

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] Wenjie Li, Xiangyi Wang, **Heng Guo**[†], Guangwei Gao, Zhanyu Ma. “Self-Supervised Selective-Guided Diffusion Model for Old-Photo Face Restoration.” Annual Conference on Neural Information Processing Systems. (**NeurIPS 2025**).
- [2] Wenjie Li, **Heng Guo**[†], Yuefeng Hou, Guangwei Gao, Zhanyu Ma. “Dual-domain Modulation Network for Lightweight Image Super-Resolution.” IEEE Transactions on Multimedia. (**TMM 2025**).
- [3] Yufei Han, Bowen Tie, **Heng Guo**[†], Youwei Lyu, Si Li[†], Boxin Shi, Yunpeng Jia, Zhanyu Ma. “PolGS: Polarimetric Gaussian Splatting for Fast Reflective Surface Reconstruction.” IEEE International Conference on Computer Vision. (**ICCV 2025**).
- [4] Kailong Zhang, Youwei Lyu, **Heng Guo**[†], Si Li, Zhanyu Ma, Boxin Shi. “PolarAnything: Diffusion-based Polarimetric Image Synthesis.” IEEE International Conference on Computer Vision. (**ICCV 2025 Highlight**).
- [5] 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**).
- [6] Mingzhi Pei, Xu Cao, Xiangyi Wang, **Heng Guo**[†], 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**).
- [7] Shuangfan Zhou, Chu Zhou, Youwei Lyu, **Heng Guo**[†], Zhanyu Ma, Boxin Shi, Imari Sato. “PIDSr: Complementary Polarized Image Demosaicing and Super-Resolution.” IEEE Conference on Computer Vision and Pattern Recognition. (**CVPR 2025**).
- [8] 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**).
- [9] Songyun Yang, Yufei Han, Jilong Zhang, Kongming Liang, Peng Yu, Zhaowei Qu, **Heng Guo**. “RotatedMVPS: Multi-view Photometric Stereo with Rotated Natural Light.” IEEE Conference on Multimedia and Expo. (**ICME 2025 Oral**).

- [10] 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**).
- [11] Li Wenjie, **Heng Guo[†]**, 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**).
- [12] **Heng Guo***, Jieji 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**).
- [13] Yufei Han, **Heng Guo[†]**, 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**).
- [14] 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**).
- [15] 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**).
- [16] Jipeng Lv, **Heng Guo[†]**, Guanying Chen, Jinxiu Liang, Boxin Shi. “Non-Lambertian Multispectral Photometric Stereo via Spectral Reflectance Decomposition.” International Joint Conferences on Artificial Intelligence (**IJCAI 2023**).
- [17] **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**).
- [18] 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**).
- [19] Lilika Makabe, **Heng Guo**, Hiroaki Santo, Fumio Okura, Yasuyuki Matsushita. “Near-light Photometric Stereo with Symmetric Lights.” International Conference on Computational Photography. (**ICCP 2023**).
- [20] **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**).
- [21] **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**).
- [22] **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**).
- [23] **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**).
- [24] **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**).
- [25] **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**).
- [26] **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

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

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