Yue Zhang

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Education

University of Chinese Academy of Sciences, Ph.D in EE	2018.09 - 2023.06

Institute of semiconductors, Chinese Academy of Sciences.

University of Chinese Academy of Sciences, Minor in CS	2018.09 - 2019.06
Nankai University, BSc-Honours in Physics	2014.09 - 2018.06

Career

Institute of semiconductors, Chinese Academy of Sciences, Postdoctoral Fellow	2023.09-2025.09

Research Projects Involved:

- Adaptive underwater image processing based on inherent optical properties (IOPs)
- Range resolution analysis of laser gated light ranging and imaging (LiRAI)
- Computational laser-gated 3D imaging
- Multispectral computational imaging
- Long-range and wide field-of-view 3D optical perception for deep-sea environments
- Monte Carlo simulation of underwater light sources
- Optical image processing and algorithm development for deep-sea mineral exploration
- Image-grade LiDAR point cloud processing for vegetation monitoring

Technical Skill

Programming: Python, C++, OpenCV, Pytorch, Linux, Web development, etc.

Algorithm: Image processing (denoising, super-resolution, feature extraction, segmentation, recognition), 3D vision (stereo, line-structured light, pose estimation), pointcloud (denoising, tail artifact removing)

System: Imaging system design/simulation/development

Softwares: MATLAB, ZEMAX, PCB layout

Publication

1. **Y. Zhang**, X. Wang, L. Sun, P. Lei, J. Chen, J. He, Y. Zhou, and Y. Liu, "Mask-guided deep learning fishing net detection and recognition based on underwater range gated laser imaging," **Opt. Laser Technol.** 171, 110402 (2024).
2. **Y. Zhang**, X. Wang, P. Lei, S. Wang, Y. Yang, L. Sun, and Y. Zhou, "Smart vector-inspired optical vision guiding method for autonomous underwater vehicle docking and formation," **Opt. Lett.** 47(11), 2919 (2022).
3. **Y. Zhang**, X. Wang, P. Lei, Y. Zhou, and Y. Liu, "Water-filled low-resistance optical fairing for unmanned underwater vehicles," in AOPC 2023: Optical Design and Manufacturing (**SPIE**, 2023), 12964, pp. 137–146.
4. **Y. Zhang**, X. Wang, and Y. Zhou, "Monte-Carlo simulation for range intensity profile of underwater range gated imaging," in Eighth Symposium on Novel Photoelectronic Detection Technology and Applications (**SPIE**, 2022), 12169, pp. 2739–2747.
5. Z. Xu, X. Wang, L. Sun, B. Song, **Y. Zhang**, P. Lei, J. Chen, J. He, Y. Zhou, and Y. Liu, "Combination of backscatter calculation and image segmentation for denoising gated light ranging and imaging in fishing net detection," **Appl. Ocean Res.** 156, 104455 (2025).
6. Z. Xu, X. Wang, L. Sun, B. Song, **Y. Zhang**, P. Lei, J. Chen, J. He, Y. Zhou, and Y. Liu, "Noise Robust Underwater Fishing Net Recognition Based on Range Gated Imaging," **IEEE Access** 12, 185492–185510 (2024).
7. C. Xia, X. Wang, L. Sun, **Y. Zhang**, B. Song, and Y. Zhou, "Range-intensity-profile-guided gated light ranging and imaging based on a convolutional neural network," **Sens.** 24(7), 2151 (2024).
8. M. Wang, X. Wang, **Y. Zhang**, L. Sun, P. Lei, Y. Yang, J. Chen, J. He, and Y. Zhou, "Range-intensity-profile prior dehazing method for underwater range-gated imaging," **Opt. Express** 29(5), 7630 (2021).

9. X. Wang, L. Sun, **Y. Zhang**, B. Song, C. Xia, and Y. Zhou, "Advances of laser range-gated three-dimensional imaging (invited)," **Infrared and Laser Engineering** 53(4), 20240122–20240122 (2024).
10. X. Wang, L. Sun, P. Lei, J. Chen, Y. Yang, **Y. Zhang**, X. Zhong, J. He, M. Wang, and Y. Zhou, "Underwater light ranging and imaging for macro marine life in-situ observation and measurement," **Infrared and Laser Engineering** 50(6), 20211039 (2021).

RESEARCH & ENGINEERING PROJECT

Optical image processing and algorithm development for deep-sea mineral exploration	2025.01 - 2027.12
Multispectral computational imaging	2024.06 - present
Adaptive underwater image processing based on inherent optical properties (IOPs)	2024.01 - present
Computational laser-gated 3D imaging	2023.01 - present
Range resolution analysis of laser gated light ranging and imaging (LiRAI)	2023.01 - 2025.06
Image-grade LiDAR point cloud processing for vegetation monitoring	2024.06 - 2025.06
Monte Carlo simulation of underwater light sources	2023.08 - 2024.03
Mask-guided deep learning fishing net detection and recognition based on underwater range gated laser imaging	2021.04 - 2023.01
Underwater low-resistance optical fairing	2021.04 - 2021.07
Smart underwater vector-inspired optical vision guiding method	2019.08 - 2021.01

AWARD & HONOR

Outstanding Postdoctal Fellow, Institute of Semiconductors, CAS	2025
Various scholarships for 8 times (CAS, NKU)	2014-2023
First Prize of the First SeeLight Optical System Simulation Competition	2019
Outstanding Graduate of Nankai University	2018
Third Prize of Outstanding Undergraduate Research Projects of Nankai University	2017
12th place in the 8th International Physicists Tournament (Team)	2016
Second Prize in University Students Mathematics Competition (Science & Engineering) of Tianjin 2015