

# Kevin Du

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## EDUCATION

**University of Pennsylvania**, School of Engineering and Applied Science, Philadelphia, PA May 2027  
B.S.E, DMD Computer Science and Computational Graphics Program  
M.S.E, Computer Graphics and Game Technology  
Cumulative GPA: 4.0

## RELEVANT COURSEWORK

Data Structures and Algorithms, Machine Perception, Interactive Computer Graphics, Path Tracing and Physically Based Rendering, Procedural Computer Graphics & Design Systems, Computer Animation

## EXPERIENCE

- Penn Medicine, University of Pennsylvania Health System** May 2025 - August 2025  
*Virtual Reality Software Engineering Intern* *Philadelphia, PA*  
• Developed a **Virtual Reality Surgical Airway Training Simulator** with Unity Engine, to be run on **Oculus Quest** headsets  
• Contributed to system design, debugging, and iterative testing  
• Collaborated with surgical residents to create accurate replications of surgical procedure steps and ensure user-friendliness
- UPenn Game Research and Development Environment** Sep 2023 - Present  
*Game Design & Project Lead* *Philadelphia, PA*  
• Managed a team of 20+ people as the lead of the main 2024-2025 project **published** on Steam and Itch.io, responsible for implementing AI behavior systems and HLSL visual effects shaders as lead programmer  
• Oversaw multiple teams in the design and development of UpgradeKart semester project, a multiplayer racing game

## PROJECTS

- Monte Carlo Pathtracer**  
*C++, OpenGL, QT Creator*  
• Developed a naive Monte Carlo path tracer supporting global illumination, naive integration, and MIS direct lighting  
• Implemented various BSDFs for diffuse, transmissive, and specular microfacet surfaces

- Mini Minecraft**  
*C++, OpenGL, QT Creator*  
• Developed a **3D voxel game engine** as part of a team of three, added to course's Hall of Fame for technical creativity  
• Implemented procedural asset generation/placement, procedural landscape textures, post-processing shaders, FBM water displacement shaders, and player movement/physics

- 3D Deferred Rendering Engine**  
*C++, OpenGL*  
• Developed a real-time physically-based rendering engine with OpenGL to render photo-realistic images  
• Utilizes PBR models, precomputed HDR image-based environment lighting, as well as post-process screen space reflection

- Game Development Projects**  
*C#, C++, HLSL, Blender, Unity, Unreal Engine 5, Godot*  
• Led the development of **Catanks**, the 2024-2025 UPGRADE top-down arcade tank shooter; worked on game design planning, enemy AI behavior and **pathfinding** systems programming, **VFX shaders**, game asset pipeline coordination  
• Developed **Big Boat Battle**, a top-down combat game with **interactive volumetric fog** and **water ripple shaders**

## SKILLS

**Languages:** C++, C#, GLSL, HLSL, Java, Python, JavaScript, TypeScript, Swift, HTML/CSS

**Frameworks and Tools:** Unity, Unreal Engine 5, Git, IntelliJ, QT Creator, OpenGL, Node.js, Jira, Maya, Houdini