), China Computer Federation, 2020

CCF-Tencent Open Research Fund Excellence Award (1/200), China Computer Federation, 2020

Excellence Supervisor Award for Undergraduate Dissertation, South China University of Technology, 2019, 2018

ACM Rising Star Guangzhou Chapter, ACM, 2018

Outstanding Reviewer, IEEE Trans. on Multimedia, 2018

Outstanding Reviewer, The British Machine Vision Conference, 2017

Guangdong Young Top-notch Talent, Department of Science and Technology of Guangdong Province, 2017

Professional Memberships

Senior Member, Institute of Electrical and Electronics Engineers (IEEE), 2020

Senior Member, China Computer Federation (CCF), 2020

Member, Association for Computing Machinery (ACM), 2018

RESEARCH

Publications

Journal Articles [Refereed]

TranSiam: Aggregating multi-modal visual features with locality for medical image segmentation, by LI, Xuejian; MA, Shiqiang; XU, Junhai; TANG, Jijun; HE, Shengfeng; GUO, Fei. (2024). *Expert Systems with Applications, 237* 1-11. https://doi.org/10.1016/j.eswa.2023.121574 (Published)

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Reference-based Screentone Transfer via Pattern Correspondence and Regularization, by LI, Zhansheng; ZHAO, Nanxuan; WU, Zongwei; DAI, Yihua; WANG, Junle; JING, Yanqing; HE, Shengfeng. (2023). *Computer Graphics Forum, 42* (6), https://doi.org/10.1111/cgf.14800 (Published)

Parsing-Conditioned Anime Translation: A New Dataset and Method, by LI, Zhansheng; XU, Yangyang; ZHAO, Nanxuan; ZHOU, Yang; LIU, Yongtuo; LIN, Dahua; HE, Shengfeng . (2023). *ACM Transactions on Graphics, 42* (3), https://doi.org/10.1145/3585002 (Published)

DSDNet: Toward single image deraining with self-paced curricular dual stimulations, by DU, Yong; DENG, Junjie; ZHENG, Yulong; DONG, Junyu; HE, Shengfeng. (2023). *Computer Vision and Image Understanding, 230* 1-19. https://doi.org/10.1016/j.cviu.2023.103657 (Published)

Contextual-Assisted Scratched Photo Restoration, by CAI, Weiwei; ZHANG, Huaidong; XU, Xuemiao; HE, Shengfeng; ZHANG, Kun; QIN, Jing. (2023). *IEEE Transactions on Circuits and Systems for Video Technology, 33* (10), 5458-5469. https://doi.org/10.1109/TCSVT.2023.3256372 (Published)

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CrowdGAN: Identity-Free Interactive Crowd Video Generation and Beyond, by CHAI, Liangyu; LIU, Yongtuo; LIU, Wenxi; HAN, Guoqiang; HE, Shengfeng. (2022). *IEEE Transactions on Pattern Analysis and Machine Intelligence,* *44* (6), 2856-2871. https://doi.org/10.1109/TPAMI.2020.3043372 (Published)

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Multi-View Face Synthesis via Progressive Face Flow, by XU, Yangyang; XU, Xuemiao; JIAO, Jianbo; LI, Keke; XU, Cheng; HE, Shengfeng. (2021). *IEEE Transactions on Image Processing, 30* 6024-6035. https://doi.org/10.1109/TIP.2021.3090658 (Published)

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Blind Image Denoising via Dynamic Dual Learning, by DU, Yong; HAN, Guoqiang; TAN, Yinjie; XIAO, Chufeng; HE, Shengfeng. (2021). *IEEE Transactions on Multimedia, 23* 2139-2152. https://doi.org/10.1109/TMM.2020.3008057 (Published)

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Fast User-Guided Single Image Reflection Removal via Edge-Aware Cascaded Networks, by ZHANG, Huaidong; XU, Xuemiao; HE, Hai; HE, Shengfeng; HAN, Guoqiang; QIN, Jing; WU, Dapeng . (2020). *IEEE Transactions on Multimedia, 22* (8), 2012-2023. https://doi.org/10.1109/TMM.2019.2951461 (Published)

Exploring Duality in Visual Question-Driven Top-Down Saliency, by HE, Shengfeng; HAN, Chu; HAN,

Guoqiang; QIN, Jing. (2020). *IEEE Transactions on Neural Networks and Learning Systems, 31* (7), 2672-2679. https://doi.org/10.1109/TNNLS.2019.2933439 (Published)

Image captioning via semantic element embedding, by ZHANG, Xiaodan; HE, Shengfeng; SONG, Xinhang; LAU, Rynson W.H.; JIAO, Jianbin; YE, Qixiang. (2020). *Neurocomputing, 395* 212-221. https://doi.org/10.1109/10.1016/j.neucom.2018.02.112 (Published)

Deep Pixel-Level Matching via Attention for Video Co-Segmentation, by LI, Junliang; WONG, Hon-Cheng; HE, Shengfeng; LO, Sio-Long; ZHANG, Guifang; WANG, Wenxiao. (2020). *Applied Sciences, 10* (6), https://doi.org/10.3390/app10061948 (Published)

Example-Based Colourization Via Dense Encoding Pyramids, by XIAO, Chufeng; HAN, Chu; ZHANG, Zhuming; QIN, Jing; WONG, Tien-Tsin; HAN, Guoqiang; HE, Shengfeng. (2020). *Computer Graphics Forum, 39* (1), 20-33. https://doi.org/10.1111/cgf.13659 (Published)

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Real-Time Hierarchical Supervoxel Segmentation via a Minimum Spanning Tree, by WANG, Bo; CHEN, Yiliang; LIU, Wenxi; QIN, Jing; DU, Yong; HAN, Guoqiang; HE, Shengfeng. (2020). *IEEE Transactions on Image Processing, 29* 9665-9677. https://doi.org/10.1109/TIP.2020.3030502 (Published)

Invertible Grayscale via Dual Features Ensemble, by YE, Taizhong; DU, Yong; DENG, Junjie; HE, Shengfeng. (2020). *IEEE Access, 8* 89670-89679. https://doi.org/10.1109/10.1109/ACCESS.2020.2994148 (Published)

FormNet: Formatted Learning for Image Restoration, by JIAO, Jianbo; TU, Wei-Chih; LIU, Ding; HE, Shengfeng; LAU, Rynson W. H.; HUANG, Thomas S.. (2020). *IEEE Transactions on Image Processing, 29* 6302-6314. https://doi.org/10.1109/TIP.2020.2990603 (Published)

Crowd Counting Via Cross-Stage Refinement Networks, by LIU, Yongtuo; WEN, Qiang; CHEN, Haoxin; LIU, Wenxi; QIN, Jing; HAN, Guoqiang; HE, Shengfeng. (2020). *IEEE Transactions on Image Processing, 29* 6800-6812. https://doi.org/10.1109/TIP.2020.2994410 (Published)

Boundary-Aware RGBD Salient Object Detection With Cross-Modal Feature Sampling, by NIU, Yuzhen; LONG, Guanchao; LIU, Wenxi; GUO, Wenzhong; HE, Shengfeng. (2020). *IEEE Transactions on Image Processing, 29* 9496-9507. https://doi.org/10.1109/TIP.2020.3028170 (Published)

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Joint Image Denoising and Disparity Estimation via Stereo Structure PCA and Noise-Tolerant Cost, by JIAO, Jianbo; YANG, Qingxiong; HE, Shengfeng; GU, Shuhang; ZHANG, Lei; LAU, Rynson W. H.. (2017). *International Journal of Computer Vision, 124* (2), 204-222. https://doi.org/10.1007/s11263-017-1015-9 (Published)

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Conference Proceedings

DiTMoS: Delving into diverse tiny-model selection on microcontrollers, by MA, Xiao; HE, Shengfeng; QIAO, Hezhe; MA, Dong. (2024.0). *Proceeding of the 22nd International Conference on Pervasive Computing and Communications (PerCom 2024), Biarritz, France, March 11-15,* France: (Accepted)

Glance to count: Learning to rank with anchors for weakly-supervised crowd counting, by XIONG, Zheng; CHAI, Liangyu; LIU, Wenxi; LIU, Yongtuo; REN, Sucheng; HE, Shengfeng. (2024.0). *Proceedings of the 2024 IEEE/CVF Winter Conference on Applications of Computer Vision, Waikoloa, Hawaii, January 4-8,* (pp. 1-8) Los Alamitos, CA: IEEE Computer Society. (Accepted)

Disentangling multi-view representations beyond inductive bias, by KE, Guanzhou; YU, Yang; CHAO, Guoqing; WANG, Xiaoli; XU, Chenyang; HE, Shengfeng . (2023.0). *MM '23: Proceedings of the 31st ACM International Conference on Multimedia, Ottawa, October 29 - November 3,* (pp. 2582-2590) New York: ACM. https://doi.org/10.1145/3581783.3611794 (Published)

NPF-200: A multi-modal eye fixation dataset and method for non-photorealistic videos, by YANG, Ziyu; REN, Sucheng; WU, Zongwei; ZHAO, Nanxuan; WANG, Junle; QIN, Jing; HE, Shengfeng . (2023.0). *MM '23: Proceedings of the 31st ACM International Conference on Multimedia, Ottawa, October 29 - November 3,* (pp. 2294-2304) New York: ACM. https://doi.org/10.1145/3581783.3611839 (Published)

Surgical activity triplet recognition via triplet disentanglement, by CHEN, Yiliang; HE, Shengfeng; JIN, Yueming; QIN, Jing. (2023.0). *Proceedings of the 26th International Conference on Medical Image Computing and Computer-Assisted Intervention, Vancouver, Canada, October 8-12, 2023,* (pp. 451-461) Switzerland: Springer Nature. (Published)

Diffuse3D: Wide-angle 3D photography via bilateral diffusion, by JIANG, Yutao.; ZHOU, Yang.; LIANG, Yuan.; LIU, Wenxi.; JIAO, Jianbo; QUAN, Yuhui.; HE, Shengfeng.;. (2023.0). *Proceedings of the IEEE/CVF International Conference on Computer Vision (ICCV),* (pp. 8998-9008) Paris: Computer Vision Foundation. (Published)

CIRI: Curricular inactivation for residue-aware one-shot video inpainting, by ZHENG, Weiying.; XU, Cheng.; XU, Xuemiao.; LIU, Wenxi.; HE, Shengfeng.;. (2023.0). *Proceedings of the IEEE/CVF International Conference on Computer Vision (ICCV),* (pp. 13012-13022) Paris: Computer Vision Foundation. (Published)

Deep video demoireing via compact invertible dyadic decomposition, by QUAN, Yuhui.; HUANG, Haoran.; HE, Shengfeng.; XU, Ruotao.;. (2023.0). *Proceedings of the IEEE/CVF International Conference on Computer Vision (ICCV),* (pp. 12677-12686) Paris: Computer Vision Foundation. (Published)

RIGID: Recurrent GAN inversion and editing of real face videos, by XU, Yangyang.; HE, Shengfeng.; WONG, Kwan-Yee K.; LUO, Pingluo.; . (2023.0). *Proceedings of the IEEE/CVF International Conference on Computer Vision (ICCV),* (pp. 13691-13701) Paris: Computer Vision Foundation. (Published)

Fine-grained domain adaptive crowd counting via point-derived segmentation, by LIU, Yongtuo; XU, Dan; REN, Sucheng; WU, Hanjie; CAI, Hongmin; HE, Shengfeng. (2023.0). *Proceedings of 2023 IEEE International Conference on Multimedia and Expo (ICME), Brisbane, Australia, July 10-14,* (pp. 2363-2368) New York, NY, USA: IEEE Computer Society. https://doi.org/10.1109/ICME55011.2023.00403 (Published)

Towards a smaller student: Capacity dynamic distillation for efficient image retrieval, by XIE, Yi; ZHANG, Huaidong; XU, Xuemiao; ZHU, Jianqing; HE, Shengfeng. (2023.0). *2023 IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR): Vancouver, June 17-24: Proceedings,* (pp. 16006-16015) Piscataway, NJ: IEEE. https://doi.org/10.1109/CVPR52729.2023.01536 (Published)

Where is my spot? Few-shot image generation via latent subspace optimization, by ZHENG, Chenxi; LIU, Bangzhen; ZHANG, Huaidong; XU, Xuemiao; HE, Shengfeng. (2023.0). *Proceedings of the IEEE Computer Society Conference on Computer Vision and Pattern Recognition (CVPR), Vancouver, BC, Canada, June 17-24, 2023,* (pp. 3272-3281) New York, NY, USA: IEEE Computer Society.

https://doi.org/10.1109/CVPR52729.2023.00319 (Published)

Curricular contrastive regularization for physics-aware single image dehazing, by ZHENG, Yu; ZHAN, Jiahui, HE, Shengfeng; DONG, Junyu; DU, Yong. (2023.0). *Proceedings of the IEEE Computer Society Conference on Computer Vision and Pattern Recognition (CVPR), Vancouver, BC, Canada, June 17-24, 2023,* (pp. 5785-5794) New York, NY, USA: IEEE Computer Society. https://doi.org/10.1109/CVPR52729.2023.00560 (Published)

SCANet: Self-paced semi-curricular attention network for non-homogeneous image dehazing, by GUO, Yu; GAO, Yuan; LIU, Ryan Wen; LU, Yuxu; QU, Jingxiang; HE, Shengfeng; REN Wenqi. (2023.0). *2023 IEEE/CVF Conference on Computer Vision and Pattern Recognition Workshops (CVPRW): Vancouver, June 18-22: Proceedings,* (pp. 1884-1893) Los Alamitos, CA: IEEE Computer Society. (Published)

Layout generation as intermediate action sequence prediction, by YANG, Huiting; HUANG, Danqing; LIN, Chin-Yew; HE, Shengfeng. (2023.0). *Proceedings of the 37th AAAI Conference on Artificial Intelligence, Washington, DC, February 7-14,* (pp. 10762-10770) Washington: AAAI Press. https://doi.org/10.1609/aaai.v37i9.26277 (Published)

DAOT: Domain-Agnostically Aligned Optimal Transport for domain-adaptive crowd counting, by ZHU, Huilin; YUAN, Jingling; ZHONG, Xian; YANG, Zhengwei; WANG, Zheng; HE, Shengfeng. (2023.0). *MM '23: Proceedings of the 31st ACM International Conference on Multimedia, Ottowa, October 29 - November 3,* (pp. 4319-4329) New York: ACM. https://doi.org/10.1145/3581783.3611793 (Published)

Editing out-of-domain GAN inversion via differential activations, by SONG, Haorui; DU, Yong; XIANG, Tianyi; DONG, Junyu; QIN, Jing; HE, Shengfeng. (2022.0). *Proceedings of 17th European Conference on Computer Vision, Tel Aviv, Israel, October 23-27, 2022,* (pp. 1-17) Switzerland: Springer Nature. (Published)

A simple data mixing prior for improving self-supervised learning, by REN, Sucheng; WANG, Huiyu; GAO, Zhengqi; HE, Shengfeng; YUILLE, Alan; ZHOU, Yuyin; XIE, Cihang. (2022.0). *Proceedings of the IEEE/CVF conference on computer vision and pattern recognition (CVPR),* (pp. 14575-14584) Canada: IEEE. (Published)

Shunted self-attention via multi-scale token aggregation, by REN, Sucheng; ZHOU, Daquan; HE, Shengfeng; FENG, Jiashi; WANG, Xinchao. (2022.0). *Proceedings of the IEEE Computer Society Conference on Computer Vision and Pattern Recognition, New Orleans, June 19-24,* (pp. 10843 -10852) New Jersey: IEEE. (Published)

High-resolution face swapping via latent semantics disentanglement, by XU, Yangyang; DENG, Bailin; WANG, Junle; JING, Yanqing; PAN, Jia; HE, Shengfeng. (2022.0). *Proceedings of the 2022 IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR),* (pp. 7632-7641) New York, NY, USA: IEEE Computer Society. https://doi.org/10.1109/CVPR52688.2022.00749 (Published)

Faithful extreme rescaling via generative prior reciprocated invertible representations, by ZHONG, Zhixuan; CHAI, Liangyu; ZHOU, Yang; DENG, Bailin; PAN, Jia; HE, Shengfeng. (2022.0). *Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR),* (pp. 5698-5707) USA: IEEE. (Published)

Co-advise: Cross inductive bias distillation, by REN, Sucheng; GAO, Zhengqi; HUA, Tiany; XUE, Zihui; TIAN, Yonglong; HE, Shengfeng; ZHAO, Hang. (2022.0). *Proceedings of the 2022 IEEE/CVF Conference on Computer Vision and Pattern Recognition, New Orleans, USA, June 19-22,* (pp. 16752-16761) New Jersey: IEEE. https://doi.org/10.1109/CVPR52688.2022.01627 (Published)

Background matting via recursive excitation, by DENG, Junjie.; XU, Yangyang., ZHOU, Zeyang.; HE, Shengfeng.;. (2022.0). *IEEE International Conference on Multimedia and Expo (ICME),* Taipei: IEEE. (Published)

Differentiated learning for multi-modal domain adaptation, by LV, Jianming; LIU, Kaijie; HE, Shengfeng . (2021.0). *MM 2021 - Proceedings of the 29th ACM International Conference on Multimedia, Virtual, Online, October 20-24,* (pp. 1322-1330) New York, USA: ACM. (Published)

From contexts to locality: Ultra-high resolution image segmentation via locality-aware contextual correlation, by LI, Qi; YANG, Weixiang; LIU, Wenxi; YU, Yuanlong; HE, Shengfeng. (2021.0). *Proceedings of the 18th IEEE/CVF International Conference on Computer Vision, Virtual, Online, 2021 October 11-17,* (pp. 7232-7241) New Jersey: IEEE. https://doi.org/10.1109/ICCV48922.2021.00716 (Published)

From continuity to editability: Inverting GANs with consecutive images, by XU, Yangyang; DU, Yong; XIAO,

Wenpeng; XU, Xuemiao; HE, Shengfeng. (2021.0). *Proceedings of the 18th IEEE/CVF International Conference on Computer Vision, Virtual, Online, 2021 October 11-17,* (pp. 13890 -13898) New Jersey: IEEE. https://doi.org/10.1109/ICCV48922.2021.01365 (Published)

Delving deep into many-to-many attention for few-shot video object segmentation, by CHEN, Haoxin; WU, Hanjie; ZHAO, Nanxuan; REN, Sucheng; HE, Shengfeng . (2021.0). *Proceedings of the IEEE Computer Society Conference on Computer Vision and Pattern Recognition, Virtual, June 19-25,* (pp. -14035) New Jersey, USA: IEEE. (Published)

Learning from the master: Distilling cross-modal advanced knowledge for lip reading, by REN, Sucheng; DU, Yong; LV, Jianming; HAN, Guoqiang; HE, Shengfeng. (2021.0). *Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR),* USA: (Published)

Spatially-invariant style-codes controlled makeup transfer, by DENG, Han; HAN, Chu; CAI, Hongmin; HAN, Guoqiang; HE, Shengfeng

. (2021.0). *Proceedings of the 2021 IEEE/CVF Conference on Computer Vision and Pattern Recognition, Virtual, Online, June 19-25,* (pp. 6545-6553) New Jersey: IEEE. https://doi.org/10.1109/CVPR46437.2021.00648 (Published)

Discovering interpretable latent space directions of gans beyond binary attributes, by YANG, Huiting; CHAI, Liangyu; WEN, Qiang; ZHAO, Shuang; SUN, Zixun; HE, Shengfeng. (2021.0). *Proceedings of the 2021 IEEE/CVF Conference on Computer Vision and Pattern Recognition, Virtual, Online, June 19-25,* (pp. 12172-12180) New Jersey: IEEE. https://doi.org/10.1109/CVPR46437.2021.01200 (Published)

Projecting your view attentively: Monocular road scene layout estimation via cross-view transformation, by YANG, Weixiang; LI, Qi; LIU, Wenxi; YU, Yuanlong; MA, Yuexin; HE, Shengfeng; PAN, Jia. (2021.0). *Proceedings of the IEEE/CVF conference on computer vision and pattern recognition (CVPR),* (pp. 15531-15540) USA: IEEE. (Published)

Reciprocal transformations for unsupervised video object segmentation, by REN, Sucheng; LIU, Wenxi; LIU, Yongtuo; CHEN, Haoxin; HAN, Guoqiang; HE, Shengfeng. (2021.0). *Proceedings of the IEEE/CVF conference on computer vision and pattern recognition (CVPR),* (pp. 15430-15439) USA: IEEE. (Published)

Coherence and identity learning for arbitrary-length face video generation, by YE, Shuquan; HAN, Chu; LIN, Jiaying; HAN, Guoqiang; HE, Shengfeng. (2021.0). *2020 25th International Conference on Pattern Recognition (ICPR),* USA: (Published)

TENet: Triple Excitation Network for video salient object detection, by REN, Sucheng; HAN, Chu; YANG, Xin; HAN, Guoqiang; HE, Shengfeng. (2020.0). *Proceedings of the 16th European Conference on Computer Vision (ECCV), Glasgow, United Kingdom, 2020 August 23-28,* (pp. 212-228) Berlin, Heidelberg: Springer - Verlag. https://doi.org/10.1007/978-3-030-58558-7_13 (Published)

Don't hit me! glass detection in real-world scenes, by MEI, Haiyang; YANG, Xin; WANG, Yang; LIU, Yuanyuan; HE, Shengfeng; ZHANG, Qiang; WEI, Xiaopeng; LAU, Rynson W.H.. (2020.0). *Proceedings of the 2020 IEEE/CVF Conference on Computer Vision and Pattern Recognition, Virtual, Online, June 14-19,* (pp. 3687-3696) Piscataway, NJ: IEEE. (Published)

Context-aware and scale-insensitive temporal repetition counting, by ZHANG, Huaidong; XU, Xuemiao; HAN, Guoqiang; HE, Shengfeng. (2020.0). *Proceedings of the 2020 IEEE/CVF Conference on Computer Vision and Pattern Recognition, Virtual, Online, June 14-19,* (pp. 667-675) New Jersey: IEEE. https://doi.org/10.1109/CVPR42600.2020.00075 (Published)

GDFace: Gated deformation for multi-view face image synthesis, by XU, Xuemiao; LI, Keke; XU, Cheng; HE, Shengfeng . (2020.0). *Proceedings of the 34th AAAI Conference on Artificial Intelligence, New York, 2020 February 7-12,* (pp. 12532-12540) USA: AAAI. (Published)

Visualizing the invisible: Occluded vehicle segmentation and recovery, by YAN, Xiaosheng; WANG, Feigege; LIU, Wenxi; YU, Yuanlong; HE, Shengfeng; PAN, Jia

. (2019.0). *Proceedings of the 17th IEEE/CVF International Conference on Computer Vision, Seoul, South Korea, 2019 October 27- Nov 2,* (pp. 7617- 7626) New Jersey: IEEE. http://doi.org/10.1109/ICCV.2019.00771 (Published)

Context-aware spatio-recurrent curvilinear structure segmentation
, by WANG, Feigege; GU, Yue; LIU, Wenxi; YU, Yuanlong; HE, Shengfeng; PAN, Jia. (2019.0). *Proceedings of*

the 32nd IEEE/CVF Conference on Computer Vision and Pattern Recognition, Long Beach, USA, 2019 June 16-20, (pp. 12640-12649) New Jersey: IEEE. https://doi.org/10.1109/CVPR.2019.01293 (Published)

Self-supervised spatio-temporal representation learning for videos by predicting motion and appearance statistics, by WANG, Jiangliu; JIAO, Jianbo; BAO, Linchao; HE, Shengfeng; LIU, Yunhui; LIU, Wei. (2019.0). *Proceedings of the IEEE Computer Society Conference on Computer Vision and Pattern Recognition,* USA: (Published)

Single image reflection removal beyond linearity, by WEN, Qiang; TAN, Yinjie; QIN, Jing; LIU, Wenxi; HAN, Guoqiang; HE, Shengfeng. (2019.0). *Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR),* (pp. 3771-3779) USA: IEEE. https://doi.org/10.1109/CVPR.2019.00389 (Published)

Joint shape matching for overlapping cytoplasm segmentation in cervical smear images, by SONG, Youyi; QIN, Jing; LEI, Baiying; HE, Shengfeng; CHOI, Kup-Sze. (2019.0). *Proceedings of the 16th IEEE International Symposium on Biomedical Imaging, Venice, Italy, 2019 April 8-11,* (pp. 191-194) New Jersey: IEEE. http://doi.org/10.1109/ISBI.2019.8759259 (Published)

Active matting, by YANG, Xin; XU, Ke; CHEN, Shaozhe; HE, Shengfeng; YIN, Baocai; LAU, Rynson. (2018.0). *Proceedings of the Conference on Neural Information Processing Systems (NeurIPS 2018), Montréal, Canada, December 2-8,* (pp. 1-11) USA: (Published)

Delving into salient object subitizing and detection, by HE, Shengfeng; JIAO, Jianbo; ZHANG, Xiaodan; HAN, Guoqiang; LAU, Rynson W.H. (2017.0). *Proceedings of the IEEE International Conference on Computer Vision,* (pp. 1059-1067) Italy: IEEE. https://doi.org/10.1109%2Ficcv.2017.120 (Published)

FormResNet: Formatted residual learning for image restoration, by JIAO, Jianbo; TU, Wei-chih, HE, Shengfeng; LAU, Rynson W. H.. (2017.0). *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition Workshops (CVPRW), 2017, Honolulu, Hawaii, USA, July 21-26,* (pp. 1034-1042) New York, NY, USA: IEEE. https://doi.org/10.1109/CVPRW.2017.140 (Published)

Learning to hallucinate face images via component generation and enhancement, by SONG, Yibing; ZHANG, Jiawei; HE, Shengfeng; BAO, Linchao; YANG, Qingxiong. (2017.0). *Proceedings of the 26th International Joint Conference on Artificial Intelligence (IJCAI),* Australia: International Joint Conferences on Artificial Intelligence Organization. (Published)

DeshadowNet: A multi-context embedding deep network for shadow removal, by QU, Liangqiong; TIAN, Jiandong; HE, Shengfeng; TANG, Yandong; LAU, Rynson W. H.. (2017.0). *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2017, Honolulu, Hawaii, USA, July 21-26,* (pp. 2308-2316) New York, NY, USA: IEEE. https://doi.org/10.1109/CVPR.2017.248 (Published)

Keyword-driven image captioning via Context-dependent Bilateral LSTM, by ZHANG, Xiaodan; HE, Shengfeng; SONG, Xinhang; WEI, Pengxu; JIANG, Shuqiang; YE, Qixiang; JIAO, Jianbin; LAU, Rynson W. H.. (2017.0). *Proceedings of 2017 IEEE International Conference on Multimedia and Expo, Hong Kong, China, July 10-14,* (pp. 781-786) New York, NY, USA: IEEE Computer Society. https://doi.org/10.1109/ICME.2017.8019525 (Published)

Real-time salient object detection with a minimum spanning tree, by TU, Wei-Chih; HE, Shengfeng; YANG, Qingxiong; CHIEN, Shao-Yi. (2016.0). *Proceedings of the 29th IEEE Computer Society Conference on Computer Vision and Pattern Recognition, Las Vegas, USA, 2016 June 26 - July 1,* (pp. 2334-2342) New Jersey: IEEE. https://doi.org/10.1109/CVPR.2016.256 (Published)

Exemplar-driven top-down saliency detection via deep association, by HE, Shengfeng; LAU, Rynson W. H.; YANG, Qingxiong. (2016.0). *Proceedings of the 2016 IEEE Conference on Computer Vision and Pattern Recognition (CVPR), Las Vegas, Nevada, USA, June 27-30,* (pp. 5723-5732) New York, NY, USA: IEEE Computer Society. https://doi.org/10.1109/CVPR.2016.617 (Published)

Oriented object proposals, by HE, Shengfeng; LAU, Rynson W. H.. (2015.0). *2015 IEEE International Conference on Computer Vision (ICCV): Santiago, Chile, December 7-13: Proceedings,* (pp. 280-288) Los Alamitos, CA: IEEE Computer Society. https://doi.org/10.1109/ICCV.2015.40 (Published)

Saliency detection with flash and no-flash image pairs, by HE, Shengfeng; LAU, Rynson W.H.. (2014.0). *Proceedings of the 13th European Conference on Computer Vision (ECCV), Zurich, Switzerland, September 6-12,* (pp. 110-124) Germany: Springer Verlag. https://doi.org/10.1007/978-3-319-10578-9_8 (Published)

Consistent stereo image editing, by YAN, Tao; HE, Shengfeng; LAU, Rynson W.H.; XU, Yun. (2013.0). *Proceedings of the 21st ACM international conference on Multimedia, Barcelona, Spain, 2013 Oct 21-25,* (pp. 677-680) New York: ACM. https://doi.org/10.1145/2502081.2502177 (Published)

Visual tracking via locality sensitive histograms, by HE, Shengfeng; YANG, Qingxiong; LAU, Rynson W.H.; WANG, Jian; YANG, Ming-Hsuan. (2013.0). *Proceedings of the 26th IEEE Conference on Computer Vision and Pattern Recognition, Portland, USA, 2013 Jun 23-28,* (pp. 2427-2434) New Jersey: IEEE. https://doi.org/10.1109/CVPR.2013.314 (Published)

Visual tracking via locality sensitive histograms, by HE, Shengfeng; YANG, Qingxiong; LAU, Rynson W.H.; WANG, Jian; YANG, Ming-Hsuan. (2013.0). *Proceedings of the 26th IEEE Conference on Computer Vision and Pattern Recognition, Portland, USA, 2013 Jun 23-28,* (pp. 2427 -2434) New Jersey: IEEE. https://doi.org/10.1109/CVPR.2013.314 (Published)

An efficient adaptive vortex particle method for real-time smoke simulation, by HE, Shengfeng; WONG, Hon-Cheng; WONG, Un-Hong
. (2011.0). *Proceedings of the 12th International Conference on Computer-Aided Design and Computer Graphics, Jinan, China, 2011 September 15-17,* (pp. 317-324) New Jersey: IEEE. https://doi.org/10.1109/CAD/Graphics.2011.69 (Published)

Research Grants

Singapore Management University

AntiGen: Safeguarding Artistic and Personal Visual Data from Generative AI, AI Governance Research, AI Singapore , PI (Project Level): HE Shengfeng, 2023, S$249,999.1

Towards Interpretable Latent Spaces of Generative Models, SMU Internal Grant, Ministry of Education (MOE) Tier 1 , PI (Project Level): HE Shengfeng, 2023, S$120,000

Other Institutions

Exploring the Interpretability of Generative Networks, Distinguished Young Scholars, Guangdong Natural Science Funds PI (Project Level): HE Shengfeng, 2022, CNY1,000,000

Unstructured Scenes Multi-Robot Scheduling via Unsupervised Image Understanding, International Science and Technology Cooperation Project, Guangdong Natural Science Funds PI (Project Level): HE Shengfeng, 2021, CNY500,000

Unsupervised Feature Sparsification for Image Editing, General Project, Guangdong Natural Science Funds PI (Project Level): HE Shengfeng, 2021, CNY100,000

Unsupervised Image Understanding for Image Editing, Basic and Applied Research Project, Bureau of Science and Technology of Guangzhou PI (Project Level): HE Shengfeng, 2021, CNY50,000

Cross-domain Editing based on GAN prior, CCF-Tencent Open Research Fund, CCF-Tencent Open Research Fund PI (Project Level): HE Shengfeng, 2021, CNY150,000

Visual Attention-driven Image Editing and Completion, General Project, National Natural Science Foundation of China PI (Project Level): HE Shengfeng, 2020, CNY676,000

Animatable Still Images, CCF-Tencent Continuous Cooperation Fund, Tencent PI (Project Level): HE Shengfeng, 2020, CNY200,000

Manga Style Disentanglement, CCF-Tencent Open Research Fund, CCF-Tencent Open Research Fund PI (Project Level): HE Shengfeng, 2019, CNY150,000

Analysis and Understanding of Multi-salient Objects, Youth Project, National Natural Science Foundation of China PI (Project Level): HE Shengfeng, 2018, CNY304,000

Research on Deep Image Processing, Excellent Young Research Funds, Funds of Central Universities PI (Project Level): HE Shengfeng, 2018, CNY500,000

Detection and Segmentation of Salient Objects in Videos, CCF-Tencent Open Creative Fund, CCF-Tencent

Open Creative Fund PI (Project Level): HE Shengfeng, 2018, CNY30,000

Research and Industrialization of Video Big Data Intelligent Platform, Guangzhou Key Industrial Technology Research Project, Bureau of Science and Technology of Guangzhou PI (Project Level): HE Shengfeng, 2017, CNY1,000,000

Intellectual Property

Granted: HE Shengfeng, "Method and device for removing shadow from image"

Granted: HE Shengfeng, "A Method of Decoupling Classification and Regression Features in Target Detection"

Granted: HE Shengfeng, "Data processing method and computer equipment"

Granted: HE Shengfeng, "Method, device, computer equipment and storage medium for processing cartoonization of photograph images"

Granted: HE Shengfeng, "Video decoding and encoding method, device, medium and electronic equipment"

Granted: HE Shengfeng, "Video object segmentation method, device, equipment and medium"

Granted: HE Shengfeng, "L0 regularization based invertible gray image algorithm and computing equipment"

Granted: HE Shengfeng, "Image saliency detection method, device, computer equipment and storage medium"

Granted: HE Shengfeng, "Peak response enhancement based instance segmentation algorithm and computing equipment"

Granted: HE Shengfeng, "Multi-task fusion fine-grained character segmentation system and method"

TEACHING

Courses Taught

Singapore Management University

Undergraduate Programmes :

    Computer Graphics and Virtual Reality

    Computer Science Project Experience

    Introduction to Programming

Postgraduate Research Programmes :

    Empirical Research Project 1

    Empirical Research Project 2

Other Institutions

    Advanced Language Programming (C++), Undergraduate, South China University of Technology

Multimedia Technologies, Undergraduate, South China University of Technology

THESES AND DISSERTATIONS

Theses and Dissertations Supervised

<u>Other Institutions</u>

Supervisor, "Research on Face Image Editing Based on Prior-aware Deep Adversarial Learning", Dissertation by XU Cheng, PhD, South China University of Technology, 2023

Supervisor, "Research on Recognition and Generation Methods Based on Incomplete Visual Data", Dissertation by XU Yangyang, PhD, South China University of Technology, 2021

Supervisor, "Deep Learning Based Visual Repeated Pattern Analysis And Application", Dissertation by ZHANG Huaidong, PhD, South China University of Technology, 2020

Supervisor, "Learning sparse and deep representations for image restoration", Dissertation by DU Yong, PhD, South China University of Technology, 2019

Theses and Dissertations Assessed

<u>Other Institutions</u>

External Examiner, "Low-Level Vision Processing: New Approaches and Sensors", Dissertation by WANG Zhouxia, PhD, The University of Hong Kong, 2023

External Examiner, "Facial Expression: From Recognition to Animation", Dissertation by FAN Yingruo, The University of Hong Kong, 2022

External Examiner, "New Methods for Unsupervised Video Object Segmentation and Guidewire Segmentation in X-Ray Fluoroscopy Sequences", Dissertation by ZHANG Guifang, Macau University of Science and Technology, 2022

External Examiner, "Expressive Talking Head Generation with Granular Audio-Visual Control", Thesis by PAN Yan, The Chinese University of Hong Kong, Shenzhen, 2022

External Examiner, "Learning Based Image Style Editing", Dissertation by JIN Yuqian, Macau University of Science and Technology, 2021

External Examiner, "New Methods for Facial Image Processing", Dissertation by WANG Wenxiao, Macau University of Science and Technology, 2021

OTHER ACADEMIC AND PROFESSIONAL ACTIVITIES

Other Grants and Funding Received (Non-Research)

Google Gift Fund, Google, Jan 2024

Adobe Gift Fund, Adobe, Sep 2023

<u>Invited Seminars, Talks and Lectures</u>

Generative AI in Industry, 01 Nov 2023. AI Translational Seminar

From Content Understanding to Content Creation, 01 Sep 2023. SCIS Research Cluster Seminar

Creative AI, 01 May 2023. Singapore Vision Day

Towards Interpreting and Reusing Generative Models, 01 Sep 2022. HKBU CS Online Seminar

Discovering and Reusing Prior Knowledge from Visual Data, 01 Apr 2022. SUSTech STAT-CS Colloquium

Pixel-level Image Understanding and Editing, 01 Aug 2019. CCF Young Computer Scientists& Engineers Forum

Pixel-level Image Understanding and Editing, 01 Jul 2019. USTC Summer School 2019

How to Do Research in Computer Vision, 01 May 2019. PhD Salon

Zero-shot Learning, 01 Jul 2017. Computer Science Youth Academic Forum

Visual Tracking via Locality Sensitive Histograms, 01 Apr 2014. MUST Research Seminar

Visual Tracking via Locality Sensitive Histograms, 01 Apr 2014. University of Macau Research Seminar

EXTERNAL SERVICE – PROFESSIONAL

Editor Associate Editor, IEEE Transactions on Circuits and Systems for Video Technology (TCSVT), 2024 - Present

Editor Associate Editor, Visual Intelligence, 2024 - Present

Editor Associate Editor, IEEE Transactions on Neural Networks and Learning Systems (TNNLS), 2023 - Present

Lead Guest Editor, International Journal of Computer Vision (IJCV), 2023 - 2024

Senior Program Committee, AAAI Conference on Artificial Intelligence (AAAI), 2023 - Present

Reviewer Grant Proposal, Research Grant Council (RGC) of Hong Kong, 2023 - Present

Senior Program Committee, International Joint Conferences on Artificial Intelligence (IJCAI), 2022 - Present

Editor Associate Editor, Neurocomputing, 2021 - Present

Area Chair, British Machine Vision Conference (BMVC), 2019 - 2020

Tutorial Chair, ChinaGraph, 2019