

# George Loines

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## Awards

- First Prize, Red Kite Games Award for Game Technology** – Game Republic Student Showcase 2018  
Awarded for demonstrating my MEng 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” 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 first and 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 and second year of study.
- Wren Prize** – University of Leeds School of Computing 2015  
Awarded to the best performing first year BSc Computer Science student.
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## Education

**University of Leeds School of Computing** 2014 – 2018  
MEng Computer Science with High Performance Graphics and Games Engineering

### Final Year Modules

Animation and Simulation	Foundations of Modelling and Rendering
High-Performance Graphics	Game Engine Architecture
Geometric Processing	Parallel and Concurrent Programming

### Third Year Modules

Mobile Application Development – 86%	Secure Computing – 88%
Computer Graphics - 94%	Parallel Scientific Computing – 85%
Research Project – 84%	Functional Programming – 95%
Distributed Systems – 78%	

### Second Year Modules

Artificial Intelligence – 92%	Software Engineering – 89%
Networks & Scalable Architecture – 92%	Graphical User Interfaces – 78%
Information Management and Security – 92%	Algorithms 2 – 86%

### First Year Modules

Computer Systems – 93%	Mathematics for Computing – 92%
Core Programming – 95%	Professional Development – 85%
Algorithms 1 – 89%	

## A-Level Results

2012 - 2014

A\*s in Mathematics, Further Mathematics and Physics

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## Projects

A full list of projects, including screenshots and source code, can be found at <https://georgeloin.es.com/projects>.

### Gatling Game Engine – MEng final year group project

2017 - 2018

<https://georgeloin.es.com/projects/gatling-game-engine>

A game engine built from scratch for a 3-person group project.

- C++ and OpenGL 4.5, running on windows with support for OpenVR.
- Deferred renderer with microfacet lighting, atmospheric scattering, height fog and ambient occlusion
- Procedural terrain generation and texture splatting
- “Red Kite Games Award for Game Technology” first prize at 2017 Game Republic Student Showcase

### Precomputed Voxelised Shadows – Third year individual project

2017

<https://georgeloin.es.com/projects/voxelised-shadows/>

An application containing implementations of Cascaded Shadow Mapping and “Compact Precomputed Voxelized Shadows” by Sintorn et al (ACM Transactions on Graphics 2014).

- C++ and OpenGL with a Qt user interface
- Cascaded Shadow Mapping with 1, 2 or 4 cascades
- Precomputed shadows in a voxel octree with compression ratios of 4000:1
- “Red Kite Games Award for Game Technology” first prize at 2017 Game Republic Student Showcase

### First Person Shooter – Hobby project

2016 – Ongoing

<https://georgeloin.es.com/projects/fps-game>

A first person shooter in the Unity engine. I implemented gameplay scripting, including character movement, gunplay, and enemy AI, and extended Unity’s renderer to add extra features and improve performance.

- C# scripting and ShaderLab/HLSL shader code in Unity
  - Deferred decals, with support for normal mapping and instanced rendering
  - Static shadow maps to provide shadows outside the shadow rendering distance
  - Custom shaders for sky rendering and placing camo on weapons without breaking instancing
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## Employment

### Web Programmer, Ormskirk Carpet Centre

2017

Employed to create a stock and customer management system using Microsoft Azure, C# and Asp.net

### Student Guide, University of Leeds

2017

Worked as a guide to help prospective students on open days

### Assistant Fitter, Ormskirk Carpet Centre

2012 - 2016

Worked as an assistant during summer, fitting floor coverings in customers’ homes

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## Technical Skills

Competent with C/C++ and C#

Experience with Vulkan, OpenGL, CUDA, MPI, UDP sockets, and Unity

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## References

Available on request.