# Graphics Research Intern – 3D Engine Team

### Huawei Ireland Research Centre,

### Dublin, Ireland

**We are looking for a talented Graphics Engineer for an exciting opportunity in our video 3D Engine team in Dublin.**

We are looking for a talented Graphics Research Intern to be part of the Huawei 3D Engine team at the Huawei Ireland Research Centre. The candidate will take part in co-developing the O3DE open source 3D engine, researching new exciting scalable computer graphics architectures and improve the state-of-the-art for the future of 3D development.

The current project is to bootstrap development of O3DE, enhance its main renderer Atom and provide mobile graphics capabilities for Huawei end-devices, after which the aim is to introduce high-quality global illumination lighting and post-processing for large scenes and research alternatives to current cloud-based streaming solutions.

You will work within an international and fast-paced team of expert researchers and engineers, working on deeply technical problems in direct collaboration with the open source community of O3DE, the 3D development industry and academia.

#### **Responsibilities:**

* Design, implement, analyse and deploy computer graphics algorithms for O3DE and enhance performance of the engine targeting Huawei products.
* Identify key developments and trends in computer graphics research from SIGGRAPH, Eurographics, EGSR, JCGT and many others, and propose new solutions to key issues in 3D engine graphics related fields to advance to current state-of-the-art.
* Be involved in 3D engine verticals, such as movies, VR and AR or industrial product-design and observe new important workflow trends. Devise strategies to incorporate these workflows coherently with O3DE.
* Propose solutions to challenges (technical-) artists face in production and drive novel improvements to the main rendering pipeline and global illumination backend of O3DE. Devise a technical implementation plan based on these proposals and take responsibility for ensuring that it is successful and converted into production.

#### **Qualifications:**

* A strong passion for Computer Graphics and drive to deliver easy-to-use, hard-to-break rendering solutions for artists at scale.
* BSc., MSc. or PhD in Computer Science, Computer Graphics or Video 3D Development.
* Understanding of physical lighting principles.
* Experience with HLSL, Vulkan, Metal and/or DX12.
* Hands-on experience with Unity, Lumberyard, Unreal 4/5, Godot or other 3D engines and relevant debugging tools such as RenderDoc, Pix, NVIDIA NSight or similar.
* Prior involvement in 3D engine development (Unity, Lumberyard, Unreal 4/5 or in-house engines) is a heavy plus.
* Experience with data-oriented design and ECS is a plus.
* Low-level shader optimization knowledge is a plus.
* Experience with Vulkan/Metal/DX12 based raytracing is a plus.
* Experience with Android development is a plus.
* Excellent C++ coding skills in software engineering.
* Ability to translate research paper ideas into working code and solve complex problems while considering end-user requirements.
* Excellence in communicating results and drawing actionable insights.
* Collaborative and team working skills, good at communicating with the larger open-source community.