

CHENGGONG (EDWIN) LIU

Unity Simulation Engineer

Geospatial systems and GPU performance | Available Dec 2026

Singapore | +65 9778 0333 | cgliusjtu@gmail.com | [LinkedIn](#) | [GitHub](#)

Graduate candidate developing Unity systems that connect geospatial data, streaming, rendering and sensor views. Focuses on explicit CPU/GPU data contracts and workload-specific performance evidence.

SIMULATION EXPERIENCE

IMMRSIV

Jun 2026-Present

Engineer Intern, Simulation Software and Digital Twin | Singapore

- Contribute to a Unity 6/URP digital twin connecting terrain, imagery, buildings and routing through a shared **EPSG:32118 coordinate contract**.
- Develop asynchronous loading, shared cache/upload budgets and multi-camera sensor paths, with GPU culling, indirect rendering and repeatable validation.

SELECTED PERFORMANCE PROJECTS

Shader Hitch Pipeline

2026

Unity / C# / D3D12 | [Project](#)

- Reduced repeated driver-attestation checks from **~563 ms to 0.27-0.42 ms** in native Unity/D3D12 diagnostics; the repaired Boat Attack cohort completed **16/16 full routes**. **Draft PR**; overall scheduler speedup remains unproven.

Data Layout Calibrator

2026

Unity / Burst / IL2CPP | [Project](#)

- Built an AoS/SoA/AoSoA selector including conversion and export costs. Five historical same-device IL2CPP launches reduced the synthetic **amortized component-P95 score by 66.11%-74.81%** versus tuned AoS.

HLSL Kernel Pipeline

2026

C# / HLSL / D3D12 | [Project](#)

- Built a D3D12/HLSL primitives SDK with explicit RTS and AMD backends. A **70-process native confirmation** found a **1.2404x ratio in one 2^25-pair sort case**; six other comparisons favored external implementations.

TECHNICAL SKILLS

Simulation and GIS: Unity 6/URP, C#, coordinate transforms, terrain/imagery, spatial queries, multi-camera sensors

Performance and delivery: HLSL, D3D12, compute shaders, Burst, IL2CPP, Python, RenderDoc, Git, Azure DevOps

EDUCATION

National University of Singapore

Expected Dec 2026

M.Sc. Biomedical Engineering

Shanghai Jiao Tong University

Sep 2020-Jun 2024

B.Sc. Bioinformatics; Minor in Applied Psychology

Languages: Mandarin (native); English (professional; IELTS 7.5)