

James Edralin

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TECHNICAL SKILLS

Languages, Graphics API, and Libraries : C++, Python, GLSL, HLSL, OpenGL, GLFW, Assimp, ImGui
Engine and Rendering : ECS Architecture, Deferred Rendering, Shader Development, Terrain Systems
Unreal Engine 5 : Blueprints, Material Editor, PCG, Editor Utilities, Geometry Scripting, AR/VR Development
Version Control and Tooling: Perforce, Git, CMake, RenderDoc

WORK EXPERIENCE

- Software Developer**, UBC Emerging Media Lab (EML) May 2024 – Present
- Developing core systems for five MVP/POC projects in Unreal Engine 5 over a 1.5 year period, targeting VR/AR visualization and simulation workflows
 - Building runtime systems and editor tools to streamline development and reduce level composition time by 30%
 - Designing and optimizing PBR and stylized effects by creating custom material graphs and post-process effects
 - Implementing modular shader frameworks, dynamic UI components, and spatial interaction systems for HMDs
 - Collaborating with researchers and engineers to translate abstract requirements into interactive prototypes
 - Developed a runtime multi-sensory occluder system for generating environments on a spatial localization therapy VR POC; used to evaluate the role of multisensory cues in spatial localization accuracy in formal research
 - Built procedural systems for gameplay mechanics of a POC to create a novel literature-exploration experience in VR. Project received over \$100K CAD in federal research funding to produce a minimum viable product
- VR Developer**, UBC School of Audiology and Speech Sciences (SASS) Jun 2025 – Present
- Extending a sound localization VR prototype originally developed at EML, focusing on system refinement
 - Improving Unreal Engine 5 codebase for data persistence, UI responsiveness, and visualization fidelity
 - Working on legacy Blueprints and C++ systems, integrating client feedback, and deliver weekly updates

PROJECTS

- PBR Graphics Engine** | C++, OpenGL, GLSL, ImGui, RenderDoc, CMake Feb 2025 – Present
- Developed a modular deferred shading pipeline inspired from Unreal Engine's system, supporting physically-based rendering (PBR), bloom, tone mapping, HDR, and customizable post-processing render passes
 - Built a custom ECS-based architecture for managing of scenes, assets, materials, and render resources
 - Implemented a tiled-based lighting system using compute shaders to handle multiple dynamic lights efficiently
 - Added dynamic image-based lighting (IBL) with nearest-probe selection and blending for accurate spatial lighting
 - Incorporated terrain rendering with support for geomipmapping and tessellation-based level of detail (LOD)
- 3D Pixel Art Renderer** | Unreal Engine 5, Blueprints, Material Editor, PCG, Blender Nov 2024 – Jan 2025
- Authored a rendering stylization pipeline using compounded shader passes that produces 3D pixel art
 - Developed real-time reflections for water accomplished by dynamic render targets and distance fields
 - Achieved real-time crepuscular ray effects using a custom 2D ray marching method and procedural fractal noise

PUBLICATIONS

- Procedural Multi-sensory VR System Evaluation Research Poster** Aug 2025
Presented at SIGGRAPH 2025. DOI: <https://doi.org/10.1145/3721250.3743041> ACM, SIGGRAPH

EDUCATION

- University of British Columbia** Sep 2022 – May 2027
Bachelor of Computer Science (BCS Program)
Scholarship Award Recipient: Kirk Karasin Memorial Award (2025) Vancouver, BC
- De La Salle – College of Saint Benilde, Design and Arts** Aug 2015 – May 2020
Bachelor of Science in Architecture Metro Manila