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A LIFE OF A BOKEH

ABADIE Guillaume Graphic Programmer

Lens of a physical camera have a depth of field phenomena that has an importance in cinematography to bring focus on desired subject of a frame. The challenge of real-time depth of field is to output the highest bokeh quality while remaining fast. par ABADIE Guillaume

This talk will journey through the step by step implementation of a depth of field algorithm starting from existing state-of-the-art, and fixing artifacts one after the other to converge to the final implementation released in Unreal Engine 4.20. In order to achieve its opposing goals including scalability across a large variety of hardware, high quality and performance, the self-contained algorithm blends between:
- The fast performance of scatter-as-gather approach while efficiently solving a physically plausible geometric occlusion with large variety of blurring radii for background, and hole filling for the foreground;
- The quality of scattered sprites for highlights and deals with all the complexity implication of combining them plausibly;
- The details of sub-pixel accuracy of slight out of focus convolution with the challenges of running with a Temporal Anti-Aliasing from older but sadly never published algorithm used in Unreal Engine 4.

Epic Games>https://www.epicgames.com/site/en-US/home

Biographie

Guillaume Abadie is Graphic Programmer at Epic Games, working directly on Unreal Engine 4's renderer, more specifically on post processing. Notably, he implemented temporal up-sampling & dynamic resolution duo shipping on Fortnite Battle Royal running at 60Hz on consoles. He also built the compositing of the SIGGRAPH real-time live 2017 awarded The Human Race demo. (twitter: @GuillaumeAbadie).

About Epic Games

Fondée en 1991, Epic Games est le studio de jeux video plus connu pour le grand public pour avoir realisé Unreal Tournament, Gear of Wars, Robo Recall et dernierement, Fortnite. Dans l'industrie du jeux video, Epic Games est aussi connu pour son moteur de jeux video Unreal Engine 4, utilisé dans de nombreux jeux video connus, sur différentes plateformes, mais également mis au service des plus petits studios de jeux video avec toujours accès au code.

20 décembre 2018
11h - 12h