

# Kaizhang Kang

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## Research Interests

I am broadly interested in computational imaging. During my Ph.D. study, I focused on appearance/geometry acquisition & modeling. I developed a series of high-performance acquisition hardware systems from low-level circuit design to high-level control software. Based on proposed differentiable acquisition framework, the published works mainly address how to efficiently and accurately digitize real objects.

As a postdoctoral researcher in Professor Wolfgang Heidrich's group, I have taken the opportunity to broaden my research into microscopy, snapshot spectral imaging, and other areas of computational imaging.

Looking ahead, I aim to explore novel and unconventional directions in computational imaging, pushing the limits of the field.

## Education

<b>Sep. 2018 - June 2023</b>	<b>Zhejiang University</b> Integrated Master and Ph.D. Program in Computer Science (Supervised by Hongzhi Wu)
<b>Sep. 2014 - June 2018</b>	<b>Zhejiang University</b> B.S. in Computer Science Honors Degree from Chu Kochen Honors College

## Work Experience

<b>Feb. 2024 - Now</b>	King Abdullah University of Science and Technology <i>Postdoc</i> My main research project is about designing and building a lightweight spectral camera for determining coral health status.
<b>Aug. 2022 - Jan. 2023</b>	Meta Reality Labs <i>Research Scientist Intern.</i> The project is to estimate appearance of human head with multi-view images under any lighting conditions.

## Publications

### Microscopy & Computational Imaging

- **High-throughput space-time Fourier ptychography for motile microorganisms**  
*Ming Sun\**, *Kaizhang Kang\**, *Yogeshwar Mishra*, *Wolfgang Heidrich*  
*accepted to Optics Express*  
\* Contributed equally
- **High-Speed Fourier Ptychographic Microscopy System for Live Microorganisms Imaging**  
*Kaizhang Kang*, *Ming Sun*, *Yogeshwar Mishra*, *Wolfgang Heidrich*  
*Proc. Optica Imaging Congress 2025 (COSI)*

- **Efficient Depth- and Spatially-Varying Image Simulation for Defocus Deblur**  
Xinge Yang, Chuong Nguyen, Wenbin Wang, **Kaizhang Kang**, Wolfgang Heidrich, Ginger Li  
*ICCV2025 Workshop*
- **Latent Space Imaging**  
Matheus Souza, Yidan Zheng, **Kaizhang Kang**, Yogeshwar Nath Mishra, Qiang Fu, Wolfgang Heidrich  
*Proc. CVPR 2025*

## Appearance/Geometry Acquisition & Modeling

- **Designing and Fabricating Color BRDFs with Differentiable Wave Optics**  
Yixin Zeng, Kiseok Choi, Hadi Amata, **Kaizhang Kang**, Wolfgang Heidrich, Hongzhi Wu, Min H. Kim  
*Conditionally accepted to SIGGRAPH Asia 2025*
- **Learning Photometric Feature Transform for Free-form Object Scan**  
Xiang Feng, **Kaizhang Kang**, Fan Pei, Huakeng Ding, Jinjiang You, Ping Tan, Kun Zhou and Hongzhi Wu  
*IEEE TVCG*, 31, 9 (Sep. 2025), pp. 6398-6409
- **Differentiable Dynamic Visible-Light Tomography**  
**Kaizhang Kang**, Zoubin Bi, Xiang Feng, Yican Dong, Kun Zhou and Hongzhi Wu  
*Proc. SIGGRAPH Asia 2023*
- **Neural Reflectance Capture in the View-Illumination Domain**  
**Kaizhang Kang**, Minyi Gu, Cihui Xie, Xuanda Yang, Hongzhi Wu and Kun Zhou  
*IEEE TVCG*, 29, 2 (Feb. 2023), pp. 1450-1462
- **Learning Efficient Photometric Feature Transform for Multi-view Stereo**  
**Kaizhang Kang**, Cihui Xie, Ruisheng Zhu, Xiaohe Ma, Ping Tan, Hongzhi Wu and Kun Zhou  
*ICCV2021*
- **Free-form Scanning of Non-planar Appearance with Neural Trace Photography**  
Xiaohe Ma, **Kaizhang Kang**, Ruisheng Zhu, Hongzhi Wu and Kun Zhou  
*ACM Trans. Graph. (Proc. SIGGRAPH 2021)*, 40, 4 (Aug. 2021), 124.
- **Learning Efficient Illumination Multiplexing for Joint Capture of Reflectance and Shape**  
**Kaizhang Kang**, Cihui Xie, Chengan He, Mingqi Yi, Minyi Gu, Zimin Chen, Kun Zhou and Hongzhi Wu  
*ACM Trans. Graph. (Proc. SIGGRAPH Asia 2019)*, 38, 6 (Nov. 2019), 165.
- **Efficient Reflectance Capture Using an Autoencoder**  
**Kaizhang Kang**, Zimin Chen, Jiaping Wang, Kun Zhou and Hongzhi Wu  
*ACM Trans. on Graphics (Proc. SIGGRAPH 2018)*, 37, 4 (Aug. 2018), 127.

## Honors & Awards

Microsoft Research Asia Fellowship	2021
ACM SIGGRAPH Student Research Competition (2nd Place, Undergraduate Category)	2018
Lu Zengyong CAD&CG High Technology Award (2nd Place)	2019

## Skills

- **Deep learning.** I use deep learning in previous work to solve modeling problems for both geometry and appearance, and the algorithms are implemented with Pytorch/Tensorflow.
- **Computer vision & graphics.** My research in the past mainly focuses on computer vision & graphics about how to digitize 3D objects in both high efficiency and high quality manner.
- **Hardware design.** I built hardware prototypes of lightstage and hand-held scanner from scratch, including PCB design, FPGA programming.

## Invited Talks

Nov. 2022

Computer Graphics Group (Julie Dorsey & Holly Rushmeier Lab), Yale  
*Differentiable Acquisition of Appearance & Shape*

Mar. 2022

Smart Geometry Processing Group (Niloy Mitra Lab), UCL  
*Differentiable Acquisition of Appearance & Shape*

Dec. 2019

Graphics And Mixed Environment Seminar (Online)  
*Learning Efficient Illumination Multiplexing for Joint Capture of Reflectance and Shape*

## Academic Service

**Committee Membership** SIGGRAPH Asia Technical Communications & Posters Committee (2024, 2025)

**Reviewer** SIGGRAPH, SIGGRAPH Asia, ICCV, WACV, AAAI, etc.

## Languages

<b>English</b>	Proficient
<b>Mandarin</b>	Native
<b>Japanese</b>	Competent

## Referees

<b>Name</b>	Wolfgang Heidrich
<b>Affiliation</b>	King Abdullah University of Science and Technology
<b>Position</b>	Professor
<b>Homepage</b>	<a href="https://vccimaging.org/People/heidriw/">https://vccimaging.org/People/heidriw/</a>
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<b>Name</b>	Hongzhi Wu
<b>Affiliation</b>	State Key Lab of CAD&CG, Zhejiang University
<b>Position</b>	Professor
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<b>Name</b>	Kun Zhou
<b>Affiliation</b>	State Key Lab of CAD&CG, Zhejiang University
<b>Position</b>	Cheung Kong Professor, Director of State Key Lab of CAD&CG
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<b>Name</b>	Xin Tong
<b>Affiliation</b>	Microsoft Research, Beijing
<b>Position</b>	Principal Researcher, Research Manager
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