

Tsingtao Zhang

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[LinkedIn](#), [Portfolio](#), [Github](#)

Skills

Game Engine and Graphics API: Unreal 5, Unity, OpenGL, Direct 3D 11

Programming Language: C/C++, C#, HLSL, GLSL, Python

Software: RenderDoc, Blender, Houdini, Photoshop, Substance Painter, Git, Perforce, Figma

Area of Focus: Asset Pipeline, Tool Development, Asset Creation, Procedural Content Generation, VR, Multiplayer

Work Experience

Role: Contract Technical Artist	July - Oct 2025
The Forge Interactive Inc. Using Blender, Substance Painter, PBR workflow, HLSL, Python	
- Optimized San Miguel scene assets for mobile platform demo by refining mesh topology, UV unwrapping, and textures through custom PBR pipeline , using Blender, Materialize, Photoshop, and Substance Painter to create high-poly details.	
- Collaborated with software engineers to design the asset creation workflow in a proprietary asset pipeline.	
- Using Python , automated file management, texture processing, and validation in The Forge's asset pipeline.	
- Collaborated with graphics programmers to provide technical requirements for particle systems, UI implementation, and save/load functionality, while delivering iterative feedback on feature development.	
- Developed particle and lighting effects using The proprietary particle editor for mobile platform, while resolving shading issues in legacy codebase using HLSL .	

Role: Graduate Research Assistant	June - Aug 2024
Rochester Institute of Technology Using VR, Unity, URP, Meta Quest, Android	
- Enhanced a VR exercise game by switching the render pipeline to URP and optimizing gameplay performance.	
- Optimized rendering and game logic, deployed a standalone app that can run directly in the Meta Quest headset, without the need of PC Link.	
- Designed and developed an physics-based aiming and block-avoiding AI shooter with character animations , enabling other researchers to guide users' limb positioning by easily setting the shooting position.	
- Parameterized in-game variables that are tuned during gameplay based on research data collection requirements.	
- Configured a wireless environment for seamless data and video streaming of headset imagery using Socket, reducing data collecting time from 5 min to 10 seconds per user test.	

Projects

Role: Technical Artist and Gameplay Programmer	Sep 2024 - June 2025
Duolatera: A VR Multiplayer Puzzle Game, using VR, Unreal 5, C/C++, Niagara, Python, Blender, Perforce, HLSL	
- Implemented procedural content generation assets using Unreal PCG Graph , and spline's auto-snapping tool using C++ and Blueprint , efficiently utilized 3D assets, reduced level layout time by 90%.	
- With 3D asset creating skills, established a custom asset production pipeline in an art bible, led an external art team of 5, trained 3 external 3D artists with custom pipeline and workflow.	
- Using Python and Unreal Editor Utilities Widget , designed and implemented an automated asset import tool , reduced 90% of related manual work.	
- Developed Python and PyQt-based tools , including a texture converter, asset renamer, and Blender validation plugin, automating asset workflows and eliminating key pipeline bottlenecks.	
- Created procedural and stylized material and VFX using Material Graph, HLSL, and Niagara system .	
- Rigged character avatars , and built IK retargeted/predicted avatar animation based on player's movement.	
- Implemented the online multiplayer gaming feature, allowing 2 players to cooperate remotely through Steam.	

Role: Technical Artist	July 2025 - now
A Runtime Procedural Tower Defense Game Prototype , using Unity, HLSL, RenderDoc, Unreal 5, Houdini	
- Developed a real-time procedural wall generator in Unity using compute shaders and Unity's low level graphics API , achieving 10K+ instances per frame at 50+ FPS on RTX 4060 (profiled using RenderDoc) by offloading spline-based instance transform calculations from CPU to GPU.	
- Implemented Centripetal Catmull-Rom spline evaluation and a distance lookup table in HLSL for efficient instance positioning and randomized segment lengths.	
- Created two similar procedural fences using Houdini and Unreal PCG Graph for comparison. Conducted cross-engine performance analysis, identifying limitations in runtime PCG updates through codebase investigation.	

Education

Rochester Institute of Technology , Rochester, NY. M.S., Game Design and Development	Aug 2023 - Aug 2025 GPA: 3.89
China Agricultural University , Beijing, China. B.Eng., Agricultural Structure Environment Engineering	Sep 2018 - June 2022 GPA: 3.44