Quan Zhou

Professor

Key Lab of Intelligent Signal Processing and Communication Technology

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(Last update: 2024.12)

EDUCATION

HUAZHONG UNIVERSITY OF SCIENCE AND TECHNOLOGY **WuHan, Hubei, P. R. China**

Doctor of Philosophy in Signal and Information Processing (Ph.D) **2006.09 – 2013.06**

- Advisors: Prof. Wenyu Liu (primary) and Songchun Zhu (secondary)
- Dissertation: *Contextual-based Image Labeling* (in Chinese)

HUAZHONG UNIVERSITY OF SCIENCE AND TECHNOLOGY **WuHan, Hubei, P. R. China**

Master of Signal and Information Processing **2003.09 – 2006.06**

- Advisors: Prof. Wenyu Liu
- Dissertation: *Rate Control for H.264/AVC Video Coding Standard* (in Chinese)

CHINA UNIVERSITY OF GEOSCIENCES(WUHAN) **WuHan, Hubei, P. R. China**

Bachelor of Electrical and Information Engineering **1998.09 – 2002.06**

- Graduated with High Honors

WORK EXPERIENCE – ACADEMIA

NANJING UNIVERSITY OF POSTS and TELECOMMUNICATIONS **Nanjing, Jiangsu, P. R. China**

Full Professor, Key Lab of Intelligent Signal Processing and Communication Technology **2024.10 – present**

Full Professor, College of Telecommunications and Information Engineering **2023.09 – present**

Associate Professor, College of Telecommunications and Information Engineering **2016.09 – 2023.08**

Assistant Professor, College of Telecommunications and Information Engineering **2013.08 – 2016.08**

TEMPLE UNIVERSITY **Philadelphia, PA, USA**

Visiting Professor, Department of Computer Science and Information Science **2023.10 – present**

Visiting Scholar, Department of Computer Science and Information Science **2019.12 – 2020.12**

KYUSHU INSTITUTE OF TECHNOLOGY **Kitakyushu City, Fukuoka, Japan**

Visiting Professor, Department of Computer Science and Information Science **2023.10 – present**

Visiting Scholar, Department of Computer Science and Information Science **2019.12 – 2020.12**

UMEÅ UNIVERSITY **Umeå, Västerbotten, Sweden**

Visiting Scholar, Department of Engineering and Automation **2015.04 – 2015.06**

HONORS & DISTINCTIONS

2024 Most Influential Paper Award, IEEE International Conference Image Processing (ICIP), IEEE Signal Processing Society

2024 Best Representation Paper Award, IEEE/SPIE International Symposium on Artificial Intelligence and

Robotics, International Society for Artificial Intelligence and Robotic

2023 Vice President of Science and Technology, Department of Science and Technology, Jiangsu province

2022 Outstanding Contribution Award, IEEE/SPIE International Symposium on Artificial Intelligence and Robotics, International Society for Artificial Intelligence and Robotic

2020 Excellent Yong Backbone Teachers – Qinglan Project, Department of Education, Jiangsu Province

2019 Nomination Award for Excellent Master's Thesis (Supervisor), Artificial Intelligence Society of Jiangsu Province

2018 Best Paper Award, EAI International Conference On Robotic Sensor Networks

2017 Best Student Paper Award, IEEE/SPIE International Symposium on Artificial Intelligence and Robotics, International Society for Artificial Intelligence and Robotic

SPEECHES & SEMINARS

High speed vs. High accuracy: Real-time Image Semantic Understanding

2024.11 Invited Talk, Guiyang University, P. R. China

2024.11 Invited Talk, Nantong University, P. R. China

2024.10 Invited Talk, Jiujiang University, P. R. China

2024.04 Online Invited Talk, Famous Master Lecture Hall of China Society of Image and Graphics

2023.11 Keynote Talk, Cross Frontier Forum of Artificial Intelligence and Robotics, Sanya, P. R. China

Dual-path Network: New Paradigm for Real-time Object Detection via High Efficient Attention Computation

2024.06 Online Invited Talk, Famous Master Lecture Hall of China Society of Image and Graphics

Lightweight Neural Network for Real-time Semantic Segmentation

2019.07 Invited Talk, China University of Geosciences(Wuhan), P. R. China

Contextual based Image Understanding

2017.08 Invited Talk, EAI International Conference on Robotic Sensor Networks, Kitakyushu, Japan

Multi-scale Context for Image Labeling

2016.11 Invited Talk, Beijing Electronic Science and Technology Institute, P. R. China

2016.07 Invited Talk, Guizhou Normal University, P. R. China

2016.06 Invited Talk, Wuhan University, P. R. China

2016.05 Invited Talk, Jiangsu Normal University, P. R. China

PUBLICATIONS (According to the Areas of Expertise)
BOOK CHAPTERS, REFEREED JOURNALS AND CONFERENCE PAPERS

Deep Learning for Image Understanding

JOURNALS

1) **Quan Zhou**, Huimin Shi, Weikang Xiang, Bin Kang, Longin Jan Latecki. DPNet: dual-path network for real-time object detection with lightweight attention. *IEEE Transactions on Neural Networks and Learning Systems*, early access, DOI: 10.1109/TNNLS.2024.3376563, 2024.
2) **Quan Zhou**, Linjie Wang, Guangwei Gao, Kang Bin, Weihua Ou, Huimin Lu. Boundary-guided lightweight semantic segmentation with multi-scale semantic context. *IEEE Transactions on Multimedia*, 26(4):7887–7900, 2024.
3) Yuwei Mo, Pengfei Zuo, **Quan Zhou**, Zhiyi Mo, Yawen Fan, Suofei Zhang, Bin Kang. PWLT: pyramid window-based lightweight transformer for image classification. *Computers and Electrical Engineering*, 116(4):109209-109219, 2024.

4) Weikang Xiang, **Quan Zhou**, Jingcheng Cui, Zhiyi Mo, Xiaofu Wu, Weihua Ou, Jingdong Wang, Wenyu Liu. Weakly-supervised semantic segmentation based on deep learning. (in Chinese) *Journal of Image and Graphics*, 29(05):1146–1168, 2024.
5) Xiaofu Wu, Suofei Zhang, **Quan Zhou**, Zheng Yang, Chunming Zhao, and Longin Jan Latecki. Entropy minimization versus diversity maximization for domain adaptation. *IEEE Transactions on Neural Networks and Learning Systems*, 34(6):2896–2907, 2023.
6) Yuejie Li, Jintong Cai, **Quan Zhou**, and Huimin Lu. Joint semantic-instance segmentation method for intelligent transportation system. *IEEE Transactions on Intelligent Transportation Systems*, 24(12):15540–15547, 2023.
7) **Quan Zhou**, Zhenhan Sun, Linjie Wang, Bin Kang, Suofei Zhang, and Xiaofu Wu. Mixture lightweight Transformer for scene understanding. *Computers and Electrical Engineering*, 108(3):108698–108712, 2023.
8) **Quan Zhou**, Yong Qiang, Huimin Shi, Xiaofu Wu, and Longin Jan Latecki. BANet: boundary-assistant encoder-decoder network for semantic segmentation. *IEEE Transactions on Intelligent Transportation Systems*, 23(12):25259–25270, 2022.
9) **Quan Zhou**, Xiaofu Wu, Suofei Zhang, Bin Kang, Zongyuan Ge, and Longin Jan Latecki. Contextual ensemble network for semantic segmentation. *Pattern Recognition*, 122(12):108290-108301, 2022.
10) Lie Ju, Xin Wang, Lin Wang, Dwarikanath Mahapatra, Xin Zhao, **Quan Zhou**, Tongliang Liu, and Zongyuan Ge. Improving medical images classification with label noise using dual-uncertainty estimation. *IEEE Transactions on Medical Imaging*, 41(6):1533-1546, 2022.
11) **Quan Zhou**, Qianwen Wang, Yunchao Bao, Lingjun Kong, Xin Jin, and Weihua Ou. LAEDNet: a lightweight attention encoder-decoder network for ultrasound medical image segmentation. *Computers and Electrical Engineering*, 99(8):107777-107787, 2022.
12) **Quan Zhou**, Jie Wang, Jia Liu, Shenghua Li, Weihua Ou, and Xin Jin. RSANet: towards real-time object detection with residual semantic-guided attention feature pyramid network. *Mobile Networks and Applications*, 26(4):77–87, 2021.
13) **Quan Zhou**, Yu Wang, Yawen Fan, Xiaofu Wu, Suofei Zhang, Bin Kang, and Longin Jan Latecki. AGLNet: towards real-time semantic segmentation of self-driving images via attention-guided lightweight network. *Applied Soft Computing*, 96(11):106682-106694, 2020.
14) **Quan Zhou**, Yu Wang, Jia Liu, Xin Jin, and Longin Jan Latecki. An open-source project for real-time image semantic segmentation. *SCIENCE CHINA Information Sciences*, 62(12):227101-227102, 2019.
15) Weihua Ou, Jianping Gou, **Quan Zhou**, and Fei Long. Discriminative multiview nonnegative matrix factorization for classification. *IEEE Access*, 7(4):60947-60956, 2019.
16) Xiong Jian, Long Xianzhong, Ran Shi, Miaohui Wang, **Quan Zhou**, and Guan Gui. Periodic enhanced frame based long-short-term reference in HEVC for conference and surveillance video coding. *IEEE Access*, 7(11):46422-46433, 2019.
17) Yawen Fan, **Quan Zhou**, and Bin Kang. Activity interaction detection by using causal discovery with order estimation. *IEEE Access*, 7(9):173968-173976, 2019.
18) Suofei Zhang, **Quan Zhou**, and Xiaofu Wu. Fast dynamic routing based on weighted kernel density estimation. *Concurrency and Computation: Practice and Experience*, 33(4):1-11, 2019.
19) **Quan Zhou**, Wenbing Yang, Guangwei Gao, Weihua Ou, Huimin Lu, Jie Chen, and Longin Jan Latecki. Multi-scale deep context convolutional neural networks for semantic segmentation. *World Wide Web-Internet and Web Information Systems*, 22(2):555-570, 2019.
20) Lizhen Deng, Hu Zhu, **Quan Zhou**, Yansheng Li. Adaptive top-hat filter based on quantum genetic algorithm for infrared small target detection. *Multimedia Tools and Applications*, 77(9):10539-10551, 2018.
21) **Quan Zhou**, Baoyu Zheng, Weiping Zhu, and Longin Jan Latecki. Multi-scale context for scene labeling via flexible segmentation graph. *Pattern Recognition*, 59:312-324, 2016.
22) Shu Cai, **Quan Zhou**, and Hongbo Zhu. A sum-of-squares and semidefinite programming approach for maximum likelihood DOA estimation. *Sensors*, 16(12):2191-2204, 2016.
23) **Quan Zhou**, Lei Wang, Liang Zhou, Baoyu Zheng. Contextual based image labeling. (in Chinese) *Acta*

Automatica Sinica, 40(12):2944-2949, 2014.

24) **Quan Zhou**, Jun Zhu, and Wenyu Liu. Learning dynamic hybrid Markov random field for image labeling. *IEEE Transactions on Image Processing*, 22(6):2219-2232, 2013.

CONFERENCES

1) Chenfeng Jiang, **Quan Zhou**, Zhiyi Mo, Jing Wang, Yawen Fan, Xiaofu Wu, Suofei Zhang, and Bin Kang. DNAT: multi-scale Transformer with dilated neighborhood attention for image classification. *IEEE International Conference on Wireless Communications and Signal Processing*, 2023, pp. 1-6.
2) Linjie Wang, **Quan Zhou**, Xiaofu Wu, and Longin Jan Latecki. DRBANet: a lightweight dual-resolution network for semantic segmentation with boundary auxiliary. *IEEE International Conference on Image Processing*, 2022, pp. 531-535.
3) Bin Kang, Fan Wu, Xin Li, and **Quan Zhou**. Progressive training enabled fine-grained recognition. *IEEE International Conference on Image Processing*, 2022, pp. 531-535.
4) Huimin Shi, **Quan Zhou**, Xiaofu Wu, and Longin Jan Latecki. DPNet: lightweight dual-path network for object detection with efficient self-attention. *IEEE International Conference on Image Processing*, 2022, pp. 771-775.
5) Yong Qiang, **Quan Zhou**, Huimin Shi, Weihua Ou, and Longin Jan Latecki. BASNet: improving semantic segmentation via boundary-assistant symmetrical network. *IEEE/SPIE International Symposium on Artificial Intelligence and Robotics*, 2021, pp. 1-11.
6) Huitong Pan, **Quan Zhou**, and Longin Jan Latecki. SGUNet: Semantic guided UNet for thyroid nodule segmentation. *IEEE International Symposium on Biomedical Imaging*, 2021, pp. 630-634.
7) Jie Wang, **Quan Zhou**, Dechun Cong, and Weihua Ou. ECDet: an efficient convolutional network for real-time object detection. *IEEE/SPIE International Symposium on Artificial Intelligence and Robotics*, 2020, pp. 1-12.
8) Shenghua Li, **Quan Zhou**, Jia Liu, Jie Wang, Yawen Fan, Xiaofu Wu, and Longin Jan Latecki. DCM: a dense-attention context module for semantic segmentation. *IEEE International Conference on Image Processing*, 2020, pp. 1431-1435.
9) Jia Liu, **Quan Zhou**, Yong Qiang, Bin Kang, Xiaofu Wu, and Boayu Zheng. FDDWNET: a lightweight convolutional neural network for real-time semantic segmentation. *IEEE International Conference on Acoustics, Speech, and Signal Processing*, 2020, pp. 2373-2377.
10) Yu Wang, **Quan Zhou**, Jia Liu, Jian Xiong, Guangwei Gao, Xiaofu Wu, and Longin Jan Latecki. LEDNET: a lightweight encoder-decoder network for real-time semantic segmentation. *IEEE International Conference on Image Processing*, 2019, pp. 1860-1864.
11) Dechun Cong, **Quan Zhou**, Jie Cheng, Xiaofu Wu, Suofei Zhang, Weihua Ou, and Huimin Lu. CAN: contextual aggregating network for semantic segmentation. *IEEE International Conference on Acoustics, Speech, and Signal Processing*, 2019, pp. 1892-1896.
12) Yu Wang, and **Quan Zhou**. ESNet: an efficient symmetric network for real-time semantic segmentation. *International Conference on Pattern Recognition and Computer Vision*, 2019, pp. 41–52.
13) Yuzhe Sun, **Quan Zhou**, and Xiaofu Wu. Domain adaptation for semantic segmentation with conditional random field. *IEEE/SPIE International Symposium on Artificial Intelligence and Robotics*, 2019, pp. 473–483.
14) Wenbin Yang, **Quan Zhou**, Yawen Fan, Guangwei Gao, Songsong Wu, Weihua Ou, Huiming Lu, Jie Cheng, and Longin Jan Latecki. Deep context convolutional neural networks for semantic segmentation. *Chinese Conference on Computer Vision*, 2019, pp. 555–570.
15) Suofei Zhang, **Quan Zhou**, and Xiaofu Wu. Fast dynamic routing based on weighted kernel density estimation. *IEEE/SPIE International Symposium on Artificial Intelligence and Robotics*, 2019, pp. 301–309.
16) Yan Wang, Xiaofu Wu, Yuanyuan Chang, Suofei Zhang, **Quan Zhou**, and Jun Yan. Batch normalization: is learning an adaptive gain and bias necessary?. *IEEE International Conference on Machine Learning and Computing*, 2018, pp. 36-40.
17) Wenbing Yang, **Quan Zhou**, Jingnan Lu, Xiaofu Wu, Suofei Zhang, and Longin Jan Latecki. Dense

deconvolutional network for semantic segmentation. *IEEE International Conference on Image Processing*, 2018, pp. 1573-1577.

18) **Quan Zhou**, Canxiang Yan, Yinyin Zhu, Xiang Bai, and Wenyu Liu. Image labeling by multiple segmentation. *IEEE International Conference on Image Processing*, 2011, pp. 3129-3132.
19) **Quan Zhou**, and Wenyu Liu. Inference scene labeling by incorporating object detection with explicit shape model. *Asian Conference on Computer Vision*, 2010, pp. 382–395.
20) Weihua Ou, Jianping Gou, **Quan Zhou**, and Fei Long. Discriminative multiview nonnegative matrix factorization for classification. *IEEE/SPIE International Symposium on Artificial Intelligence and Robotics*, 2019, pp. 60947-60956.
21) Kun Wang, Songsong Wu, Guangwei Gao, **Quan Zhou**, and Xiaoyuan Jing. Learning autoencoder of attribute constraint for zero-shot classification. *IAPR Asian Conference on Pattern Recognition*, 2017, pp. 605-610.

Deep Learning for Low-level Vision

JOURNALS

1) Zhangyin Hu, **Quan Zhou**, Mingju Chen, Jingcheng Cui, Xiaofu Wu, Baoyu Zheng. Survey of image deblurring. (in Chinese) *Journal of Image and Graphics*, 29(4):841–861, 2024.
2) Xin Jin, Pengyue Deng, Xinxin Li, Kejun Zhang, Xiaodong Li, **Quan Zhou**, Shujiang Xie, and Xi Fang. Sun-sky model estimation from outdoor images. *Journal of Ambient Intelligence & Humanized Computing*, 13(11):5151–5162, 2022.
3) Wen Su, Haifeng Zhang, Wenzhen Yang, **Quan Zhou**, and Zengfu Wang. Monocular depth estimation using information exchange network. *IEEE Transactions on Intelligent Transportation Systems*, 22(6):3491-3503, 2021.
4) Xin Jin, Xiaodong Li, **Quan Zhou**. Learning HDR illumination from LDR panorama images. *Computers and Electrical Engineering*, 91(11):107057-107064, 2021.
5) **Quan Zhou**, Zhengjie Hu, Guang Wei Gao, Wen Bin Yu, Xin Jin, Hui Min Lu, Bao Yu Zheng, and Longin Jan Latecki. Learning adaptive contrast combinations for visual saliency detection. *Multimedia Tools and Applications*, 79(21):14419-14447, 2020.
6) Huimin Lu, Yin Zhang, Yujie Li, **Quan Zhou**, Ryunosuke Tadoh, Tomoki Uemura, Hyongseop Kim, and Seiichi Serikawa. Depth map reconstruction for underwater Kinect camera using inpainting and local image mode filtering. *IEEE Access*, 5(5):7115-7122, 2017.
7) **Quan Zhou**. Object-based attention: saliency detection using the contrast via background prototypes. *Electronics Letters*, 50(14):997-999, 2014.
8) **Quan Zhou** and Liang Zhou. Compressive sensing for video coding: a brief overview. *IEEE COMSOC MMTC E-Letter*, 9(2):20-22, 2014.
9) Yu Zhou, Junwei Wang, **Quan Zhou**, Xiang Bai, and Wenyu Liu. Shape matching using points co-occurrence pattern. *IEEE International Conference on Image and Graphics*, 2011, pp. 344-349.

CONFERENCES

1) **Quan Zhou**, Jinwen Wu, Yawen Fan, Suofei Zhang, Xiaofu Wu, Baoyu Zheng, Huimin Lu, and Longin Jan Latecki. Weighted linear multiple kernel learning for saliency detection. *EAI International Conference on Robotic Sensor Networks*, 2019, pp. 201–213.
2) Xin Jin, Shuyun Zhu, Le Wu, Geng Zhao, Xiaodong Li, and **Quan Zhou**. Multi-level chaotic maps for 3D textured model encryption. *EAI International Conference on Robotic Sensor Networks*, 2019, pp. 107–117.
3) **Quan Zhou**, Yawen Fan, Weihua Ou, and Huimin Lu. Saliency detection via objectness transferring. *IEEE/SPIE International Symposium on Artificial Intelligence and Robotics*, 2019, pp. 201–211.
4) Dan Wang, Canxiang Yan, **Quan Zhou**. Learn local priors by transferring training masks for salient object detection. *IEEE International Conference on Multimedia and Expo*, 2017, pp. 1141-1146.
5) Yumin Hu, **Quan Zhou**, Guangwei Gao, Zhijun Yao, Weihua Ou, and Longin Jan Latecki. Robust background exclusion for salient object detection. *IEEE International Conference on Wireless Communication*

and Signal Processing, 2016, pp. 1-5.

6) **Quan Zhou**, Nianyi Li, Jianxin Chen, Shu Cai, and Longin Jan Latecki. Salient object detection via background contrast. *IEEE International Conference on Acoustics, Speech, and Signal Processing*, 2015, pp. 1463-1467.
7) **Quan Zhou**, Shaojun Zhu, and Baoyu Zheng. Salient object detection using window mask transferring with multi-layer background contrast. *Asian Conference on Computer Vision*, 2014, pp. 221–235.
8) **Quan Zhou**, Ji Chen, Shiwei Ren, Yu Zhou, Jun Chen, and Wenyu Liu. On contrast combinations for visual saliency detection. *IEEE International Conference on Image Processing*, 2013, pp. 2665-2669.
9) **Quan Zhou**, Nianyi Li, Yi Yang, Pan Chen, and Wenyu Liu. Corner-surround contrast for saliency detection. *IEEE International Conference on Pattern Recognition*, 2012, pp. 1423-1426.
10) Xin Jin, Yannan Li, Ningning Liu, Xiaodong Li, **Quan Zhou**, and Yulu Tian. Scene relighting using a single reference image through material constrained layer decomposition. *IEEE/SPIE International Symposium on Artificial Intelligence and Robotics*, 2017, pp. 37-44.
11) Zhijun Yao, **Quan Zhou**, Zhongyuan Lai, Zhiming Ren, and Liming Liu. Image enhancement based on bi-histogram equalization with non-parametric modified technology. *IEEE International Conference on Parallel and Distributed Systems*, 2016, pp. 1211-1215.
12) Zhijun Yao, **Quan Zhou**, Xiaofei Yang, Chunhua Yang, and Zhongyuan Lai. Quadrants histogram equalization with a clipping limit for image enhancement. *IEEE International Conference on Wireless Communication and Signal Processing*, 2016, pp. 1-5.

Learning-based Hashing, Tracking, and Retrieval

JOURNALS

1) Weihua Ou, Jiaxin Deng, Jianping Gou, **Quan Zhou**, Yufeng Shi, and Xinge You. Cross-modal generation and pair correlation alignment hashing. *IEEE Transactions on Intelligent Transportation Systems*, 24(3):3018–3026, 2023.
2) Bin Kang, Dong Liang, Junxi Mei, Xiaoyang Tan, **Quan Zhou**, and Dengyin Zhang. Robust RGB-T tracking via graph attention based bilinear pooling. *IEEE Transactions on Neural Networks and Learning Systems*, 34(12):9900–9911, 2023.
3) Haixia Xiong, Weihua Ou, Zengxian Yan, Jianping Gou, **Quan Zhou**, and Anzhi Wang. Modality-specific matrix factorization hashing for cross-modal retrieval. *Journal of Ambient Intelligence & Humanized Computing*, 13(11):5067–5081, 2022.
4) Bin Kang, **Quan Zhou**, and Min Lin. Visual tracking via multi-layer factorized correlation filter. *IEEE Signal Processing Letters*, 26(12):1763-1767, 2019.
5) Xiao Ma, Qiao Liu, Weihua Ou, and **Quan Zhou**. Visual object tracking via coefficients constrained exclusive group lasso. *Machine Vision and Application*, 29(5):749-763, 2018.
6) Yawen Fan, **Quan Zhou**, Wenjing Yue, Wei-Ping Zhu. A dynamic causal topic model for mining activities from complex videos. *Multimedia Tools and Applications*, 77(9):10669-10684, 2018.
7) Qiao Liu, Xiao Ma, Weihua Ou, **Quan Zhou**. Visual object tracking with online sample selection via lasso regularization. *Signal, Image and Video Processing*, 11(5):881-888, 2017.
8) Jun Zhu, **Quan Zhou**, Weijia Zou, Rui Zhang, and Wenjun Zhang. A generalized pyramid matching kernel for human action recognition in realistic videos. *Sensors*, 13(11):14398-14416, 2013.

CONFERENCES

1) Jia Lin, Suofei Zhang, Jiangping Chen, Xiaofu Wu, and **Quan Zhou**. Efficient person re-identification with multi-scale feature fusion. *IEEE International Conference on Wireless Communications and Signal Processing*, 2021, pp. 1-5.
2) Yimo Wang, Songlin Du, **Quan Zhou**, and Bin Kang. Multiple stream oriented siamese network for RGB-T tracking. *IEEE International Conference on Wireless Communications and Signal Processing*, 2021, pp. 1-5.

3) Ruisheng Xuan, Weihua Ou, **Quan Zhou**, Yongfeng Cao, Hua Yang, Xiangguang Xiong, and Fangming Ruan. Semantics consistent adversarial cross-modal retrieval. *IEEE/SPIE International Symposium on Artificial Intelligence and Robotics*, 2019, pp. 463–472.
4) Wan Ding, Bin Kang, **Quan Zhou**, Min Lin, and Suofei Zhang. Grayscale-thermal tracking via canonical correlation analysis based inverse sparse representation. *IEEE International Conference on Acoustics, Speech, and Signal Processing*, 2019, pp. 3985-3989.

Face Recognition and Hallucination

JOURNALS

1) Guangwei Gao, Zangyi Hu, Songsong Wu, Dong Yue, **Quan Zhou**, and Pu Huang. Robust low-resolution face recognition via low-rank representation and locality-constrained regression. *Computers and Electrical Engineering*, 70:968-977, 2018.
2) Weihua Ou, Xiao Luan, Jianping Gou, **Quan Zhou**, Wenjun Xiao, Xiangguang Xiong, Wu Zeng. Robust discriminative nonnegative dictionary learning for occluded face recognition. *Pattern Recognition Letters*, 107:41-49, 2018.
3) **Quan Zhou**, Wenbin Yu, Yawen Fan, Hu Zhu, Xiaofu Wu, Weihua Ou, Weiping Zhu, and Longin Jan Latecki. Face recognition via fast dense correspondence. *Multimedia Tools and Applications*, 77(9):10501-10519, 2018.
4) Guangwei Gao, Xiao Yuan Jing, Pu Huang, **Quan Zhou**, Songsong Wu, and Dong Yue. Locality-constrained double low-rank representation for effective face hallucination. *IEEE Access*, 4(10):8775-8786, 2016.
5) **Quan Zhou**, Shafiq ur Rehman, Yu Zhou, and Baoyu Zheng. Face recognition using dense SIFT feature alignment. *Chinese Journal of Electronics*, 25(6):1034-1039, 2016.

CONFERENCES

1) Guangwei Gao, Pu Huang, **Quan Zhou**, Songsong Wu, Xiaoyuan Jing, and Dong Yue. Low-rank representation and locality-constrained regression for robust low-resolution face recognition. *IEEE/SPIE International Symposium on Artificial Intelligence and Robotics*, 2017, pp. 17-26.
2) Guangwei Gao, **Quan Zhou**, Songsong Wu, and Dong Yue. Locality-constrained matrix regression for position-patch based face hallucination. *IEEE International Conference on Image Processing*, 2016, pp. 419-423.

RESEARCH PROJECTS (Selected)

• 2025.01 – 2029.12, Towards Robust Weakly-supervised Semantic Segmentation via Visual-Language Large Models, Grant No. 62476139, founded by **National Natural Science Foundation of China**, RMB 500,000, Principal Investigator (PI).

• 2024.12 – 2026.06, Image Perception and Understanding System in Unmanned Underwater Environment, founded by **Nantong Institute of Oceanography of Southeast University**, RMB 100,000, Principal Investigator (PI).

• 2024.11 – 2026.11, Robust Wildfire Detection and Prediction Based on Visual-Language Large Model, Grant No. TFSZHH3005, founded by **Open Project of "Spark Task" of Digital Agriculture Sichuan Chongqing Joint Innovation of "Tianfu Granary"**, RMB 210,000, Principal Investigator (PI).

• 2019.01 – 2022.12, Weakly-supervised Images Semantic Segmentation Based on Associative Features, Grant No. 61876093, founded by **National Natural Science Foundation of China**, RMB 650,000, Principal Investigator (PI).

• 2018.01 – 2018.12, The Third International Conference on Artificial Intelligence and Robotics and the First Sino-Japanese Bilateral Symposium on "Artificial Intelligence and its Application in the Next Generation Internet of Things", Grant No. 61881240048, founded by **National Natural Science Foundation of China**, RMB 45,000, Principal Investigator (PI).

• 2018.11 – 2021.11, Weakly-supervised Semantic Segmentation for Massive Images and Semantic Categories, Grant No. BK20181393, founded by **Natural Science Foundation of Jiangsu Province**, RMB 100,000, Principal Investigator (PI).
• 2018.11 – 2019.11, Research on New Algorithm for Robust Deep Neural Networks, founded by **Huawei Innovative Research Program**, RMB 200,000, Principal Investigator (PI).
• 2015.01 – 2017.12, Image Labeling by Fusing Multi-scale Contexts, Grant No. 61401228, founded by **National Natural Science Foundation of China**, RMB 250,000, Principal Investigator (PI).

PATENTS (Authorized)

1) **Quan Zhou**, Jia Liu, Yong Qiang, Linjie Wang, Huimin Shi, and Zhenhan Sun. A real-time image semantic segmentation method based on an attention-guided mechanism. *Patent Number: ZL 202110366778.4, July 2023.*
2) **Quan Zhou**, Yu Wang, Dechun Cong, Jingnan Lu, and Jia Liu. Real-time image semantic segmentation method and system, readable storage medium, and terminal. *Patent Number: ZL 201910247530.9, September 2022.*
3) **Quan Zhou**, Shenghua Li, Jia Liu, Yawen Fan, and Xiaofu Wu. Image segmentation method and modeling method for a context-aware image semantic segmentation model. *Patent Number: ZL 202010375529.7, August 2022.*
4) **Quan Zhou**, Jingnan Lu, Wenbin Yang, Yu Wang, and Dechun Cong. An image semantic segmentation method. *Patent Number: ZL 201810769340.9, July 2022.*
5) Rui Chen, **Quan Zhou**, Lingjun Kong, Jingxian Chen, Qianwen Wang, and Yunchao Bao. A large-angle license plate detection method based on convolutional neural networks. *Patent Number: ZL 202110208935.9, July 2022.*
6) **Quan Zhou**, Dechun Cong, Wenbin Yang, Jingnan Lu, and Yu Wang. A face recognition algorithm based on sparse representation. *Patent Number: ZL 201810398110.6, November 2021.*
7) **Quan Zhou**, Wenbin Yang, Dechun Cong, Yu Wang, Jingnan Lu. Semantic image segmentation algorithm based on convolutional neural networks. *Patent Number: ZL 201810768753.5, October 2021.*

PROFESSIONAL AFFILIATIONS

2024 – present Outstanding Member, China Computer Federation (CCF)
2023 – present IEEE Senior Member, Institute of Electrical and Electronics Engineers (IEEE)
2019 – present IAPR Senior Member, International Association for Pattern Recognition (IAPR)
2018 – present CSIG Senior Member, China Society of Image and Graphics (CSIG)
2018 – present CAA Senior Member, Chinese Association of Automation (CAA)
2018 – present CAAI Senior Member, Chinese Association for Artificial Intelligence (CAAI)

CONFERENCE ORGANIZING COMMITTEE WORKSHOP, TUTORIAL AND COURSE ORGANIZER OR CO-CHAIR

CONFERENCE ORGANIZING COMMITTEE

- Program Chair, IEEE/SPIE International Symposium on Artificial Intelligence and Robotics (2025)
- Area Chair, Chinese Conference on Pattern Recognition and Computer Vision (2022 – 2024)
- Area Chair, IEEE/SPIE International Symposium on Artificial Intelligence and Robotics (2017 – 2024)
- Session Chair, Asian Conference on Pattern Recognition (2019, 2023)
- Session Chair, International Conference on Wireless Communications and Signal Processing (2016, 2023)
- Session Chair, IEEE International Conference on Multimedia and Expo (2019)

WORKSHOP, TUTORIAL AND COURSE ORGANIZER OR (CO-)CHAIR

- Co-organizer, Tutorial on ***Image/Video Semantic Perception and Understanding***, Frontiers of Image and Graphics Discipline, 2023
- Organizer, Workshop on ***Advanced Technology of Deep Learning***, CCF – CV Series Lectures, 2018, 2019

EDITORIAL BOARD AND JOURNAL REVIEWER

EDITORIAL BOARD

2024 – present Associate Editor for ***Pattern Recognition***

2023 – present Associate Editor for ***Computers & Electrical Engineering***

2020 – present Associate Editor for ***Cognitive Robotics***

2023.02 – 2023.06 Leading Guest Editor for Special Issue of ***Visual Intelligence***
Guest co-editors: Prof. Junchi Yan (Shanghai Jiaotong University, P. R. China).
Submission: 10, Acceptance: 4.

2022.09 – 2023.01 Leading Guest Editor for Special Issue of ***Computers & Electrical Engineering***
Guest co-editors: Prof. Guangwei Gao (National Institute of Informatics, Japan), Prof. Weihua Ou (Guizhou Normal University, P. R. China), and Prof. Longin Jan Latecki (Temple University, USA).
Submission: 28, Acceptance: 7.

2022.01 – 2022.07 Leading Guest Editor for Special Issue of ***Pattern Recognition***
Guest co-editors: Prof. Chen Gong (Nanjing University of Science and Technology, P. R. China), Prof. Longin Jan Latecki (Temple University, USA), and Prof. Chenglin Liu (Chinese Academy of Sciences, P. R. China).
Submission: 26, Acceptance: 8.

2020.08 – 2021.02 Leading Guest Editor for Special Issue of ***IEEE Transactions on Fuzzy Systems***
Guest co-editors: Prof. Zhanyu Ma (Beijing University of Posts and Telecommunications, P. R. China), Prof. Fuchun Sun (Tsinghua University, P. R. China), and Prof. Dongrui Wu (Huazhong University of Science and Technology, P. R. China).
Submission: 47, Acceptance: 14.

2017.02 – 2017.08 Leading Guest Editor for Special Issue of ***Optics and Laser Technology***
Guest co-editors: Prof. Huimin Lu (Kyushu Institute of Technology, Japan) and Prof. Yuejie Li (Fukuoka University, Japan).
Submission: 35, Acceptance: 11.

JOURNAL REVIEWER

2024 – present ***IEEE/CAA Journal of Automatica Sinica***

2024 – present ***Multimedia Systems***

2024 – present ***IEEE Internet of Things Journal***

2024 – present ***IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing***

2024 – present ***IEEE Transactions on Consumer Electronics***

2024 – present ***Remote Sensing***

2023 – present ***Engineering Applications of Artificial Intelligence***

2023 – present ***IEEE Transactions on Emerging Topics in Computational Intelligence***

2022 – present ***Pattern Recognition Letters***

2022 – present ***Computer Vision and Image Understanding***

2022 – present ***Applied Sciences***

2022 – present ***IEEE Transactions on Geoscience and Remote Sensing***

2022 – present ***IEEE Transactions on Artificial Intelligence***

2021 – present ***IEEE Transactions on Instrumentation & Measurement***

2021 – present ***Neural Processing Letters***

2021 – present ***IEEE Geoscience and Remote Sensing Letters***
2021 – present ***Image and Vision Computing***
2021 – present ***IEEE Sensor Journal***
2021 – Present ***IEEE Transactions on Reliability***
2021 – present ***IEEE Transactions on Neural Networks and Learning Systems***
2021 – present ***SCIENCE CHINA-Information Sciences***
2021 – present ***Applied Intelligence***
2020 – present ***Expert Systems with Applications***
2020 – present ***Information Fusion***
2020 – present ***The Visual Computer***
2020 – present ***IEEE Transactions on Systems, Man, and Cybernetics: Systems***
2020 – present ***IEEE Transactions on Intelligent Transportation Systems***
2020 – present ***Knowledge-Based Systems***
2020 – present ***Neural Networks***
2020 – present ***IEEE Transactions on Pattern Analysis and Machine Intelligence***
2019 – present ***IEEE Geoscience and Remote Sensing Letters***
2019 – present ***Artificial Intelligence in Medicine***
2019 – present ***IEEE Journal of Biomedical and Health Informatics***
2019 – present ***Applied Soft Computing***
2016 – present ***Multimedia Tools and Applications***
2016 – present ***Pattern Recognition***
2016 – present ***Computers & Electrical Engineering***
2015 – present ***IEEE Transactions on Image Processing***
2015 – present ***IEEE Transactions on Cybernetics***
2014 – present ***Neurocomputing***
2014 – present ***IEEE Transactions on Circuits and Systems for Video Technology***
2014 – present ***IEEE Transactions on Signal Processing***
2014 – present ***IEEE Signal Processing Letters***
2014 – present ***IEEE Transactions on Multimedia***

TEACHING

NANJING UNIVERSITY OF POSTS AND TELECOMMUNICATIONS

B0200032S: Signal and System (Undergraduate)

- Spring 2024, Enrollment: 23
- Spring 2022, Enrollment: 59
- Spring 2021, Enrollment: 99
- Spring 2019, Enrollment: 66
- Spring 2018, Enrollment: 116
- Spring 2017, Enrollment: 33
- Spring 2016, Enrollment: 136
- Spring 2015, Enrollment: 99
- Spring 2019, Enrollment: 66

1006909: Deep Learning and Computer Vision (Graduate)

- Spring 2024, Enrollment: 183 (co-instructors: Cheng Chen, Zhou Zhou, Hao Ping)
- Fall 2020, Enrollment: 150 (co-instructors: Shenhua Li, Jia Liu)

F0201061C: Digital Image Processing (Graduate)

- Fall 2023, Enrollment: 15

- Fall 2022, Enrollment: 12

ADVISEES

PH.D. STUDENTS

2024 – present Afang Yang (EE, Nanjing University of Posts and Telecommunications)

MASTER STUDENTS

2024 – present Hao Ping (EE, Nanjing University of Posts and Telecommunications)
2024 – present Zhou Zhou (EE, Nanjing University of Posts and Telecommunications)
2024 – present Cheng Chen (EE, Nanjing University of Posts and Telecommunications)
2023 – present Jing Wang (EE, Nanjing University of Posts and Telecommunications)
2023 – present Junyu Lin (EE, Nanjing University of Posts and Telecommunications)
2023 – present Anyi Yang (EE, Nanjing University of Posts and Telecommunications)
2022 – present Weikang Xiang (EE, Nanjing University of Posts and Telecommunications)
2022 – present Zhangying Hu (EE, Nanjing University of Posts and Telecommunications)
2022 – present Zheng Jiang (EE, Nanjing University of Posts and Telecommunications)
2021 – 2024 Yuwi Mo (now work at China Telecommunications, Inc.)
Dissertation: *Lightweight Transformer via Window Pyramid and Multi-group Interaction* (in Chinese)
2021 – 2024 Chengfeng Jiang (now work at China Telecommunications, Inc.)
Dissertation: *Full-precision Vision Transformer Based on Self-attention* (in Chinese)
2021 – 2024 Yinghao Ni (now work at Xiaomi, Inc.)
Dissertation: *Encoder free Object Detection Network Based on DETR* (in Chinese)
2020 – 2023 Zhenhan Sun (now work at Intel, Inc.)
Dissertation: *Lightweight Transformer using Single Head Self-attention* (in Chinese)
2020 – 2023 Linjie Wang (now work at New H3C Technologies, Inc.)
Dissertation: *Lightweight Dual-resolution Network for Semantic Segmentation with Boundary Assistance* (in Chinese)
2020 – 2023 Huiming Shi (now work at Esiontech, Inc.)
Dissertation: *Lightweight Real-time Object Detection via Attention Mechanism* (in Chinese)
2019 – 2022 Jingxian Chen (now work at China Unicom Music Culture, Inc.)
Dissertation: *Text Detection of Natural Scene Based on Deep Learning* (in Chinese)
2019 – 2022 Yong Qiang (now work at Zhejiang Dahua Technology, Inc.)
Dissertation: *Image Semantic Segmentation with Boundary Assistant* (in Chinese)
2019 – 2022 Xianwen Wang (now work at Envision Group, Inc.)
Dissertation: *Ultrasonic Medical Image Segmentation Based on Deep Learning* (in Chinese)
2019 – 2022 Yunchao Bao (now work at Fosun Group, Inc.)
Dissertation: *Table Structure Detection and Recognition Based on Deep Learning* (in Chinese)
2018 – 2021 Jia Liu (now work at Fosun Group, Inc.)
Dissertation: *Efficient Semantic Segmentation via Convolutional Neural Networks* (in Chinese)
2018 – 2021 Jie Wang (now work at China Mobile, Inc.)
Dissertation: *Multiple Object Detection and Tracking via Lightweight Networks* (in Chinese)
2018 – 2021 Shenghua Li (now work at ArcSoft, Inc.)
Dissertation: *Accurate and Real-time Semantic Segmentation via Convolutional Neural Networks* (in Chinese)
2017 – 2020 Jingnan Lu (now work at Huawei, Inc.)
Dissertation: *Image Semantic Segmentation Based on Dense Deconvolution Aggregating Network* (in Chinese)
2017 – 2020 Dechun Cong (now work at Huawei, Inc.)
Dissertation: *Image Semantic Segmentation and Object Detection Based on Contextual Aggregation*

(in Chinese)

2017 – 2020 Yu Wang (now work at Huawei, Inc.)
Dissertation: *Efficient Image Semantic Segmentation for Autonomous Driving Scenes* (in Chinese)

2016 – 2019 Wenbin Yang (now work at Huawei, Inc.)
Dissertation: *Image Semantic Segmentation Based on Deep Learning* (in Chinese)

UNDERGRADUATE STUDENTS

2016 – present Pengfei Zuo (CS, Nanjing University of Posts and Telecommunications)

2016 – present Jingcheng Cui (EE, Nanjing University of Posts and Telecommunications)

2023 – 2024 Zekun Shi (EE, Nanjing University of Posts and Telecommunications)

ADDITIONAL INFORMATION

Languages: Mandarin, English