Zilin Xu

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EDUCATION

Ph.D. in Computer Science, advised by Prof. Ling-Qi Yan **2023 - Present**
Mohamed bin Zayed University of Artificial Intelligence Abu Dhabi, UAE
2025 - Present

University of California, Santa Barbara Santa Barbara, CA, USA
2023 - 2025
*Started Ph.D. at UCSB, transferred with advisor to MBZUAI in 2025

M.Eng. in Software Engineering, advised by Prof. Lu Wang **2020 - 2023**
Shandong University Jinan, China
*Ranked 1st in the major

B.Eng. in Software Engineering **2016 - 2020**
Shandong University Jinan, China

RESEARCH INTERESTS

Real-time Neural Appearance → Rendering → Computer Graphics
My research focuses on leveraging neural techniques for efficient and accurate appearance representation, with a special emphasis on real-time performance. It also explores advanced features (e.g., dynamic synthesis) that are challenging for traditional methods.

SELECTED PUBLICATIONS

Real-Time Neural Materials on Mobile VR **2026**
Zilin Xu, Yang Zhou, Yehonathan Litman, Matt Jen-Yuan Chiang, Ling-Qi Yan, Anton Michels
Computer Graphics Forum (Proceedings of ***Eurographics 2026***)

Improving Angular Parameterization for Compact Neural Materials **2025**
Zilin Xu, Yang Zhou, Yehonathan Litman, Ling-Qi Yan, Anton Michels
SIGGRAPH Asia 2025 - Poster

Towards Comprehensive Neural Materials: Dynamic Structure-Preserving Synthesis with Accurate Silhouette at Instant Inference Speed **2025**
Zilin Xu, Xiang Chen, Chen Liu, Beibei Wang, Lu Wang, Zahra Montazeri, Ling-Qi Yan
SIGGRAPH 2025
*Video clips featured in the Technical Papers Trailer.

A Dynamic By-example BTF Synthesis Scheme **2024**
Zilin Xu, Zahra Montazeri, Beibei Wang, Ling-Qi Yan
SIGGRAPH Asia 2024

Lightweight Neural Basis Functions for All-Frequency Shading **2022**
Zilin Xu, Zheng Zeng, Lifan Wu, Lu Wang, Ling-Qi Yan
SIGGRAPH Asia 2022

Unsupervised Image Reconstruction for Gradient-Domain Volumetric Rendering **2020**
Zilin Xu, Qiang Sun, Lu Wang, Yanning Xu, Beibei Wang
Computer Graphics Forum (Proceedings of ***Pacific Graphics 2020***)

Non-first author papers:
Ray-aligned Occupancy Map Array for Fast Approximate Ray Tracing **2023**
Zheng Zeng, **Zilin Xu**, Lu Wang, Lifan Wu, Ling-Qi Yan
Computer Graphics Forum (Proceedings of ***Eurographics Symposium on Rendering 2023***)

Neural Complex Luminaires: Representation and Rendering **2021**
Junqiu Zhu, Yaoyi Bai, **Zilin Xu**, Steve Bako, Edgar Velázquez-Armendáriz, Lu Wang, Pradeep Sen, Miloš Hašan, Ling-Qi Yan
Transactions on Graphics (Proceedings of ***SIGGRAPH 2021***)

TECHNICAL WRITING

Towards Comprehensive Neural Materials **2025**
Zilin Xu, Xiang Chen, Beibei Wang, Lu Wang, Zahra Montazeri, Ling-Qi Yan
GPU Zen 4 - Advanced Rendering Techniques

WORK EXPERIENCE

Research Scientist Intern — **Starting soon in May 2026**
Meta Reality Labs - Meta Platforms, Inc. — Redmond, WA, USA
Real-time neural assets rendering.

Research Scientist Intern — **June 16 - Sept. 19 2025**
Meta Reality Labs Research - Meta Platforms, Inc. — Redmond, WA, USA
Real-time Neural Materials on Mobile VR (Meta Quest3). We studied how to render complicated neural materials efficiently on low-power VR devices. We have managed to achieve an impressive real-time rendering performance ($\leq$ 90 FPS) on Meta Quest 3 without compromising quality.
I'm one of the top-rated intern at Reality Labs 2025!

Graphics Development Engineer Intern — **June 17 - Sept. 6 2024**
Autodesk, Inc. — (Remote from) Santa Barbara, CA, USA
Advanced 3D Wood Material and By-example Texture Synthesis in MaterialX. Implemented a procedural 3D wood material as a general compound node graph in MaterialX (an open-source project).It is able to simulate many types of wood visual effects including growth rings, pores, wood rays, etc.

TEACHING EXPERIENCE

CS190I: Introduction to Offline Rendering — **Winter 2024**
Teaching Assistant ***@University of California, Santa Barbara*** — Santa Barbara, CA, USA
Led weekly office hours and biweekly discussion sections. Collaborated with another TA to develop the course rendering framework, design assignments and exams, grade the course's project.

Advanced Programming Language (Java) — **Fall 2020**
Teaching Assistant ***@Shandong Univerisity*** — Jinan, China
Led weekly coding lab.

INVITED TALKS

Towards Comprehensive Neural Materials — **Sept. 2025**
State-of-the-Art Methods for Neural Materials @Shandong University — Jinan, China

Novel Rendering Methods under the New Paradigm — **Aug. 2025**
Graphics And Mixed Environment Symposium (GAMES) Webinar — Online, China
https://www.bilibili.com/video/BV1BEaPzBEWJ/

Towards Comprehensive Neural Materials — **May 2025**
Southern California Rendering Day 2025 @University of California, San Diego — San Diego, CA, USA

Dynamic BTF Synthesis — **Mar. 2024**
Southern California Rendering Day 2024 @University of California, Irvine — Irvine, CA, USA

Neural Complex Luminaires: Representation and Rendering — **Oct. 2021**
CCF International Conference on CAD&CG 2020/2021 @Dalian University of Technology — Dalian, China

PROFESSIONAL SERVICES

Conference reviewer: *SIGGRAPH* 2024-2026, *SIGGRAPH Asia* 2024, 2025, *Eurographics* 2024-2026, *Pacific Graphics* 2023-2025
Journal reviewer: *Transactions on Graphics* (TOG), *Transactions on Visualization and Computer Graphics* (TVCG), *Computer Graphics Forum* (CGF)

PROFESSIONAL SKILLS

Programming Languages: C/C++, CUDA, Python, Shader languages (Slang/HLSL/GLSL)
Technical Skills: Pytorch, Falcor Renderer, Blender, Open 3D Engine, 3DS Max

SELECTED AWARDS

National Scholarship ($< 1\%$) — **2022**
Shandong University Chancellor's Scholarship Nomination ($< 0.1\%$) — **2022**
Weichai Outstanding Graduate Student Scholarship ($< 1\%$) — **2021**
Outstanding Graduate Student Award — **2022**
First Prize Scholarship of Shandong University — **2021**
***Intel Cup* National Software Innovation Competition (ranked #17 nationally)** — **2019**