Zudi Xie

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EDUCATION

University of California, Berkeley   Berkeley, CA
Bachelor of Arts in Computer Science | 3-year STEM OPT   *Aug. 2019 – May. 2023*
Relevant Courses: ***GPA: 3.793***
- 80: VR Development | 161: Computer Security | 164: Programming Languages & Compilers
- 169A: Software Engineering | 186: Database Systems | 188: Artificial Intelligence
- **184: Computer Graphics** | 204: 3D Modeling & Animation

SKILLS

Languages: *C#*, Java, Python, C/C++, HLSL, SQL, JavaScript
Frameworks & Libraries: Unity URP & HDRP, RISCV, Ruby on Rails
Tools: Git, Perforce, GDB, RenderDoc, Unity, Jira, Maya
Other Skills: German (Entry Level), Mandarin

EXPERIENCE

Software Engineer Intern (Apex Legends)   Jan. 2023 – April. 2023
Respawn Entertainment, Electronic Arts   *Remote (Part-time) / Los Angeles, CA*
- Collaborated with producers, content managers, and UI designers to implement a new in-game MTX feature planned for release in Season 17.1.
- Conducted tech investigations, built front-end UI logics and back-end server APIs, wrote tests & setup doc.
- Resolved bugs reported by QA and performed other daily tasks, updating progress using Jira and Perforce.
- Contributed to a large codebase by writing high-performance and secure C++ code and internal engine scripts.

Lead Mentor & Mentor   Dec. 2019 – Dec. 2022
Game Design & Development Club   *Berkeley, CA*
- Managed a team of 9 mentors to plan and host activities for a game development club with over 300 members. Responsibilities included organizing workshops, promotions, general meetings, game pitches, and playtests.
- Led a group of 7-8 people to make a game every semester using Unity. In charge of organizing weekly meetings, setting up milestones, providing Unity tutorials, and collaborating with the team to develop the game.
- Finished 6 games of varying genres: first person dungeon crawler, platformers, top-down shooters and more.

Game Dev Community Organizer   Mar. 2020 – Present
Unity Game Dev & Graphics Groups   *Online*
- Organize and manage an online community of over 1900 Chinese game developers.
- Provide a platform for indie game studios to promote and recruit, as well as for game developers to ask for help.
- Established a sub-community focusing on rendering problems encountered during development.

PROJECTS

UltimateTAA Render Pipeline | *Unity, C#, HLSL, DirectX* (29 stars & 7 forks)   Project Link
- Developed a forward/deferred hybrid render pipeline, supporting physically based materials, such as clear-cloat, fabric, anisotropic specular, and multi-scattering BRDF.
- Integrated post processing effects such as ACES tonemapping, color grading, HUE shift and contrast adjustment.
- Implemented temporal anti-aliasing, including multiple resampling, anti-ghosting and anti-flickering techniques.
- Implemented dynamic diffuse GI with gbuffer probes inspired by Demon's Souls Remake's method.
- Currently working on a gpu driven mesh cluster render pipeline with two-pass occlusion culling.

SRP Render Pipeline | *Unity, C#, HLSL, Metal* (105 stars & 18 forks)   Project Link
- Developed a forward+ render pipeline in Unity, featuring efficient tile-based light culling with depth masks.
- Implemented (cascaded) shadowmaps for directional/spot/point lights with PCF filtering.
- Implemented dithered transparency and transparent shadows to optimize rendering performance.

Rasterizer & Pathtracer | *C++, OpenGL, Git*
- Developed a cpu-based software rasterizer, including optimized triangle rasterization, barycentric interpolation, and texture mapping (supporting mipmaps and bilinear & trilinear texture filtering).
- Developed a cpu-based multi-threaded software path tracer, supporting microfacet and glass materials.
- Implemented BVH acceleration based on SAH, importance sampling, Russian Roulette termination, recursive path tracing, and adaptive sampling.