

Steve Karolewics

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- Experience**
- The Grand Tour Game** (Xbox One, Playstation 4) Sept. 2017 – Present
Senior Graphics Engineer, Amazon Game Studios
- Implement 2 – 4 player split screen rendering which is 40% faster than naive multi-viewport approach
 - Design and build frame-perfect occlusion culling system for up to 4 viewports in under 1ms on consoles
 - Adjust and optimize tiled deferred lighting to support split screen and reduce cost on console by 1.5ms
 - Create anti-ghosting temporal antialiasing solution to support fast car motion with minimal artifacts
 - Support lighting and environment artists by accelerating workflows with new shaders or features
 - Collaborate with off-site developers for improvements to material override and terrain texture workflows
 - Optimize rendering and simulation performance on console, resulting in up to 70% frame time reduction
 - Coordinate feature schedule and run standups for team of local and remote graphics engineers
- Lumberyard** (PC) Mar. 2017 – Sept. 2017
Graphics Engineer II, Amazon Game Studios
- Implemented and shipped fur rendering feature for Lumberyard, demoed at SIGGRAPH 2017
 - Supported tiled deferred rendering with anisotropic specular highlights and subsurface scattering
 - Enabled fur detail to appear in shadow passes, and simulated self-shadowing on fur
- Unannounced Game Project** (PC) Aug. 2015 – Mar. 2017
Software Engineer II, Amazon Game Studios
- Collaborated with environment artists to improve terrain workflows and reduce iteration times by days
 - Added particle system feature enabling particles to follow splines authored at edit time or runtime
 - Managed new engine integration; planned scheduling and bug fixing for ahead of schedule delivery
- Elly Cooper and the City of Antiquity** (PC) Nov. 2014 – Aug. 2015
Developer, Sobai Games
- Worked with art director and programmed shader to display transparent video without custom codec
 - Wrote editor scripts to expedite importing and placing of art assets in Unity scenes
 - Identified ways to reduce build size via compression and asset optimization, resulting in 60% reduction
- Unannounced Game Project** (PC) Oct. 2013 – Aug. 2015
Lead Developer, Indreams Studios
- Drove development of a 2D physics-based puzzle platformer being developed with Unity
 - Created shaders to enable realistic lighting and shading for 2D sprites
 - Implemented input recording/playback system to easily reproduce bugs found in playtesting
- Minecart Madness** (Windows Phone) Mar. 2011 – Jan. 2013
Lead Developer, Indreams Studios
- Designed a procedural level generator for an infinite runner supporting multiple difficulties
 - Wrote custom 2D physics engine supporting vehicles on curved surfaces
 - Added real-time quality detection by reducing resolution and disabling effects for slow devices
 - Awarded 2013 “Most Downloaded Paid App or Game” from Microsoft employee developer program
- Microsoft Office** (PC, Android) June 2010 – July 2015
Software Engineer II, Microsoft
- Implemented advanced image rendering for core Office apps using Direct2D, emphasizing memory usage
 - Developed software rasterization components for Office on Android
 - Ensured high quality printing of document content to PDF, XPS, and physical printers
 - Optimized rendering code to run efficiently and with reduced memory footprint on low end devices

Education

Bachelor of Science in Computer Science
Bachelor of Science in Mathematics
The Pennsylvania State University, University Park, PA, USA

Skills

Programming: C/C++, C#, Python, HLSL, GLSL
Engines & APIs: Lumberyard, DirectX, Unity3D, XNA