XIN HUANG（黄鑫）

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EDUCATION

- **Northwestern Polytechnical University (NPU), China** 09/2020 - Present
  - PhD candidate in Computer Science (Expected Graduation: 06/2025)
  - Supervisor: Prof. Qing Wang
- **Northwestern Polytechnical University (NPU), China** 09/2016 - 07/2020
  - Bachelor of Engineering, Computer Science
  - Supervisor: Prof. Qing Wang
  - Outstanding Graduate (Top 6%)

INTERESTS

3D Content Generation; Novel View Synthesis (NeRF, 3D GS); Computational Photography.

PUBLICATIONS

- **Material Anything: Generating Materials for Any 3D Object via Diffusion** Submission
  Xin Huang, Tengfei Wang, Ziwei Liu, Qing Wang
- **HumanNorm: Learning Normal Diffusion Model for High-quality and Realistic 3D Human Generation** CVPR, 2024
  Xin Huang*, Ruizhi Shao*, Qi Zhang, Hongwen Zhang, Ying Feng, Yebin Liu, Qing Wang
- **LTM-NeRF: Embedding 3D Local Tone Mapping in HDR Neural Radiance Field** TPAMI, 2024
  Xin Huang, Qi Zhang, Ying Feng, Hongdong Li, Qing Wang
- **Local Implicit Ray Function for Generalizable Radiance Field Representation** CVPR, 2023
  Xin Huang, Qi Zhang, Ying Feng, Xiaoyu Li, Xuan Wang, Qing Wang
- **Inverting the Imaging Process by Learning an Implicit Camera Model** CVPR, 2023
  Xin Huang, Qi Zhang, Ying Feng, Hongdong Li, Qing Wang
- **HDR-NeRF: High Dynamic Range Neural Radiance Fields** CVPR, 2022
  Xin Huang, Qi Zhang, Ying Feng, Hongdong Li, Xuan Wang, Qing Wang
- **Stereo Unstructured Magnification: Multiple Homography Image for View Synthesis** arXiv, 2022
  Qi Zhang*, **Xin Huang***, Ying Feng, Xue Wang, Hongdong Li, Qing Wang
- **SA-AE for Any-to-any Relighting** ECCV, Workshops, 2020
  Zhongyun Hu, **Xin Huang**, Yaning Li, Qing Wang

EXPERIENCE

- **Shanghai AI Lab, China** 02/2024 - 10/2024
  - Topic: 3D Objects Painting with Materials
  - Mentors: Tengfei Wang, Ziwei Liu
  - Description: We propose a feedforward method that can generate PBR materials for 3D objects. The key idea is designing a material diffusion model to estimate albedo, roughness, metallic, and bump maps from a generated image with messy lighting. **The paper is submitted to CVPR 2025**.
- **Tsinghua University, China** 06/2023 - 01/2024
  - Topic: 3D Human Generation
  - Supervisor: Yebin Liu
  - Description: We propose a method for high-quality and realistic 3D human generation from given prompts. Normal-adapted and depth-adapted diffusion models are introduced to improve the geometry quality. A multi-step SDS loss is proposed to achieve realistic texture generation. This work has been published in CVPR 2024.

- **Visual Computing Center @ Tencent AI Lab, China** 08/2021 - 05/2023
  - Topic: Neural Radiance Fields (NeRF) and Neural Camera
  - Mentor: Qi Zhang
  - We combine NeRF with the camera's imaging process. We propose a neural camera to model the camera response function for HDR NeRF, the point spreading function for image and video deblurring, and the local ray function for novel view super-resolution. **All four works have been published in CVPR 2022, 2023, and TPAMI 2024**.

PROJECTS

- **Neural Layered Fusion for Light Field Reconstruction via Focal Stack** 07/2020 - 11/2020
  Light field reconstruction from four sparse views faces challenges with occlusions. To tackle this, we propose a method for dense view synthesis by constructing multi-plane images from focal stacks.
- **AIM 2020 Relighting Challenge: Any-to-any Relighting (First Place)** 05/2020 - 07/2020
  We present a novel automatic model with a self-attention auto-encoder for generating a relighting image from a source image to match the illumination setting of a guide image.
- **Dancing Team Leader - NPU Dancing Robot Research & Training Base** 07/2017 - 09/2019
  Presenting a 3-minute dance show using self-designed humanoid dancing robots. My main duty was designing and coding software for the motion editing of robots.

HONORS & AWARDS

- **China National Scholarship**, 2024.
- **Outstanding Graduate Student (Top 6%)** in Northwestern Polytechnical University, 2020.
- **Champion** in China Robot Competition - Dancing Robots Project, 08/2019.
- **Champion** in China Robot Competition - Dancing Robots Project, 08/2018.
- **Meritorious Winner (Top 7.2%)** in International Mathematical Contest in Modeling (MCM), 02/2018
- **First Prize ($7,200)** in Face Recognition Hackathon, Shaanxi, China, 11/2017.
- **Outstanding Students** in Northwestern Polytechnical University, 2017 and 2019.

SKILLS & SERVICES

- Programming Languages: Python, Matlab, C, LaTeX
- Libraries and Frameworks: Pytorch, Diffusers, ThreeStudio, Docker
- Others: Linux, Git, Bash
- Reviewer: CVPR, ICCV, ECCV, SIGGRAPH, AAAI, ACCV, TVCG