

# Zihan Wang

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## PROFESSIONAL SUMMARY

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XR and Graphics-focused Computer Science M.S. candidate specializing in real-time rendering, graphics engine development, and immersive systems. Strong background in C++/HLSL, Unreal Engine, and OpenGL, with hands-on experience building rendering engines, physically based shading pipelines, and interactive VR research systems. Proven ability to design performance-critical graphics modules, optimize real-time pipelines, and translate research ideas into production-level prototypes. Seeking New Grad / Entry-Level roles in XR, graphics, rendering, or simulation engineering.

## CORE COMPETENCIES & TECHNICAL SKILLS

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**Languages:** C++, C, Python, Java, JavaScript

**Graphics & Rendering:** OpenGL, Vulkan, HLSL, PBR, real-time rendering, rendering pipelines, GPU programming

**Engines & XR:** Unreal Engine 5, Unity, OpenXR, Meta SDK, ARCore, ARKit, Vuforia

**Vision & AI:** PyTorch, TensorFlow, OpenCV, 3D Gaussian Splatting, computer vision

**Tools:** Git, Docker, Blender, Maya, RenderDoc, Nsight, Jira

## EDUCATION

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### Rochester Institute of Technology

Rochester, NY

*M.S. in Computer Science*

*Aug 2023 – Present*

- Relevant Coursework: Advanced Object-Oriented Programming, Foundations of Algorithms, Foundations of Computer Graphics, Computational Problem Solving, Foundations of Machine Learning, Foundations of Computer Vision

### Xiamen University

Xiamen, China

*B.S. in Digital Media Technology*

*Sep 2019 – Jun 2023*

- Relevant Coursework: C/C++ Programming, Data Structures, Operating Systems, Game Design, Game Development, Game Engine Design

## PROFESSIONAL EXPERIENCE

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### VR Developer (Research Studio)

Aug 2025 – Present

*MAGIC Spell Studios, Rochester Institute of Technology*

*Rochester, NY*

- Designed and implemented core VR system architecture in Unreal Engine 5, including interaction frameworks, character control pipelines, and scalable scene management systems.
- Built reusable XR modules to support rapid research prototyping and deployment across multiple experimental VR applications and public demos.
- Profiled and optimized real-time XR pipelines across CPU, GPU, and memory, reducing frame time variance and improving runtime stability for multi-session user studies.
- Collaborated closely with researchers and designers to translate perception and interaction research objectives into production-grade technical systems.

### Virtual Reality Developer Intern

Mar 2023 – Aug 2023

*NetEase, Inc.*

*Guangzhou, China*

- Developed core VR gameplay demos using Unity and Meta Quest, reducing frame drops by 15% through logic and rendering optimization.
- Improved interaction stability using geometric and mathematical modeling, increasing internal test engagement by 30%.
- Collaborated with designers, artists, and QA, shortening development cycles by 20% while maintaining feature quality.

### Unity Game Developer Intern

Jun 2022 – Aug 2022

*Alibaba Group*

*Hangzhou, China*

- Designed an optimized inventory and resource system, reducing memory usage by 25% and query latency by 30%.
- Worked cross-functionally to improve prototype usability, raising playtest satisfaction by 15%.
- Applied agile iteration workflows, increasing task completion efficiency by 10%.

## SELECTED PROJECTS

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- Real-Time 3D Asset Style Transfer** | Python, PyTorch, 3D Gaussian Splatting Dec 2025
- Designed and implemented a real-time 3D style transfer system based on StyleSplat, focusing on temporal stability.
  - Proposed a hybrid loss combining LPIPS perceptual loss and reprojection consistency to preserve geometry-aware structure.
  - Reduced warping error by 4% and eliminated temporal flickering across 8 NeRF-Synthetic scenes.
- Kulla-Conty BRDF Integration in UE5** | C++, HLSL, Unreal Engine 5 May 2025
- Implemented an offline Monte Carlo GGX integration tool to precompute multi-scattering BRDF lookup tables for energy-conserving shading.
  - Integrated custom HLSL shading nodes into Unreal Engine 5's material system, enabling physically accurate Fresnel response and multi-bounce energy compensation.
  - Validated results by comparing single- and multi-scattering BRDF behavior under varying roughness and lighting conditions.
- Uncanny Valley Exploration in VR** | Unity, Meta SDK Nov 2024
- Developed a research-oriented VR system studying facial realism and perceptual discomfort.
  - Reduced negative user feedback by 35% and improved perceived realism by 20% via refined facial tracking and visual tuning.
- Graphics Rendering Engine** | C++, OpenGL May 2024
- Developed a modular real-time rendering engine in C++ and OpenGL, implementing a full rendering pipeline including PBR shading, shadow mapping, HDR rendering, post-processing, and extensible global illumination.
  - Designed a flexible engine architecture with decoupled render passes, resource management, and shader systems to support scalable feature integration and rapid iteration.
  - Implemented ray tracing and super-sampling modules to benchmark real-time and offline rendering quality, enabling systematic evaluation of lighting models and anti-aliasing techniques.

## PAPERS & RESEARCH

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- The Impact of Visual Interface on Flow Experience in Video Games** Dec 2022
- Studied the influence of visual interface design on player immersion and flow states.
- Design and Development of Color Perception Treatment Video Game for Autistic Children** Oct 2022
- Investigated serious game design in therapeutic contexts for children on the autism spectrum.