

Xiaoyun Yuan, Ph.D.

Associate Professor, AI Institute, School of Computer Science
Shanghai Jiao Tong University

Computational Imaging | Visual Signal Processing

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Professional Profile

Xiaoyun Yuan is a tenure-track Associate Professor at the AI Institute, School of Computer Science, Shanghai Jiao Tong University. His research focuses on computational imaging and visual signal processing, with particular emphasis on the co-design of sensing hardware and computational algorithms. His work has appeared in *Nature*, *Nature Biomedical Engineering*, *Nature Communications*, *ACM SIGGRAPH*, *CVPR*, *ICCV*, *IEEE TPAMI*, *IEEE TCSVT*, etc.

Editorial and Peer-Review Service

- Reviewer for *IEEE Transactions on Image Processing (TIP)*, *IEEE Transactions on Circuits and Systems for Video Technology (TCSVT)*, and *IEEE Transactions on Multimedia (TMM)*.
- Reviewer for *CVPR*, *ICCV*, and *ECCV*.
- Youth Editorial Board Member, *iOptics*, 2026–2029.

IEEE and Professional Service

- Chair, IEEE MMSP 2025 Thematic School.
- Instructor, IEEE ICASSP 2024 Educational Short Course, “Practical Guide to Computational Imaging: From Basics to Brilliance”.

Academic Appointments

Shanghai Jiao Tong University

Tenure-track Associate Professor, AI Institute / School of Computer Science
Shanghai, China

Nov. 2024–present

Tsinghua University

Postdoctoral Researcher / Research Assistant, Department of Electronic Engineering / Beijing National Research Center for Information Science and Technology
Beijing, China

Nov. 2020–Nov. 2022

Education

Hong Kong University of Science and Technology

Ph.D. in Electronic and Computer Engineering
Hong Kong SAR, China

Aug. 2014–Nov. 2020

University of Science and Technology of China

B.S. in Electronic Information Science and Technology
Hefei, Anhui, China

Sep. 2010–Jul. 2014

Selected Publications

[†] Equal contribution; [#] corresponding author.

1. Jianing Zhang, Yuchao Zheng, Ziwei Li, Qionghai Dai, **Xiaoyun Yuan[#]**. “GBR: Generative Bundle Refinement for High-Fidelity Gaussian Splatting with Enhanced Mesh Reconstruction.” *IEEE Transactions on Circuits and Systems for Video Technology (TCSVT)*, 2025.
2. Minchong Chen[†], **Xiaoyun Yuan^{†#}**, Junzhe Wan, Jianing Zhang, Jun Zhang. “3M-TI: High-Quality Mobile Thermal Imaging via Calibration-Free Multi-Camera Cross-Modal Diffusion.” *IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR)*, 2026.

3. Jianing Zhang, Jiayi Zhu, Feiyu Ji, Xiaokang Yang, **Xiaoyun Yuan**[#]. "Degradation-Modeled Multipath Diffusion for Tunable Metalens Photography." *IEEE/CVF International Conference on Computer Vision (ICCV)*, 2025.
4. Tingyu Yang, Yuan Cheng, **Xiaoyun Yuan**[#]. "LUCID: Learning Unified Control for Image Deflaring and Exposure Mastery in Nighttime Photography." *ACM SIGGRAPH*, 2026.
5. **Xiaoyun Yuan**[†], Jianing Zhang[†], Youhai Liu, Yichen Wang, Lu Fang[#]. "A Skin-Conformal Rigid-in-Soft Array-Based Imaging System." *Nature Communications*, 2026.
6. **Xiaoyun Yuan**, Yong Wang, Zhihao Xu, Tiankuang Zhou, Lu Fang[#]. "Training Large-Scale Optoelectronic Neural Networks with Dual-Neuron Optical-Artificial Learning." *Nature Communications*, 2023.
7. Shuai Na[†], Jonathan J. Russin[†], Li Lin[†], **Xiaoyun Yuan**[†], Peng Hu, Kay B. Jann, Lirong Yan, Konstantin Maslov, Junhui Shi, Danny J. Wang, Charles Y. Liu[#], Lihong V. Wang[#]. "Massively Parallel Functional Photoacoustic Computed Tomography of the Human Brain." *Nature Biomedical Engineering*, 2022.
8. Zhiyang Yao[†], Shuyang Liu[†], Yingce Wang[†], **Xiaoyun Yuan**, Lu Fang[#]. "Integrated Lithium Niobate Photonics for Sub-Angstrom Snapshot Spectroscopy." *Nature*, 2025.
9. **Xiaoyun Yuan**[†], Mengqi Ji[†], Jiamin Wu, David J. Brady, Qionghai Dai, Lu Fang[#]. "A Modular Hierarchical Array Camera." *Light: Science & Applications*, 2021.
10. Zhihao Xu[†], **Xiaoyun Yuan**[†], Tiankuang Zhou, Lu Fang[#]. "A Multichannel Optical Computing Architecture for Advanced Machine Vision." *Light: Science & Applications*, 2022.
11. **Xiaoyun Yuan**[†], Difei Tang[†], Yebin Liu, Qing Ling, Lu Fang[#]. "Magic Glasses: From 2D to 3D." *IEEE Transactions on Circuits and Systems for Video Technology (TCSVT)*, 2017.
12. Jianing Zhang[†], Tianyi Zhu[†], Anke Zhang[†], **Xiaoyun Yuan**[†], Zihan Wang, Sebastian Beetschen, Lan Xu, Xing Lin, Qionghai Dai, Lu Fang[#]. "Multiscale-VR: Multiscale Gigapixel 3D Panoramic Videography for Virtual Reality." *IEEE International Conference on Computational Photography (ICCP)*, 2020.
13. **Xiaoyun Yuan**, Lu Fang[#], Qionghai Dai, David J. Brady, Yebin Liu[#]. "Multiscale Gigapixel Video: A Cross-Resolution Image Matching and Warping Approach." *IEEE International Conference on Computational Photography (ICCP)*, 2017.

Honors and Awards

- **Selected for the 7th CAST Young Elite Scientists Sponsorship Program (YESS)**, 2021–2023.
- **First Prize, Beijing Municipal Technology Invention Award**, 2021 (ranked 5/7), for key technologies and equipment in unstructured light-field intelligent imaging.
- **Best Paper Award**, SPIE Photons Plus Ultrasound: Imaging and Sensing, 2021.