Yakun Ju

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Experience

Nanyang Technological University, Singapore 09/2023 – Present

Research Fellow at the School of Electrical and Electronic Engineering, Rapid-Rich Object Search (ROSE) Lab, working with Prof. Alex C. Kot

The Hong Kong Polytechnic University, Hong Kong SAR 09/2022 – 09/2023

Postdoctoral Fellow at the Dept. of Electrical and Electronic Engineering, working with Prof. Kin-Man Lam

The Hong Kong Polytechnic University, Hong Kong SAR 01/2021 – 07/2021

Research Assistant at the Dept. of Electrical and Electronic Engineering, working with Prof. Kin-Man Lam

Peking University, Beijing, China 09/2020 – 12/2020

Visiting Scholar at the Wangxuan Institute of Computer Technology, Working with Prof. Yuxin Peng

Education

Ocean University of China, Qingdao, China 09/2016 – 06/2022

Ph.D. in Computer Science, supervised by Prof. Junyu Dong

Sichuan University, Chengdu, China 09/2012 – 06/2016

Bachelor Degree of Engineering

Research Interests

3D Reconstruction, Computational Imaging, Medical Image Processing, and Underwater Vision.

Academic Service

- **Editorial Board (Associate Editor)** of PLOS ONE, 04/2024-Present
- **Editorial Board (Associate Editor)** of Intelligent Marine Technology and Systems, 11/2023-Present
- **Guest Editor** of Computer Vision and Image Understanding (CVIU), SI: Advanced Computational Imaging and Photography Measurement, Present-09/2024
- **Guest Editor** of Photonics, SI: Advanced Photometric 3D Reconstruction and beyond, 10/2022-09/2023
- **Conference Program Committee** of the IEEE ICIP 2024 Workshop: AI4IPo Workshop

Selected Journal Publications (See All in Google Scholar)

1. **Yakun Ju**, Kin-Man Lam, Wuyuan Xie, Huiyu Zhou, Junyu Dong and Boxin Shi. "Deep Learning Methods for Calibrated Photometric Stereo and Beyond", ***IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)***, 2024.
2. **Yakun Ju**, Boxin Shi, Muwei Jian, Lin Qi and Kin-Man Lam. "Normattention-PSN: A High-Frequency Region Enhanced Photometric Stereo Network with Normalized Attention", ***International Journal of Computer Vision (IJCV)***, 2022.
3. **Yakun Ju**, Junyu Dong and Sheng Chen. "Recovering Surface Normal and Arbitrary Images: A Dual Regression Network for Photometric Stereo", ***IEEE Transactions on Image Processing (TIP)***, 2021.
4. **Yakun Ju**, Boxin Shi, Yang Chen, Huiyu Zhou, Junyu Dong and Kin-Man Lam. "GR-PSN: Learning to Estimate Surface Normal and Reconstruct Photometric Stereo Images", ***IEEE Transactions on Visualization and Computer Graphics (TVCG)***, 2023.

5. **Yakun Ju**, Muwei Jian, Cong Wang, Cong Zhang, Junyu Dong and Kin-Man Lam."Estimating High-resolution Surface Normals via Low-resolution Photometric Stereo Images", ***IEEE Transactions on Circuits and Systems for Video Technology (TCSVT)***, 2023.
6. **Yakun Ju**, Muwei Jian, Shaoxiang Guo, Yingyu Wang, Huiyu Zhou and Junyu Dong. "Incorporating Lambertian Priors into Surface Normals Measurement", ***IEEE Transactions on Instrumentation and Measurement (TIM)***, 2021.
7. **Yakun Ju**, Xinghui Dong, Yingyu Wang, Lin Qi and Junyu Dong. "A Dual-cue Network for Multispectral Photometric Stereo", ***Pattern Recognition (PR)***,2020.
8. **Yakun Ju**, Yuxin Peng, Muwei Jian, Lin Qi and Junyu Dong. "Learning Conditional Photometric Stereo with High-resolution Features", ***Computational Visual Media (CVMJ)***, 2022.
9. Yanru Liu, **Yakun Ju (corresponding author)**, Muwei Jian, Feng Gao, Yuan Rao, Yeqi Hu, Junyu Dong. "A Deep-shallow and Global–local Multi-feature Fusion Network for Photometric Stereo", ***Image and Vision Computing (IVC)***,2022.
10. Yuan Rao, **Yakun Ju**, Cong Li, Eric Rigall, Jian Yang, Hao Fan, Junyu Dong. "Learning General Descriptors for Image Matching with Regression Feedback", ***IEEE Transactions on Circuits and Systems for Video Technology (TCSVT)***,2023.
11. Yuan Rao, **Yakun Ju**, Sen Wang, Hao Fan, Junyu Dong. "Learning Enriched Feature Descriptor for Image Matching and Visual Measurement", ***IEEE Transactions on Instrumentation and Measurement (TIM)***,2023.
12. Shaoxiang Guo, Eric Rigall, **Yakun Ju** and Junyu Dong. "3D Hand Pose Estimation from Monocular RGB with Feature Interaction Module", ***IEEE Transactions on Circuits and Systems for Video Technology (TCSVT)***,2022.
13. Cong Zhang, Jingran Su, **Yakun Ju**, Kin-Man Lam and Qi Wang. "3D Hand Pose Estimation from Monocular RGB with Feature Interaction Module", ***IEEE Transactions on Geoscience and Remote Sensing (TGRS)***,2023.
14. Yuan Rao, Jian Yang, **Yakun Ju**, Cong Li, Eric Rigall, Hao Fan and Junyu Dong. "Learning General Feature Descriptor for Visual Measurement with Hierarchical View Consistency", ***IEEE Transactions on Instrumentation and Measurement (TIM)***,2022.
15. Muwei Jian, Xiangwei Lu, Xiaoyang Yu, **Yakun Ju**, Hui Yu and Kin-Man Lam. "Flow-Edge-Net: Video Saliency Detection Based on Optical Flow and Edge-Weighted Balance Loss", ***IEEE Transactions on Computational Social Systems (TCSS)***,2023.

♡ Selected Conference Publications (See All in Google Scholar)

1. **Yakun**, Kin-Man Lam, Yang Chen, Lin Qi and Junyu Dong. "Pay Attention to Devils: A Photometric Stereo Network for Better Details", in ***International Conference on International Joint Conferences on Artificial Intelligence (IJCAI)***, 2020.
2. **Yakun**, Kin-Man Lam, Jun Xiao, Cong Zhang, Cuixin Yang and Junyu Dong. "Efficient Feature Fusion for Learning-Based Photometric Stereo", in ***IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)***, 2023.
3. **Yakun Ju**, Cong Zhang, Songsong Huang, Yuan Rao and Kin-Man Lam. "Learning Deep Photometric Stereo Network with Reflectance Priors", in ***IEEE International Conference on Multimedia and Expo (ICME)***, 2023.
4. Hao Xie, Zixun Huang, Frank H.F. Leung, **Yakun Ju (corresponding author)**, Yong-Ping Zheng and Sai Ho Ling. "A Structure-Affinity Dual Attention-based Network to Segment Spine for Scoliosis Assessment", in ***IEEE International Conference on Bioinformatics and Biomedicine (BIBM)***, 2023.
5. Hao Xie, Zixun Huang, Frank H.F. Leung, Ngai Fong Law, **Yakun Ju (corresponding author)**, Yong-Ping Zheng, Steve Ling. "STAR: A Structure-affinity Attention-based Transformer Encoder for Spine Segmentation", in ***IEEE International Symposium on Biomedical Imaging (ISBI)***, 2024.
6. Wuyuan Xie, Kaimin Wang, **Yakun Ju** and Miaohui Wang. "pmBQA: Projection-based Blind Point Cloud Quality Assessment via Multimodal Learning", in ***ACM Multimedia (MM)***, 2023.
7. Jun Xiao, Zihang Lyu, Cong Zhang, **Yakun Ju**, Changjian Shui and Kin-Man Lam. "Towards Progressive Multi-Frequency Representation for Image Warping", in ***IEEE Conference on Computer Vision and Pattern Recognition (CVPR)***, 2024.
8. Cong Wang, Jinshan Pan, Wei Wang, Jiangxin Dong, Mengzhu Wang, **Yakun Ju**, Junyang Chen. "PromptRestorer: A Prompting Image Restoration Method with Degradation Perception", in ***Conference on Neural***

Information Processing Systems (NeurIPS), 2023.

♡ PROJECTS

1. 3D Human Face Portraits Generation with Mobile Devices, A*STAR BMRC Strategic Positioning Fund (SPF), **Lead**, Sept. 2023 - Oct. 2024 (expected).
2. Advanced AI and Image Processing Techniques for Film Restoration and Movie Analysis, Hong Kong Innovation and Technology Commission (ITC) Fund, **Lead**, Sept. 2022 - Sept. 2023.
3. Research on Key Technologies of a Lightweight Digital Twin for Dense 3D Surface Based on Normal Map, National Natural Science Foundation of China, **Main Participant**, Jan. 2024 - Dec. 2026 (expected).
4. Research and Development of Underwater Optical High-resolution Three-dimensional Imager, Special Fund for Research on National Major Research Instrument, **Participant**, Jan. 2020 - Jun. 2022.
5. Collaborative Research and Development of Underwater High-precision Three-dimensional Real-time Detection and Analysis System, International Science & Technology Cooperation Program of China, **Participant**, Sept. 2016 - Dec. 2019.

TEACHING EXPERIENCES

- **Teaching Assistant: Computer Vision (postgraduate)**, Ocean University of China, 2019-2020.

TALK

- **School of Electronic Information and Communications, Huazhong University of Science and Technology:** Photometric Stereo: A dense shape recovery method. *Online, 29. Oct. 2023*
- **China3DV 2023:** Deep Learning-based Calibrated Photometric Stereo: Review & Future. *Beijing, China, 23. Apr. 2023*
- **School of Computer Science and Software Engineering, Shenzhen University:** Data-Driven Photometric Stereo. *Shenzhen, China, 14. Sept. 2022*
- **CCF China Intelligent Robot Academic Annual Conference 2021:** Data-Driven Photometric Stereo. *Qingdao, China, 11. Dec. 2021*
- **Vision And Learning SEminar(VALSE) 2021:** Top Journal Spoltlight: 3D Vision Technology. *Hangzhou, China, 10. Oct. 2021*

HONORS AND AWARDS

- ACM China - Qingdao Chapter Outstanding Doctoral Dissertation Award (3 winners in Qingdao), 2022.
- Outstanding Graduates of Shandong Province (for top 1% students), 2022.
- National Scholarship for Doctoral Students (for top 1% students), 2020.
- Inspur Scholarship (for top 5% students), 2021.
- Goers Acoustic Scholarship (for top 5% students), 2017.

Additional Contact Details

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