

# HENG GUO

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## EXPERIENCE

### Specialty-Appointed Researcher

*School of Artificial Intelligence, Beijing University of Posts and Telecommunications*

Beijing, China

Nov. 2023 – present

### Specialty-Appointed Assistant Professor

*Osaka University*

Osaka, Japan

May. 2022 – Oct. 2023

### Research Assistant

*Osaka University*

Osaka, Japan

Oct. 2018 – Apr. 2022

### Research Intern

*Japan Institute of Oppo Mobile Telecommunications Corp., Ltd*

Yokohama, Japan

June 2020 – Oct. 2020

### Research Intern

*AI Lab of Qihoo 360 Technology Corp., Ltd.*

Beijing, China

June 2016 – Jan. 2017

## EDUCATION

### University of Electronic Science and Technology of China (UESTC)

*Bachelor of Electronic Engineer*

Chengdu, China

Aug. 2015 – Sep. 2011

### University of Electronic Science and Technology of China (UESTC)

*Master of Signal Processing | Supervisors: Bing Zeng, Shuaicheng Liu*

Chengdu, China

Aug. 2018 – Sep. 2015

### Osaka University

*Doctor of Computer Science | Supervisors: Yasuyuki Matsushita, Boxin Shi*

Osaka, Japan

Present – Sep. 2018

## PUBLICATION

(\* Equal contribution, † Corresponding author.)

- [1] Yufei Han, Bowen Tie, **Heng Guo**<sup>†</sup>, Youwei Lyu, Si Li<sup>†</sup>, Boxin Shi, Yunpeng Jia, Zhanyu Ma. “PolGS: Polarimetric Gaussian Splatting for Fast Reflective Surface Reconstruction.” IEEE International Conference on Computer Vision. (**ICCV 2025**).
- [2] Kailong Zhang, Youwei Lyu, **Heng Guo**<sup>†</sup>, Si Li, Zhanyu Ma, Boxin Shi. “PolarAnything: Diffusion-based Polarimetric Image Synthesis.” IEEE International Conference on Computer Vision. (**ICCV 2025**).
- [3] Chu Zhou, Yixin Yang, Junda Liao, **Heng Guo**, Boxin Shi, Imari Sato. “Polarimetric Neural Field with Unified Complex-Valued Wavefunction.” IEEE International Conference on Computer Vision. (**ICCV 2025**).
- [4] Mingzhi Pei, Xu Cao, Xiangyi Wang, **Heng Guo**<sup>†</sup>, Zhanyu Ma. “PMNI: Pose-free Multi-view Normal Integration for Reflective and Textureless Surface Reconstruction.” IEEE Conference on Computer Vision and Pattern Recognition. (**CVPR 2025**).
- [5] Shuangfan Zhou, Chu Zhou, Youwei Lyu, **Heng Guo**<sup>†</sup>, Zhanyu Ma, Boxin Shi, Imari Sato. “PIDSr: Complementary Polarized Image Demosaicing and Super-Resolution.” IEEE Conference on Computer Vision and Pattern Recognition. (**CVPR 2025**).
- [6] Mengqiu Xu, Kaixin Chen, **Heng Guo**, Yixiang Huang, Ming Wu, Zhenwei Shi, Chuang Zhang, Jun Guo. “MFogHub: Bridging Multi-Regional and Multi-Satellite Data for Global Marine Fog Detection and Forecasting.” IEEE Conference on Computer Vision and Pattern Recognition. (**CVPR 2025**).
- [7] Youwei Lyu\*, **Heng Guo**\*, Kailong Zhang, Si Li, Boxin Shi. “SfPUEL: Shape from Polarization under Unknown Environment.” Annual Conference on Neural Information Processing Systems. (**NeurIPS 2024**).
- [8] Li Wenjie, **Heng Guo**<sup>†</sup>, Xuannan Liu, Kongming Liang, Jiani Hu, Zhanyu Ma, Jun Guo. “Efficient Face Super-Resolution via Wavelet-Based Feature Enhancement Network.” ACM International Conference on Multimedia. (**ACM MM 2024**).
- [9] **Heng Guo**\*, Jiejie Ren\*, Feishi Wang\*, Boxin Shi, Mingjun Ren, Yasuyuki Matsushita. “DiLiGenRT: A Photometric Stereo Dataset with Quantified Roughness and Translucency.” IEEE Conference on Computer Vision and Pattern Recognition. (**CVPR 2024**).

- [10] Yufei Han, **Heng Guo**<sup>†</sup>, Koki Fukai, Hiroaki Santo, Boxin Shi, Fumio Okura, Zhanyu Ma, Yunpeng Jia. “NeRSP: Neural 3D Reconstruction for Reflective Objects with Sparse Polarized Images.” IEEE Conference on Computer Vision and Pattern Recognition. (**CVPR 2024**).
- [11] Feishi Wang\*, Jieji Ren\*, **Heng Guo**\*, Mingjun Ren, Boxin Shi. “DiLiGenT-Pi: Photometric Stereo for Planar Surfaces with Rich Details – Benchmark Dataset and Beyond.” International Conference on Computer Vision. (**ICCV 2023**).
- [12] Jun Hoong Chan, Bohan Yu, **Heng Guo**, Jieji Ren, Zongqing Lu, Boxin Shi. “ReLeaPS: Reinforcement Learning-based Illumination Planning for Generalized Photometric Stereo.” International Conference on Computer Vision. (**ICCV 2023**).
- [13] Jipeng Lv, **Heng Guo**<sup>†</sup>, Guanying Chen, Jinxiu Liang, Boxin Shi. “Non-Lambertian Multispectral Photometric Stereo via Spectral Reflectance Decomposition.” International Joint Conferences on Artificial Intelligence (**IJCAI 2023**).
- [14] **Heng Guo**, Boxin Shi, Yasuyuki Matsushita. “Neural BRDF Plugin for Unsupervised Photometric Stereo.” IEEE International Conference on Network Intelligence and Digital Content (**IC-NIDC 2023 best paper**).
- [15] Feiran Li\*, **Heng Guo**\*, Hiroaki Santo, Fumio Okura, Yasuyuki Matsushita. “Learning to Synthesize Photorealistic Dual-pixel Images from RGBD frames.” International Conference on Computational Photography (**ICCP 2023**).
- [16] Lilika Makabe, **Heng Guo**, Hiroaki Santo, Fumio Okura, Yasuyuki Matsushita. “Near-light Photometric Stereo with Symmetric Lights.” International Conference on Computational Photography. (**ICCP 2023**).
- [17] **Heng Guo**, Fumio Okura, Boxin Shi, Takuya Funatomi, Yasuhiro Mukaigawa, Yasuyuki Matsushita. “Multispectral Photometric Stereo for Spatially-Varying Spectral Reflectances.” International Journal of Computer Vision. (**IJCV 2022**).
- [18] **Heng Guo**\*, Zhipeng Mo\*, Boxin Shi, Feng Lu, Sai-Kit Yeung, Ping Tan, Yasuyuki Matsushita. “Patch-based Uncalibrated Photometric Stereo under Natural Illumination.” IEEE Transactions on Pattern Analysis and Machine Intelligence. (**TPAMI 2021**).
- [19] **Heng Guo**, Fumio Okura, Boxin Shi, Takuya Funatomi, Yasuhiro Mukaigawa, Yasuyuki Matsushita. “Multispectral Photometric Stereo for Spatially-Varying Spectral Reflectances: A Well-posed Problem?” IEEE Conference on Computer Vision and Pattern Recognition. (**CVPR 2021**).
- [20] **Heng Guo**, Boxin Shi, Michael Waechter, Yasuyuki Matsushita. “Self-calibrating Near-light Photometric Stereo under Anisotropic Light Emission.” Meeting on Image Recognition and Understanding (**MIRU 2020 outstanding paper**).
- [21] **Heng Guo**, Shuaicheng Liu, Shuyuan Zhu, Heng Tao Shen, Bing Zeng. “View-Consistent MeshFlow for Stereoscopic Video Stabilization.” IEEE Transactions on Computational Imaging. (**TCI 2018**).
- [22] **Heng Guo**, Shuaicheng Liu, Tong He, Shuyuan Zhu, Bing Zeng, Moncef Gabbouj. “Joint Video Stitching and Stabilization from Moving Cameras.” IEEE Transactions on Image Processing (**TIP 2016**).
- [23] **Heng Guo**, Shuaicheng Liu, Shuyuan Zhu, Bing Zeng. “Joint Bundled Camera Paths for Stereoscopic Video Stabilization.” International Conference on Image Processing. (**ICIP 2016**) (Oral).

## HONORS

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Excellent Master Thesis of UESTC (Top 3%)	June 2018
Excellent Postgraduate of UESTC (Top 6%)	June 2018
National Scholarship of China(Top 2%)	Oct. 2017
Academic Scholarship of UESTC (Top 10%)	2015 & 2016 & 2017
Excellent Graduate of UESTC (Top 7%)	Sep. 2015
The 1st Prize of National College Student Information Security Contest	July 2014
The 2nd Prize of National Undergraduate Electronics Design Contest	Sep. 2013
People's Scholarship (Top 15%)	2011 & 2012 & 2013

## SERVICE

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- Reviewer: TPAMI, IJCV, TNNLS, CVPR, ICCV, ECCV, NeurIPS