

Wenjie Pei

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Experience

- January 2024 – Present, Harbin Institute of Technology, Shenzhen
Professor in the school of Computer Science and Technology
Research fields: Computer Vision and Machine Learning
- January 2022 – December 2023, Harbin Institute of Technology, Shenzhen
Associate Professor in the school of Computer Science and Technology
Research fields: Computer Vision and Machine Learning
- January 2020 – December 2021, Harbin Institute of Technology, Shenzhen
Assistant Professor in the school of Computer Science and Technology
Research fields: Computer Vision and Machine Learning
- July 2018 – 12/2019, Youtu X-Lab, Tencent
Senior Researcher on Computer Vision
- 07/2016 – 12/2016 Carnegie Mellon University (**CMU**)
Visiting Scholar in Language Technology Institute (LTI).
Supervisors: Prof. Louis-Philippe Morency and Dr. Tadas Baltrušaitis.
- 03/2013 – 08/2013 Philips Research Eindhoven
Research Internship.

Educational Background

- 10/2013 – 06/2018 Delft University of Technology (**TU Delft**)
PhD in Pattern Recognition and Computer Vision Laboratory.
Co-Supervisors: Laurens van der Maaten (Facebook AI Research) and David Tax (TU Delft)
Research Area: Computer Vision, Machine Learning
- 09/2011 – 08/2013 Eindhoven University of Technology (**TU/e**)
Master of computer Science and Engineering
Supervisor: Dr. Toon Calders
Research Area: Data Mining
- 09/2008 – 06/2011 Zhejiang University (**ZJU**)
Master of Computer Science and technology in State Key Lab of CAD&CG
Co-Supervisors: Dr. Hujun Bao and Dr. Jin Huang
Research topic: Consistent Visualization for Surface Vector Fields
- 09/2004 – 06/2008 Shanghai JiaoTong University (**SJTU**)
Bachelor's degree of Computer Science
Bachelor's degree of Business Management

Research Interests

- Sequence (including time series) modeling and its application in computer vision including Object Tracking, Video / Image captioning, Video Understanding, etc.
 - Image synthesis including Image Restoration, Text-to-Image Synthesis, Training Free Image Editing, Image Super-resolution and Image Inpainting.
 - Few-shot learning
 - Large Vision Models
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Publications

*denotes the corresponding authors while # indicates equal contribution.

Refereed Journal papers:

- **Wenjie Pei**[#], Weina Xu[#], Zongze Wu, Weichao Li, Jinfan Wang, Guangming Lu, Xiangrong Wang*. Saliency-Aware Regularized Graph Neural Network, Artificial Intelligence (**AIJ**), 2024.
 - Honghu Pan, **Wenjie Pei**, Xin Li, Zhenyu He. Unified Conditional Image Generation for Visible-Infrared Person Re-Identification. IEEE Transactions on Information Forensics and Security (**TIFS**), 2024.
 - Zikun Zhou, Kaige Mao, **Wenjie Pei**, Hongpeng Wang, Yaowei Wang, Zhenyu He. Reliability-Hierarchical Memory Network for Scribble-Supervised Video Object Segmentation. IEEE Transactions on Neural Networks and Learning Systems (**TNNLS**), 2024.
 - Jing Xu, Xinglin Pan, Jingquan Wang, Wenjie Pei, Qing Liao, Zenglin Xu. CORE: CORrelation-guided Feature Enhancement for Few-shot Image Classification, IEEE Transactions on Neural Networks and Learning Systems (**TNNLS**), 2024.
 - Jin Li, Di Kang, **Wenjie Pei**, Xuefei Zhe, Ying Zhang, Linchao Bao, Zhenyu He. Audio2Gestures: Generating Diverse Gestures from Audio. IEEE Transactions on Visualization and Computer Graphics (**TVCG**), 2023.
 - Xin Li[#], **Wenjie Pei**[#], Zikun Zhou, Zhenyu He, Huchuan Lu, Ming-Hsuan Yang. Self-Supervised Tracking via Target-Aware Data Synthesis. IEEE Transactions on Neural Networks and Learning Systems (**TNNLS**), 2023.
 - Jiadong Liang, Wenjie Pei, Feng Lu. Layout-Bridging Text-to-Image Synthesis. IEEE Transactions on Circuits and Systems for Video Technology (**TCSVT**), 2023.
 - Zheng'ao Wang, Zikun Zhou, Fanglin Chen, Jun Xu, **Wenjie Pei**, Guangming Lu. Robust tracking via fully exploring background prior knowledge. IEEE Transactions on Circuits and Systems for Video Technology (**TCSVT**), 2023.
 - Xin Feng, Haobo Ji, **Wenjie Pei***, Jinxing Li, Guangming Lu, David Zhang. U 2-Former: Nested U-shaped Transformer for Image Restoration via Multi-view Contrastive Learning. IEEE Transactions on Circuits and Systems for Video Technology (**TCSVT**), 2023.
 - **Wenjie Pei**, Xin Feng, Canmiao Fu, Qiong Cao, Guangming Lu, Yu-Wing Tai. Learning Sequence Representations by Non-local Recurrent Neural Memory, (International Journal of Computer Vision) **IJCV**, 2022.
 - Zebin Lin, Wenjie Pei*, Fanglin Chen, Guangming Lu. Pedestrian Detection by Exemplar-Guided Contrastive Learning. IEEE Transactions on Image Processing (**TIP**), 2022.
 - Chaozheng Wang, Shuzheng Gao, Pengyun Wang, Cuiyun Gao, **Wenjie Pei**, Lujia Pan, Zenglin Xu. Label-Aware Distribution Calibration for Long-tailed Classification. IEEE Transactions on Neural Networks and Learning Systems (**TNNLS**), 2022.
 - Xin Feng, **Wenjie Pei***, Fengjun Li, Fanglin Chen, David Zhang, Guangming Lu*. Generative Memory-Guided Semantic Reasoning Model for Image Inpainting. IEEE Transactions on Circuits and Systems for Video Technology (**TCSVT**), 2022.
 - Zengwei Yao, **Wenjie Pei***, Fanglin Chen, Guangming Lu*, David Zhang (*corresponding authors). Stepwise-Refining Speech Separation Network via Fine-Grained Encoding in High-order Latent Domain. IEEE Transactions on Audio, Speech, and Language Processing (**TASLP**), 2021.
 - Xin Feng, **Wenjie Pei***, Zihui Jia, Fanglin Chen, David Zhang, Guangming Lu* (*corresponding authors). Deep-Masking Generative Network: A Unified Framework for Background Restoration
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from Superimposed Images. IEEE Transactions on Image Processing (**TIP**), 2021.

- Kai Yang, Zhenyu He*, **Wenjie Pei***, Zikun Zhou, Xin Li, Di Yuan, Haijun Zhang (*corresponding authors). SiamCorners: Siamese Corner Networks for Visual Tracking. IEEE Transactions on Multimedia (**TMM**), 2021.
- Weinong Wang, **Wenjie Pei***, Qiong Cao, Shu Liu, Guangming Lu and Yu-wing Tai (*Corresponding author). Orthogonal Center Learning with Subspace Masking for Person Re-identification. IEEE Transactions on Image Processing (**TIP**), 2021.
- **Wenjie Pei**, Hamdi Dibeklioğlu, Tadas Baltrušaitis and David M.J. Tax. Attended End-to-end Architecture for Age Estimation from Facial Expression Videos. IEEE Transactions on Image Processing (**TIP**), 2020.
- **Wenjie Pei**, Hamdi Dibeklioğlu, David MJ Tax and Laurens van der Maaten. Multivariate Time Series Classification using the Hidden-Unit Logistic Model. IEEE Transactions on Neural Networks and Learning Systems (**TNNLS**), 2018.

Refereed Conference papers:

- Zhengyao Fang, Pengyuan Lv, Jingjing Wu, Chengquan Zhang, Jun Yu, **Wenjie Pei***. Recognition-Synergistic Scene Text Editing, IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**), 2025.
 - Yushuai Sun, Zikun Zhou, Dongmei Jiang, Yaowei Wang, Jun Yu, Guangming Lu, **Wenjie Pei***. Learning Compatible Multi-Prize Subnetworks for Asymmetric Retrieval, IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**), 2025.
 - Jiapeng Su, Qi Fan, Guangming Lu, Fanglin Chen, **Wenjie Pei***. Domain-Rectifying Adapter for Cross-Domain Few-Shot Segmentation, IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**), 2024.
 - Jingjing Wu, Zhengyao Fang, Pengyuan Lyu, Chengquan Zhang, Fanglin Chen, Guangming Lu, **Wenjie Pei***. WeCromCL: Weakly Supervised Cross-Modality Contrastive Learning for Transcription-only Supervised Text Spotting, European Conference on Computer Vision (**ECCV**), 2024.
 - Shuang Wu, Songlin Tang, Guangming Lu, Jianzhuang Liu, **Wenjie Pei***. UniVoxel: Fast Inverse Rendering by Unified Voxelization of Scene Representation, European Conference on Computer Vision (**ECCV**), 2024.
 - Yanan Sun, Yanchen Liu, Yinhao Tang, **Wenjie Pei**, Kai Chen. AnyControl: Create Your Artwork with Versatile Control on Text-to-Image Generation, European Conference on Computer Vision (**ECCV**), 2024.
 - **Wenjie Pei**[#], Tongqi Xia[#], Fanglin Chen, Jiandong Tian, Guangming Lu*. Spatially Aligned-and-Adapted Visual Prompting, **AAAI**, 2024.
 - Jingwen Zhang[#], Zikun Zhou[#], Guangming Lu, Jiandong Tian, **Wenjie Pei***. Robust 3D Tracking with Quality-Aware Shape Completion, **AAAI**, 2024.
 - Xin Feng, Yifeng Xu, Guangming Lu, **Wenjie Pei***. Hierarchical Contrastive Learning for Pattern-Generalizable Image Corruption Detection. IEEE International Conference on Computer Vision (**ICCV**), 2023.
 - Songlin Tang, **Wenjie Pei***, Xin Tao, Tanghui Jia, Guangming Lu, Yu-Wing Tai. Scene-Generalizable Interactive Segmentation of Radiance Fields. ACM International Conference on Multimedia (**ACM MM**), 2023.
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- Huimin Zeng, Weinong Wang, Xin Tao, Zhiwei Xiong, Yu-Wing Tai, **Wenjie Pei***. Feature Decoupling-Recycling Network for Fast Interactive Segmentation. ACM International Conference on Multimedia (**ACM MM**), 2023.
 - Zhenhua Ning, Zhuotao Tian, Guangming Lu, **Wenjie Pei***. Boosting Few-shot 3D Point Cloud Segmentation via Query-Guided Enhancement. ACM International Conference on Multimedia (**ACM MM**), 2023.
 - Zikun Zhou, Jianqiu Chen, **Wenjie Pei***, Kaige Mao, Hongpeng Wang, Zhenyu He. Global Tracking via Ensemble of Local Trackers. IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**), 2022.
 - **Wenjie Pei**, Shuang Wu, Dianwen Mei, Fanglin Chen, Jiandong Tian. Guangming Lu. Few-Shot Object Detection by Knowledge Distillation Using Bag-of-Visual-Words Representations. European Conference on Computer Vision (**ECCV**), 2022.
 - Shuang Wu, **Wenjie Pei***, Dianwen Mei, Fanglin Chen, Jiandong Tian, Guangming Lu. Multi-Faceted Distillation of Base-Novel Commonality for Few-shot Object Detection. European Conference on Computer Vision (**ECCV**), 2022.
 - Qi Fan, **Wenjie Pei***, Yu-Wing Tai, Chi-Keung Tang. Self-Support Few-Shot Semantic Segmentation. European Conference on Computer Vision (**ECCV**), 2022.
 - Bin Liang, Chenwei Lou, Xiang Li, Min Yang, Lin Gui, Yulan He, **Wenjie Pei**, Ruifeng Xu. Multi-Modal Sarcasm Detection via Cross-Modal Graph Convolutional Network. Annual Meeting of the Association for Computational Linguistics (**ACL**), 2022.
 - JingJing Wu, Pengyuan Lyu, Guangming Lu, Chengquan Zhang, Kun Yao, **Wenjie Pei***. Decoupling Recognition from Detection: Single Shot Self-Reliant Scene Text Spotter. ACM International Conference on Multimedia (**ACM MM**), **Oral**, 2022.
 - Jing Xu, Xu Luo, Xinglin Pan, **Wenjie Pei**, Yanan Li, Zenglin, Xu. Alleviating the Sampling Bias of Few Shot Data by Removing Projection to the Centroid. Advances in neural information processing systems (**NeurIPS**), 2022.
 - Fengjun Li, Xin Feng, Fanglin Chen, Guangming Lu, **Wenjie Pei***. Learning Generalizable Latent Representations for Novel Degradations in Super-Resolution. ACM International Conference on Multimedia (**ACM MM**), 2022.
 - Jing Li, Di Kang, **WenjiePei**, Xuefei Zhe, Ying Zhang, Zhenyu He, Linchao Bao. Audio2Motion: Generating Diverse Human Motion from Audio with Conditional Variational Autoencoders. IEEE International Conference on Computer Vision (**ICCV**), 2021.
 - Zikun Zhou, **WenjiePei***, Xin Li, Hongpeng Wang, Feng Zheng, Zhenyu He*. Saliency-Associated Object Tracking. International Conference on Computer Vision (**ICCV**), 2021.
 - Yi Li, **Wenjie Pei***, Zhenyu He*. SRHEN: Stepwise-Refining Homography Estimation Network via Parsing Geometric Correspondence in Deep Latent Space. ACM International Conference on Multimedia (**ACM MM**), 2020.
 - Qi Fan, Lei Ke, **Wenjie Pei***, Chi-Keung Tang and Yu-Wing Tai. Commonality-Parsing Network across Shape and Appearance for Partially Supervised Instance Segmentation. European Conference on Computer Vision (**ECCV**), 2020.
 - Jiadong Liang[#], **Wenjie Pei[#]** and Feng Lu. CPGAN: Content-Parsing Generative Adversarial Networks for Text-to-Image Synthesis. European Conference on Computer Vision (**ECCV**), **Spotlight (5% acceptance rate)**, 2020.
 - Canmiao Fu[#], **WenjiePei[#]**, Qiong Cao, Chaopeng Zhang, Xiaoyong Shen, Yong Zhao and Yu-
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wing Tai (#Equal contribution). Non-local Recurrent Neural Memory for Supervised Sequence Modeling. IEEE International Conference on Computer Vision (**ICCV**) **Oral** (4.3% acceptance rate), 2019.

- Lei Ke, **Wenjie Pei**, Ruiyu Li, Xiaoyong Shen and Yu-wing Tai. Reflective Decoding Network for Image Captioning. IEEE International Conference on Computer Vision (**ICCV**), 2019.
 - Yunqiang Li[#], **Wenjie Pei**[#], Yufei Zha and Jan van Gemert. Push for Quantization: Deep Fisher Hashing. **BMVC Oral** (4.7% acceptance rate), 2019.
 - **Wenjie Pei**, Jiyuan Zhang, Xiangrong Wang, Lei Ke, Xiaoyong Shen and Yu-wing Tai. Memory-Attended Recurrent Network for Video Captioning. IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**), 2019.
 - **Wenjie Pei**[#], Jie Yang[#], Zhu Sun, Jie Zhang, Alessandro Bozzon and David MJ Tax (#Equal contribution). Interacting Attention-gated Recurrent Networks for Recommendation. ACM International Conference on Information and Knowledge Management (**CIKM**), 2017.
 - **Wenjie Pei**, Tadas Baltrušaitis, David M.J. Tax and Louis-Philippe Morency. Temporal Attention-Gated Model for Robust Sequence Classification. IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**), 2017.
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