

# ZHIIHAO XIA

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## RESEARCH INTERESTS

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My research interests include computer vision, computational photography, and machine learning. I am particularly interested in building methods that can recover different aspects of visual appearance (geometry, light, colors, etc.) from images, by using both physics-based reasoning and machine learning.

## EDUCATION

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**Washington University in St. Louis** *Sep 2017 - Jun 2021*  
Ph.D. in Computer Science & Engineering      Advisor: Ayan Chakrabarti

**University of Science and Technology of China** *Sep 2013 - Jun 2017*  
B.S. in Computer Science, School of the Gifted Young  
Honor: National Scholarship (Top 2%)

## EXPERIENCE

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**Adobe** Jun 2021 - Present  
*Research Scientist II* CA, USA

- Using computational photography and machine learning to build next-gen camera for mobile devices.
- Lead a small team of researchers to develop novel computational photography algorithms.

**Google Research** May 2020 - Dec 2020  
*Research Intern* WA, USA

- Worked with Supreeth Achar and Jason Lawrence on face relighting and normal estimation under challenging visible light environments by supplementing a near-infrared image.

**Adobe Research** May 2019 - Aug 2019  
*Research Intern* CA, USA

- Worked with Federico Perazzi, Michaël Gharbi, Kalyan Sunkavalli on Basis Prediction Networks.
- Research was transferred into products and published in CVPR 2020.

**Washington University in St. Louis** Sep 2017 - Jun 2021  
*Research Assistant* MO, USA

- Member of WashU vision and learning group directed by Prof. Ayan Chakrabarti.
- Computer Vision, Computational Photography and Deep Learning.

**King Abdullah University of Science and Technology** Jan 2017 - May 2017  
*Visiting Student Researcher* Jeddah, SAU

- Worked with Prof. Xin Gao on recognition of polyadenylation signal (PAS) in human and mouse genes with CNN.

**National University of Singapore** July 2016 - Nov 2016  
*Visiting Student Researcher* Singapore

- Worked with Prof. Richard Ma on investigating Internet topology with Multiple Hidden Markov Chains.

1. Haiwen Feng, Zheng Ding, **Zhihao Xia**, Simon Niklaus, Victoria Abrevaya, Michael J. Black, Xuaner Zhang. “Explorative Inbetweening of Time and Space”, *ECCV*, 2024.
2. Zheng Ding, Xuaner (Cecilia) Zhang, **Zhihao Xia**. “Restoration by Generation with Constrained Priors”, *CVPR*, 2024.
3. Goutam Bhat, Michaël Gharbi, Jiawen Chen, Luc Van Gool, **Zhihao Xia**. “Self-Supervised Burst Super-Resolution”, *ICCV*, 2023.
4. Zheng Ding, Xuaner (Cecilia) Zhang, **Zhihao Xia**, Lars Jebe, Zhuowen Tu, Xiuming Zhang. “DiffusionRig: Learning Personalized Priors for Facial Appearance Editing”, *CVPR*, 2023.
5. Ke Wang, Michaël Gharbi, He Zhang, **Zhihao Xia**, Eli Shechtman. “Semi-supervised Parametric Real-world Image Harmonization”, *CVPR*, 2023.
6. Ethan Tseng, Yuxuan Zhang, Lars Jebe, Xuaner (Cecilia) Zhang, **Zhihao Xia**, Yifei Fan, Felix Heide\*, Jiawen Chen\* “Neural Photo-Finishing”, *SIGGRAPH Asia*, 2022.
7. Ilya Chugunov, Yuxuan Zhang, **Zhihao Xia**, Xuaner (Cecilia) Zhang, Jiawen Chen, Felix Heide. “The Implicit Values of A Good Hand Shake: Handheld Multi-Frame Neural Depth Refinement”, *CVPR*, 2022 (**Oral**).
8. **Zhihao Xia**, Jason Lawrence, Supreeth Achar. “A Dark Flash Normal Camera”, *ICCV*, 2021.
9. **Zhihao Xia**, Michaël Gharbi, Federico Perazzi, Kalyan Sunkavalli, Ayan Chakrabarti. “Deep Denoising of Flash and No-Flash Pairs for Photography in Low-Light Environments”, *CVPR*, 2021.
10. **Zhihao Xia**, Federico Perazzi, Michaël Gharbi, Kalyan Sunkavalli, Ayan Chakrabarti. “Basis Prediction Networks for Effective Burst Denoising with Large Kernels”, *CVPR*, 2020.
11. **Zhihao Xia**, Patrick Sullivan, Ayan Chakrabarti. “Generating and Exploiting Probabilistic Monocular Depth Estimates”, *CVPR*, 2020 (**Oral**).
12. **Zhihao Xia** and Ayan Chakrabarti. “Identifying Recurring Patterns with Deep Neural Networks for Natural Image Denoising”, *WACV*, 2020.
13. **Zhihao Xia** and Ayan Chakrabarti. “Training Image Estimators without Image Ground-Truth”, *NeurIPS*, 2019 (**Spotlight**)
14. **Zhihao Xia**, Yu Li, Bin Zhang, Yuhui Hu, Wei Chen and Xin Gao. “DeeReCT-PolyA: a robust and generic deep learning method for PAS identification”, *Bioinformatics*, 2018.
15. Yu Sun, **Zhihao Xia** and Ulugbek S. Kamilov. “Efficient and accurate inversion of multiple scattering with deep learning”, *Optics express* 26(11): 14678-14688, 2018.

## **SKILLS**

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Python: Numpy, Tensorflow, PyTorch. C/C++. Matlab

## **SERVICE**

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- Reviewer for IJCV, TIP, CVPR, ICCV, IJCAI, WACV
- Assistant to Instructor, WashU Fall 2018 CSE 559A: Computer Vision. Developed and held recitation lectures, assisted with grading, staffed office hours to assist students
- Co-organizer: WashU CS Graphics, Vision, and Imaging Seminar, Fall 2019 and Spring 2020