

# Xianrui Luo

Homepage

📍 Wuhan, China

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## BIOGRAPHY

I am pursuing a Ph.D. degree with the School of Artificial Intelligence and Automation, Huazhong University of Science and Technology, supervised by [Prof. Zhiguo Cao](#) (expected to graduate in 2025). My research interests lie in computer vision and image manipulation, with a particular emphasis on computational photography, including image deblurring, all-in-focus synthesis, and bokeh rendering. I am currently working on integrating 3D vision into computational photography.

## EDUCATION

**Huazhong University of Science and Technology, China**  
*Doctor of Artificial Intelligence*

**Sep 2020 – present**  
GPA: **90.19**

**Huazhong University of Science and Technology, China**  
*Bachelor of Automation*

**Sep 2016 – Jun 2020**  
GPA: **89.2**

## PUBLICATIONS

### Journal Articles

#### Defocus to Focus:

**Photo-realistic Bokeh Rendering by Fusing Defocus and Radiance Priors**  
*Xianrui Luo\**, Juewen Peng\*, Ke Xian, Zijin Wu, Zhiguo Cao (\*Equal Contribution)

**Information Fusion 2023 (IF=18.6)**  
[\[Paper\]](#) [\[Code\]](#)

**Point-and-Shoot All-in-Focus Photo Synthesis From Smartphone Camera Pair**  
*Xianrui Luo*, Juewen Peng, Weiyue Zhao, Ke Xian, Hao Lu, Zhiguo Cao

**IEEE TCSVT 2023 (IF=8.4)**  
[\[Paper\]](#)

**Dual-Camera All-in-Focus Neural Radiance Fields**  
*Xianrui Luo*, Zijin Wu, Juewen Peng, Huiqiang Sun, Zhiguo Cao, Guosheng Lin

**IEEE TPAMI 2023 (IF=23.6)**  
**Under Review**

### Conference Papers

**Dynamic Neural Radiance Field From Defocused Monocular Video**  
*Xianrui Luo*, Huiqiang Sun, Juewen Peng, Zhiguo Cao

**ECCV 2024**  
[\[Paper\]](#) [\[Code\]](#)

**Bokeh Rendering from Defocus Estimation**  
*Xianrui Luo\**, Juewen Peng\*, Ke Xian, Zijin Wu, Zhiguo Cao (\*Equal Contribution)

**ECCVW 2020**  
[\[Paper\]](#)

**Interactive Portrait Bokeh Rendering System**  
Juewen Peng, *Xianrui Luo*, Ke Xian, Zhiguo Cao

**ICIP 2021**  
[\[Paper\]](#)

**BokehMe: When Neural Rendering Meets Classical Rendering**  
Juewen Peng, Zhiguo Cao, *Xianrui Luo*, Hao Lu, Ke Xian, Jianming Zhang

**CVPR 2022**  
[\[Paper\]](#) [\[Code\]](#)

**MPIB: An MPI-Based Bokeh Rendering Framework for Realistic Partial Occlusion Effects**  
Juewen Peng, Jianming Zhang, *Xianrui Luo*, Hao Lu, Ke Xian, Zhiguo Cao

**ECCV 2022**  
[\[Paper\]](#) [\[Code\]](#)

**Fast Full-frame Video Stabilization with Iterative Optimization**  
Weiyue Zhao, Xin Li, Zhan Peng, *Xianrui Luo*, Xinyi Ye, Hao Lu, Zhiguo Cao

**ICCV 2023**  
[\[Paper\]](#) [\[Code\]](#)

**Selective Bokeh Effect Transformation**  
Juewen Peng, Zhiyu Pan, Chengxin Liu, *Xianrui Luo*, Huiqiang Sun, Liao Shen, Ke Xian, Zhiguo Cao

**CVPRW 2023**  
[\[Paper\]](#) [\[Code\]](#)

## EXPERIENCE

**Project Officer | S-Lab for Advanced Intelligence, Nanyang Technological University**  
Advisor: Prof. Guosheng Lin

Nov 2023-Now

## PROJECT

**NTIRE 2023 Challenge on Bokeh Effect Transformation (CVPR2023 Workshop)**  
Winner Award

Jun 2023

**Vivo Funding Project on Simulation of Bokeh Effect from DSLR**  
I serve as a core member responsible for realistic bokeh synthesis for smartphone photography.

Jan 2023 – Dec 2023

**“DigiX Joint Innovation Center of Huawei-HUST” Funding Project**

Mar 2021 – Mar 2022

I serve as a core member responsible for dual-camera all-in-focus synthesis.

**AIM 2020 Challenge on Rendering Realistic Bokeh (ECCV2020 Workshop)**

Aug 2020

Runner Up Award

**AWARDS AND HONORS**

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<b>Academic Scholarship</b>	<i>Huazhong University of Science and Technology</i>	2020-2023
<b>Outstanding Graduates</b>	<i>Huazhong University of Science and Technology</i>	2020
<b>Merit Student</b>	<i>Huazhong University of Science and Technology</i>	2016, 2023
<b>Best Poster Award</b>	<i>Artificial Intelligence Conference and Entrepreneurs Summit Forum of China's Optics Valley</i>	2022

**SKILLS**

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**Programming Language***Python, MATLAB, C***Machine Learning Tools***PyTorch, OpenCV***English***TOEFL 109, GRE 325 (AW 4.0)*