

# QI ZHANG

✉ nwpuzhang@gmail.com · ☎ (+86) 151-0922-4116 · 🏠 Home Page · 🌐 +Qi Zhang

## 🎓 EXPERIENCE

---

**Tencent AI Lab**, Shenzhen, China 2021.06 – Present  
*Researcher* Neural Rendering & AIGC

## 🎓 EDUCATION

---

**Northwestern Polytechnical University (NWPU)**, Shaanxi, China 2015.09 – 2021.04  
*PhD in Computer Science (CS)*

◆ Advisor: Qing Wang

**The Australian National University (ANU)**, Canberra, Australia 2019.07 – 2020.08  
*Research Assistant*

◆ Advisor: Hongdong Li

**Northwestern Polytechnical University (NWPU)**, Shaanxi, China 2013.09 – 2016.03  
*Master of Science in Electronics Engineering (EE)*

## 🔍 RESEARCH INTERESTS

---

- **3D Vision**: Neural Rendering · AIGC · Relighting · 3D Reconstruction
- **Computational Photography**: AIGC · Content-aware Rectification · Imaging Processing · Light Field

## 🎓 PUBLICATIONS \* INDICATES EQUAL CONTRIBUTION

---

**CVPR ×18, SIGGRAPH ×2, AAAI ×1** are premier conferences in Computer Vision and Graphics.  
**IEEE TPAMI ×3, IJCV ×2, and TIP ×1** are top journals in Computer Vision and Graphics.

### • AIGC & Diffusion Model

1. Xiaoyu Li\*, **Qi Zhang\***, Di Kang, Weihao Cheng, Yiming Gao, Jingbo Zhang, Zhihao Liang, Jing Liao, Yan-Pei Cao, Ying Shan. Advances in 3D Generation: A Survey[J]. Submit to *IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)*, 2024.
2. Xiangyu Liu\*, Ying Feng\*, **Qi Zhang\***, Li Yi, Ping Tan. AvatarEditor: Text-driven Editing Animatable 3D Head Avatars[C], Submit to *European Conference on Computer Vision (ECCV)*, 2024
3. Xin Huang\*, Ruizhi Shao\*, **Qi Zhang**, Hongwen Zhang, Ying Feng, Yebin Liu, Qing Wang. HumanNorm: Learning Normal Diffusion Model for High-quality and Realistic 3D Human Generation[C]. *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2024.
4. Jingbo Zhang, Xiaoyu Li, **Qi Zhang**, Yanpei Cao Ying Shan, Jing Liao. HumanRef: Single Image to 3D Human Generation via Reference-Guided Diffusion[C]. *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2024.
5. Xiangjun Gao, Xiaoyu Li, Chaopeng Zhang, **Qi Zhang**, Yanpei Cao, Ying Shan, Long Quan. ConTex-Human: Free-View Rendering of Human from a Single Image with Texture-Consistent Synthesis[C]. *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2024.
6. Zhian Liu, Maomao Li, Yong Zhang, Cairong Wang, **Qi Zhang**, Jue Wang, Yongwei Nie. Fine-Grained Face Swapping via Regional GAN Inversion[C]. *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2023.

7. Jingxiang Sun, Xuan Wang, Yong Zhang, Xiaoyu Li, **Qi Zhang**, Yebin Liu, Jue Wang. FEN-eRF: Face Editing in Neural Radiance Fields[C]. *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2022. Project Page
- **3DV & Neural Rendering**
  1. Yiyu Zhuang\*, **Qi Zhang**\*, Xuan Wang, Hao Zhu, Ying Feng, Xiaoyu Li, Ying Shan, Xun Cao. NeIF: A Pre-convolved Representation for Plug-and-Play Neural Illumination Fields[C]. *AAAI*, 2024. (CCF A)
  2. Yiyu Zhuang\*, **Qi Zhang**\*, Ying Feng, Hao Zhu, Yao Yao, Xiaoyu Li, Yan-Pei Cao, Ying Shan, Xun Cao. Anti-aliased Neural Implicit Surfaces with Encoding Level of Detail[C]. *SIGGRAPH Asia*, 2023. (CCF A)
  3. Zhihao Liang\*, **Qi Zhang**\*, Ying Feng, Ying Shan, Kui Jia. GS-IR: 3d Gaussian Splatting for Inverse Rendering[C]. *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2024. (CCF A)
  4. Zhen Liu\*, Hao Zhu\*, **Qi Zhang**, Jingde Fu, Weibing Deng Zhan Ma, Yanwen Guo Xun Cao. FINER: Flexible spectral-bias tuning in Implicit NEural Representation by Variable-periodic Activation Functions[C]. *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2024.
  5. Hao Zhu, Shaowen Xie, Zhen Liu, Fengyi Liu, **Qi Zhang**, You Zhou, Yi Lin, Zhan Ma, Xun Cao. Disorder-invariant Implicit Neural Representation, *IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)*, 2024.
  6. Xin Huang, **Qi Zhang**, Ying Feng, Xiaoyu Li, Xuan Wang, Qing Wang. Local Implicit Ray Function for Generalizable Radiance Field Representation[C]. *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2023.
  7. Junyu Zhu, Hao Zhu, **Qi Zhang**, Fang Zhu, Zhan Ma, Xun Cao. Pyramid NeRF: Frequency Guided Fast Radiance Field Optimization[C]. *International Journal of Computer Vision (IJCV)*, 2023. (IF: 13.369, JCR Q1)
  8. Shaowen Xie\*, Hao Zhu\*, Zhen Liu\*, **Qi Zhang**, You Zhou, Xun Cao, Zhan Ma. DINER: Disorder-Invariant Implicit Neural Representation[C]. *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2023. (Highlight, 2.5%)
  9. Yue Chen, Xuan Wang, Xingyu Chen, **Qi Zhang**, Xiaoyu Li, Yu Guo, Jue Wang, Fei Wang. UV Volumes for Real-time Rendering of Editable Free-view Human Performance[C]. *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2023.
  10. Yue Chen\*, Xingyu Chen\*, Xuan Wang, **Qi Zhang**, Yu Guo, Ying Shan, Fei Wang. Local-to-Global Registration for Bundle-Adjusting Neural Radiance Fields[C]. *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2023.
  11. Li Ma, Xiaoyu Li, Jing Liao, Xuan Wang, **Qi Zhang**, Jue Wang, Pedro V. Sander, Neural Parameterization for Dynamic Human Head Editing. *ACM Transactions on Graphics (TOG)*, 2022, 41(6): 1-15.
  12. **Qi Zhang**\*, Ying Feng\*, Hongdong Li. Physically Plausible Color Correction for Neural Radiance Fields[C], Submit to *European Conference on Computer Vision (ECCV)*, 2024
  13. Zhihao Liang\*, **Qi Zhang**\*, Wenbo Hu, Ying Feng, Kui Jia. Analytic-Splatting: Anti-Aliased 3D Gaussian Splatting via Analytic Integration[C], Submit to *European Conference on Computer Vision (ECCV)*, 2024
  14. Yiyu Zhuang\*, **Qi Zhang**\*, Xiaoyu Li, Qinhui Yang, Hao Zhu, Ying Feng, Xun Cao. Teth-

ered 3D Gaussians for Real-Time Rendering of Dynamic Humans[C], Submit to *European Conference on Computer Vision (ECCV)*, 2024

15. Xinxin Liu\*, **Qi Zhang\***, Xin Huang, Ying Feng, Qing Wang. H2O-NeRF: Radiance Fields Reconstruction for Two-Hand-Held Objects[J]. Submit to *IEEE Transactions on Visualization and Computer Graphics*, 2024
16. Zhihao Liang, **Qi Zhang**, Yirui Guan, Ying Feng, Xiaoyu Li, Kui Jia. IR-Pro: Baking Probes to Model Indirect Illumination for Inverse Rendering of Complex Scenes[J]. Submit to *IEEE Transactions on Visualization and Computer Graphics*, 2024

• **Computational Photography**

1. **Qi Zhang**, Hongdong Li. Blind Geometric Distortion Rectification on Images via Diffusion Model[C]. Submit to *ECCV*, 2024.
2. Xin Huang\*, **Qi Zhang\***, Ying Feng, Hongdong Li, Qing Wang. LTM-NeRF: 3D Local Tone Mapping Embedded HDR Neural Radiance Field[J]. Submit to *IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)*, 2024.
3. **Qi Zhang**, Hongdong Li, Qing Wang. Wide-angle Rectification via Content-aware Conformal Mapping[C]. *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2023. (CCF A)
4. Xin Huang, **Qi Zhang**, Ying Feng, Hongdong Li, Qing Wang. Inverting the Imaging Process by Learning an Implicit Camera Model[C]. *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2023.
5. Xin Huang, **Qi Zhang**, Ying Feng, Hongdong Li, Xuan Wang, Qing Wang. HDR-NeRF: High Dynamic Range Neural Radiance Fields[C]. *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2022. Project Page
6. Xingyu Chen, **Qi Zhang**, Xiaoyu Li, Yue Chen, Ying Feng, Xuan Wang, Jue Wang. Hal-lucinated Neural Radiance Fields in the Wild[C]. *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2022. Project Page
7. Li Ma, Xiaoyu Li, Jing Liao, **Qi Zhang**, Xuan Wang, Jue Wang, Pedro V. Sander. Deblur-NeRF: Neural Radiance Fields from Blurry Images[C]. *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2022. Project Page
8. **Qi Zhang**, Qing Wang, Hongdong Li, Jingyi Yu. Ray-Space Epipolar Geometry for Light Field Cameras[J]. *IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)*, 2022, 44 (7), 3705-3718. (IF: 24.314, JCR Q1, the No.1 journal in Computer Vision and Artificial Intelligence)
9. **Qi Zhang**, Chunping Zhang, Jinbo Ling, Qing Wang, Jingyi Yu. A Generic Multi-Projection-Center Model and Calibration Method for Light Field Cameras[J]. *IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)*, 2019, 41(11): 2539-2552. (IF: 24.314, JCR Q1, the No.1 journal in Computer Vision and Artificial Intelligence)
10. **Qi Zhang**, Hongdong Li, Qing Wang. 3D Scene Reconstruction with an Un-Calibrated Light Field Camera[J]. *International Journal of Computer Vision (IJCV)*, 2021, 129 (11): 3006-3026. (IF: 13.369, JCR Q1)
11. **Qi Zhang**, Jinbo Ling, Qing Wang, Jingyi Yu. Ray-Space Projection Model for Light Field Camera[C]. *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2019: 10121-10129. (CCF A)
12. Hao Zhu, **Qi Zhang**, Qing Wang, Hongdong Li. 4D Light Field Superpixel and Segmenta-

- tion[J]. *IEEE Transactions on Image Processing (TIP)*, 2020, (29): 85-99. (IF: 11.041, JCR Q1)
13. Hao Zhu, **Qi Zhang**, Qing Wang. 4D Light Field Superpixel and Segmentation[C]. *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2017: 6709-6717.
  14. Ren Zhao, **Qi Zhang**, Hao Zhu, Qing Wang. Extending the FOV from Disparity and Color Consistencies in Multiview Light Fields[C], *IEEE International Conference on Image Processing (ICIP)* 2017: 1157-1161.
  15. Hao Zhu, Xiaoming Sun, **Qi Zhang**, Qing Wang, Antonio Robles-Kelly, Hongdong Li, Shaodi You. Full view optical flow estimation leveraged from light field superpixel. *IEEE Transactions on Computational Imaging (TCI)*, 2019, (6): 12-23.
  16. Xue Wang, Yingying Dong, **Qi Zhang**, Qing Wang. Region-based Depth Feature Descriptor for Saliency Detection on Light Field[J]. *Multimedia Tools and Applications*, 2020.

## ♡ HONORS AND SERVICE

---

### • Honors

- Tencent Outstanding Contributor 2022 H1, 2023H1
- Tencent AI Lab SEVP Outstanding Individual Award 2021 H2, 2022 H2, 2023H2
- CCF Outstanding Doctoral Dissertation Award Nominee 2021
- ACM Xi'an Doctoral Dissertation Award 2021
- First-Class Graduate Scholarship, NWPU (Top 5%) 2013, 2015, 2018
- Innovation Foundation for Doctor Dissertation of NWPU (**Key Project, Excellent conclusion**) 2018
- Seed Foundation of Innovation and Creation for Graduate Students in NWPU 2014

### • Service

- Reviewing for Journals, e.g **TPAMI, TIP, TOG, TCI** etc
- Reviewing for Conferences, e.g **CVPR, ICCV, ECCV, SIGGRAPH**, etc

## ★ TALKS

---

- Anti-aliased Neural Implicit Surfaces with Encoding Level of Detail 2023.12  
*SIGGRAPH Asia, Australia*
- High-Fidelity Dight Human Reconstruction 2023.11  
技术人说, 腾讯程序员视频号, *China*
- Neural Camera and Its Corresponding Applications 2023.4  
*Tichi Talk, China*
- Neural Radiance Fields and Light Field Imaging 2021.11  
*NWPU, China*
- Motion Stabilization of Light Field Camera 2018.12  
*ACCV 2018 Tutorial, Australia*
- Extending the FOV from Disparity and Color Consistencies in Multiview Light Fields 2017.9  
*ICIP 2017, China*

1. 张琦, 王庆, 李亚宁, 周果清, 王雪. 一种基于多中心投影模型的光场相机标定方法 [P]. ZL 201910547290.4, 申请日: 2019-6-24, 授权日: 2022-5-3.
2. 张琦, 王庆, 李亚宁, 周果清, 王雪. 一种基于多中心投影模型的光场相机参数估计方法 [P]. ZL 201910547317.X, 申请日: 2019-6-24, 授权日: 2022-9-6.
3. 张琦, 王庆, 李亚宁, 周果清, 王雪. 一种基于普朗克参数化的光场相机标定方法 [P]. ZL 201910547293.8, 申请日: 2019-6-24, 授权日: 2022-9-6.
4. 张琦, 王庆, 李亚宁, 周果清, 王雪. 一种基于光场基本矩阵的多视光场成像系统全参数估计方法 [P]. ZL 201910547316.5, 申请日: 2019-6-24, 授权日: 2022-9-6.
5. 张琦, 庄义昱, 冯莹, 李小雨, 王璇, 朱昊. 一种支持即插即用的神经环境光场技术 [P]. 2022120357CN, 申请日: 2023-03-15.
6. 冯莹, 张琦. 一种用于神经渲染技术的色差图像颜色校正方法 [P]. 2022120394CN, 申请日: 2023-02-22.
7. 王璇, 陈悦, 张琦, 李小雨. 基于 UV 体素方法的人体运动的可编辑自由视点实时渲染方法 [P]. 2022020407CN, 申请日: 2022-03-28.
8. 李小雨, 陈本旺, 王璇, 张琦. 一种基于文本驱动的三维人脸动画生成方法 [P]. 2022110905CN, 申请日: 2023-03-22.
9. 朱昊, 刁政宇, 李小雨, 张琦, 嵇歆雅, 陆元勋, 何倩芸, 曹汛. 一种高保真参数化语音驱动人脸自由视点渲染方法 [P]. 2023080476CN, 申请日: 2022-11-30.
10. 张琦, 梁智灏, 冯莹, 李小雨. 一种面向复杂场景的基于神经渲染的间接光照缓存方法 [P]. 2024020007CN, 申请日: 2024-02-04.
11. 冯莹, 张琦, 张潮鹏, 杜楠. 一种基于空间分解和 3D 高斯的新视点渲染方法 [P]. 评审中
12. 张琦, 冯莹. 一种用于材质解耦的光照姿态和强度的联合优化方法 [P]. 评审中
13. 张琦, 冯莹. 一种用于 3D 高斯和直方分布的色差图像颜色校正方法 [P]. 评审中