JIANWEN SONG

Phone: (+86)15528060815 ⋄ Email: jianwensong@stu.scu.edu.cn
Homepage: https://jianwensong.github.io/CV/
Address: No.24 South Section 1, Yihuan Road, Chengdu , China, 610065

EDUCATION

Sichuan University *Sep. 2017 - Present*
Master of Engineering, Detection Technology and Automation Equipment
GPA: 90.4/100 (3.8/4.0), Rank: 1/57
Supervisor: Kai Liu

Sichuan University *Sep. 2013 - Jun. 2017*
Bachelor of Engineering, Electronic Information Engineering
GPA: 85.42/100 (3.38/4.0), Rank: 12/123
Supervisor: Wei Wu

RESEARCH INTERESTS

My research interet focuses on structured light illumination and image processing. I am dedicated to designing a coded-decoded scheme of structured light to achieve 3D reconstruction of fast speed and high precision. Recently, I am also trying to apply convolutional neural network to phase measuring profilometry, one of the efficient structured light methods and researching some algorithms of fusing active and passive 3D imaging.

PUBLICATIONS

- **Jianwen Song**, Daniel L. Lau, Yo-Sung Ho, and Kai Liu*, "Automatic look-up table based real-time phase unwrapping for phase measuring profilometry and optimal reference frequency selection", Optics Express, 2019, 27(9): 13357-13371.
- **Jianwen Song**, Yo-Sung Ho, Daniel L. Lau, and Kai Liu*, "Universal phase unwrapping for phase measuring profilometry using geometric analysis", Proc. SPIE (Emerging Digital Micromirror Device Based Systems and Applications X), 2018, 10546: 105460B.
- Zhenli, Xiaomin Yang, **Jianwen Song**, Kai Liu, Zuping Wang, and Wei Wu*, "Improving Resolution of 3D Surface With Convolutional Neural Networks", Sustainable Cities and Society, 2018, 42: 127-138.
- Kai Liu, **Jianwen Song**, Daniel L. Lau, Xiujuan Zheng, Ce Zhu, and Xiaomei Yang*, "Real-time 3D Reconstruction with Structured Light and Scanning Objects Along Both Horizontal and Vertical Directions", Optics Letters. [Under review]
- **Jianwen Song**, Daniel L. Lau, Xiaomin Yang, Bin Xu, and Kai Liu*, "Universal decoding method for periodic patterns in phase shifting structured light illumination", Optics Express. [Preparing]

PATENTS

- Kai Liu, **Jianwen Song**, Jiang Wang, and Yiguang Liu, "Customized projector and projection method based on one-dimensional information", Chinese Patent, CN105737761B.
- Kai Liu, **Jianwen Song**, and Han Zhang, "System calibration method, device, and three-dimensional reconstruction system ", Chinese Patent, CN107170010A. [Patent pending]

- Kai Liu, **Jianwen Song**, Ziyang Hu, and Bin Xu, "Phase unwrapping method, device and electronic instrument based on two-dimensional look-up table ", Chinese Patent, CN110006365A. [Patent pending]

HONORS AND AWARDS

- National Scholarship for postgraduate *Nov. 2018*
- Excellent Postgraduate Student of Sichuan University *Nov. 2018*
- 1st Prize Postgraduate Academic Scholarship of Sichuan University *Sep. 2017*
- Excellent Undergraduate Thesis of Sichuan University *Jun. 2017*
- Excellent Undergraduate Student of Sichuan University *Oct. 2016*
- 3rd Prize Scholarship of Sichuan University *Oct. 2016*
- 1st Ship Model Competition of Sichuan University *Apr. 2014*
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PROJECTS

- Multi-functional comprehensive experiment and demonstration system for surface structure light high-speed precision three-dimensional shape measurement *Jun. 2019*

  Charge of the construction of the whole system and the design and C++ programming of the operation interface.

- High-precision structured light 3D imaging for illumination saturation overflow and multipath effects supported by the National Natural Science Foundation of China *Sep. 2017 - Dec. 2018*

  Research on the high-accuracy and efficient phase unwrapping algorithm for structured light illumination.

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SKILLS

Languages: MATLAB, C/C++, Python

Toolkits: LaTeX, OpenCV, PCL, PyTorch, TensorFlow, Linux, etc.