ZHONGHUA WU

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EDUCATION

Nanyang Technological University, Singapore   2019.01 - 2023.02
Ph.D. in Computer Science

Advisor: Prof. Cai Jianfei and Prof. Lin Guosheng

University of Electronic Science and Technology of China, P.R. China   2013.09 - 2017.07
B.E. in Electronic Information Engineering

PROFESSIONAL EMPLOYMENTS

SenseTime International, Singapore   2022.11 – Present
Algorithm Researcher

- Conducted foundational research leveraging the capabilities of Vision-Language Models (VLMs) and Large Language Models (LLMs) to drive significant advancements in various low-level vision tasks, e.g. VLM-based color style transfer models.

- Led the research and development of advanced real-time image enhancement algorithms, including color style transfer, sRGB super-resolution, deblurring, and raw image noise reduction, successfully integrating these technologies into commercial camera products.

- Managed multiple projects, ensuring timely delivery, maintaining high-quality standards, and serving as the primary liaison for customer communication, addressing client needs, and providing technical support effectively.

S-lab, NTU, Singapore   2020.11 – 2022.11
Research Assistant

- Conducted fundamental research on high-level vision tasks, including image segmentation, object detection, and point cloud segmentation, with applications in autonomous driving, robotics, augmented reality, and other related fields, publishing over 15 papers in top-tier venues.

Rapid-Rich Object Search (ROSE) Lab, NTU, Singapore   2017.11 – 2020.10
Research Assistant

- Developed a surveillance system based on in-car and CCTV cameras with multiple features, including vehicle make detection, vehicle type detection, vehicle color detection, car plate recognition, pedestrian recognition, etc.

PUBLICATIONS

* indicate as equal contribution.

[1]   Weide Liu*, **Zhonghua Wu***, Yiming Wang, Henghui Ding, Fayao Liu, Jie Lin, and Guosheng Lin. "LCReg: Long-tailed image classification with Latent Categories based Recognition". In: *Pattern Recognition* 145 (2024), p. 109971.

[2]   Zhipeng Luo, Gongjie Zhang, Changqing Zhou, **Zhonghua Wu**, Qingyi Tao, Lewei Lu, and Shijian Lu. "Modeling Continuous Motion for 3D Point Cloud Object Tracking". In: *Proceedings of the AAAI Conference on Artificial Intelligence*. 2024.

[3] Xiangxi Shi, **Zhonghua Wu**, and Stefan Lee. "Viewpoint-Aware Visual Grounding in 3D Scenes". In: *Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition*. 2024.

[4] **Zhonghua Wu**, Yicheng Wu, Guosheng Lin, and Jianfei Cai. "Reliability-Adaptive Consistency Regularization for Weakly-Supervised Point Cloud Segmentation". In: *International Journal of Computer Vision* (2024).

[5] Weide Liu, **Zhonghua Wu**, Yang Zhao, Yuming Fang, Chuan-Sheng Foo, Jun Cheng, and Guosheng Lin. "Harmonizing Base and Novel Classes: A Class-Contrastive Approach for Generalized Few-Shot Segmentation". In: *International Journal of Computer Vision* (2023).

[6] Hui En Pang, Zhongang Cai, Lei Yang, Qingyi Tao, **Zhonghua Wu**, Tianwei Zhang, and Ziwei Liu. "Towards Robust and Expressive Whole-body Human Pose and Shape Estimation". In: *Thirty-seventh Conference on Neural Information Processing Systems*. 2023.

[7] Yicheng Wu, **Zhonghua Wu**, Hengcan Shi, Bjoern Picker, Winston Chong, and Jianfei Cai. "CoactSeg: Learning from Heterogeneous Data for New Multiple Sclerosis Lesion Segmentation". In: *International Conference on Medical Image Computing and Computer-Assisted Intervention*. Springer Nature Switzerland Cham. 2023, pp. 3–13.

[8] Yicheng Wu, **Zhonghua Wu**, Qianyi Wu, Zongyuan Ge, and Jianfei Cai. "Exploring smoothness and class-separation for semi-supervised medical image segmentation". In: *International Conference on Medical Image Computing and Computer-Assisted Intervention*. Springer Nature Switzerland Cham. 2022, pp. 34–43.

[9] **Zhonghua Wu**, Yicheng Wu, Guosheng Lin, Jianfei Cai, and Chen Qian. "Dual adaptive transformations for weakly supervised point cloud segmentation". In: *European Conference on Computer Vision*. Springer Nature Switzerland Cham. 2022, pp. 78–96.

[10] **Zhonghua Wu**, Xiangxi Shi, Guosheng Lin, and Jianfei Cai. "Learning meta-class memory for few-shot semantic segmentation". In: *Proceedings of the IEEE/CVF International Conference on Computer Vision*. 2021, pp. 517–526.

[11] Xiaojing Zhong*, **Zhonghua Wu***, Taizhe Tan, Guosheng Lin, and Qingyao Wu. "Mv-ton: Memory-based video virtual try-on network". In: *Proceedings of the 29th ACM International Conference on Multimedia*. 2021, pp. 908–916.

[12] Lingling Guo*, Ting Wang*, **Zhonghua Wu**, Jianwu Wang, Ming Wang, Zequn Cui, Shaobo Ji, Jianfei Cai, Chuanlai Xu, and Xiaodong Chen. "Portable food-freshness prediction platform based on colorimetric barcode combinatorics and deep convolutional neural networks". In: *Advanced Materials* 32.45 (2020), p. 2004805.

[13] **Zhonghua Wu**, Qingyi Tao, Guosheng Lin, and Jianfei Cai. "Exploring bottom-up and top-down cues with attentive learning for webly supervised object detection". In: *Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition*. 2020, pp. 12936–12945.

[14] **Zhonghua Wu**, Guosheng Lin, and Jianfei Cai. "Keypoint based weakly supervised human parsing". In: *Image and Vision Computing* 91 (2019), p. 103801.

[15] **Zhonghua Wu**, Guosheng Lin, Qingyi Tao, and Jianfei Cai. "M2e-try on net: Fashion from model to everyone". In: *Proceedings of the 27th ACM international conference on multimedia*. 2019, pp. 293–301.

Pre-print

[16] Kang Liao, Zongsheng Yue, **Zhonghua Wu**, and Chen Change Loy. "MOWA: Multiple-in-One Image Warping Model". In: *arXiv preprint arXiv:2404.10716* (2024).

[17] Xiaojing Zhong, Xinyi Huang, **Zhonghua Wu**, Guosheng Lin, and Qingyao Wu. "SARA: Controllable Makeup Transfer with Spatial Alignment and Region-Adaptive Normalization". In: *arXiv preprint arXiv:2311.16828* (2023).

[18] Xiaojing Zhong, Yukun Su, **Zhonghua Wu**, Guosheng Lin, and Qingyao Wu. "DI-Net: Decomposed Implicit Garment Transfer Network for Digital Clothed 3D Human". In: *arXiv preprint arXiv:2311.16818* (2023).

[19] Weide Liu*, **Zhonghua Wu***, Henghui Ding, Fayao Liu, Jie Lin, and Guosheng Lin. "Few-shot segmentation with global and local contrastive learning". In: *arXiv preprint arXiv:2108.05293* (2021).

[20]   Xiangxi Shi*, **Zhonghua Wu***, Guosheng Lin, Jianfei Cai, and Shafiq Joty. "Remember what you have drawn: Semantic image manipulation with memory". In: *arXiv preprint arXiv:2107.12579* (2021).

MAJOR HONORS AND AWARDS

Journal and Conference Reviewer

CVPR, ICCV, ECCV, T-PAMI, IJCV, TIP, TMM, etc

National Second Prize, P.R. China   2015
National Undergraduate Electronics Design Contest