

George Loines

<https://georgeloin.es> loinesg@gmail.com [linkedin.com/in/loinesg](https://www.linkedin.com/in/loinesg)

Employment

Frontier Developments – Senior Render Programmer

April 2021 – Present

<https://www.frontier.co.uk/>

Working as a senior programmer on Frontier's central STG Render team. Responsible for maintaining rendering code in Frontier's proprietary Cobra engine for multiple games and platforms, providing support to game teams, conducting R&D work, and planning the development of Cobra for future projects.

- Shipped titles for PC, Xbox One, Xbox Series S/X, PS4, PS5 and Nintendo Switch
- Worked with DX11, DX12 and console APIs
- Knowledge of explicit rendering APIs and modern rendering techniques
- Experience of optimising for AMD and Nvidia GPU architectures for PC and consoles
- Experience of writing efficient CPU code, including the use of data-oriented algorithms and SSE/AVX
- Experience with ray tracing (DXR 1.1)
- Involved in teaching and mentoring junior members of the render team

Frontier Developments – Full Render Programmer

August 2018 – April 2021

Frontier Developments – Graduate Render Programmer

July 2018 – September 2019

Commercial Projects

Jurassic World Evolution 2 – Frontier Developments, Xbox One, Xbox Series S/X, PS4, PS5, PC

2021

<https://www.jurassicworlddevolution2.com/>

A sequel to the 2018 park management game Jurassic World Evolution. I worked on the Cobra engine used in JWE2 as a senior render programmer.

I was involved in many engine and render feature improvements including the following:

- Took part in the effort to release the game using DX12 and Shader Model 6 on PC, a significant improvement from the DX11 renderer used by our previous games
- Rewrote the runtime material system to support bindless texture and material parameter access
- Implemented a new unified geometry pipeline for PC and consoles, including persistent GPU-side scene data, GPU-driven occlusion culling of mesh clusters, and automatic merging of instances into a single draw call per material
- Implemented ray traced ambient occlusion for a June 2022 free update for PC. The effect uses a DXR 1.1 inline ray tracing compute shader and a custom spatiotemporal denoising pass
- Worked on the integration of Nvidia DLSS for the initial PC release

Planet Coaster: Console Edition – Frontier Developments, Xbox One, Xbox Series S/X, PS4, PS5

2020

<https://console.planetcoaster.com/>

A port of Planet Coaster (2016) to current and next gen consoles. I was involved in the initial porting effort and optimisation work to get Planet Coaster running on consoles for the first time.

Jurassic World Evolution: Complete Edition – Frontier Developments, Nintendo Switch

2020

<https://www.jurassicworlddevolution.com/>

A port of Jurassic World Evolution (2018) to Nintendo Switch. I made significant optimisations to multiple engine systems, such as light culling, environment capture rendering, and shadow rendering, bringing GPU performance to acceptable levels.

Planet Zoo – Frontier Developments, PC 2019

<https://www.planetzoogame.com/>

A zoo construction and management game released for PC. User-assembled levels with dynamic time of day and weather rendering. I have worked on multiple engine render effects, rewrote the particle simulation and rendering code, and created high-level shader effects to achieve visuals needed for DLCs.

Jurassic World Evolution – Frontier Developments, PC, Xbox One, PS4 2018

<https://www.jurassicworlddevolution.com/>

A management and simulation game where players create their own version of Jurassic World. I joined Frontier as a graduate render programmer shortly after this game was released and worked on multiple engine improvements and high-level shader effects for post-release game updates and DLCs.

Personal Project

Custom Game Engine/Renderer 2018 – Present

A custom game engine using DX12 and Vulkan.

- Render graph with automatic resource barriers
 - Tiled deferred renderer
 - PBR matching the UE4 BRDFs
 - Volumetric fog with sun shadows
 - SSAO inspired by Activision's GTA0
 - TAA
 - Cascaded Shadow Maps
 - Ray traced soft shadows with alpha tested geometry and temporal denoising
 - Resource system with automatic undo/redo, reflection, and instant reloading of modified resources
-

Education

University of Leeds School of Computing 2014 – 2018

MEng Computer Science with High Performance Graphics and Games Engineering. First Class.

Academic Awards

First Prize, Red Kite Games Award for Game Technology – Game Republic Student Showcase 2018

Awarded for demonstrating my MEng fourth year group project game engine.

First Prize, Red Kite Games Award for Game Technology – Game Republic Student Showcase 2017

Awarded for demonstrating my "precomputed voxelised shadows" third year individual research project.

Cook Prize – University of Leeds School of Computing 2017

Awarded to the best performing BSc Computer Science student in their final year of study.

Dean's List for Academic Excellence – University of Leeds Faculty of Engineering 2016

Awarded to the best performing 5% of students in their second year of study.

Hutchinson Prize – University of Leeds School of Computing 2016

Awarded to the best performing second year BSc Computer Science student.

Dean's List for Academic Excellence – University of Leeds Faculty of Engineering 2015

Awarded to the best performing 5% of students in their first year of study.

Wren Prize – University of Leeds School of Computing 2015

Awarded to the best performing first year BSc Computer Science student