

Nguyen Thai Phi Hung

Hobbyist Game Engine Programmer



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Hanoi, Vietnam

SUMMARY

Innovative and passionate game engine programmer with a strong foundation in computer science, game engine and modern realtime rendering techniques.

WORK EXPERIENCE

Vector Studio

August 2023 - August 2024 | Remote
Developed 2D voxel plugin -

resource streaming
resource compression (JPEG-LS)
an optimized voxel renderer
voxel collider combining

Analyzed and documented some rendering, simulation techniques:

- Shallow Water Simulation.
- Render Graphs in Unreal Engine 5, Unity, Activision In-house Engine.

Implemented Spherical Harmonic Lighting.

SKILLS & KNOWLEDGE

Programming Languages

C, C++, C#, Python, Javascript, HTML, CSS ...

Game Engines

Unreal Engine, Unity, Godot, ...

Math

Linear Algebra, Quaternions, Calculus, ...

Computer Graphics

DirectX 11, DirectX 12, Metal
GPU Driven Rendering
Virtual Geometry
Multithreaded Rendering
PBR Lighting, Precomputed Radiance Transfer, ...

Low Level Programming

Memory Management
Parallelism & Concurrency
CPU, GPU, Memory Fundamentals

Advanced Animation

Distance Matching

Cross-Platform Programming

Windows, Macos, Linux, Android

EDUCATION

Nguyen Hue High School for the Gifted

2020 - 2023 | Remote

PROJECTS

NRE

NCoder's Render Engine

Features:

- A simple render pipeline with DirectX 11, Cascaded Shadows, PBR,...
- An advanced render pipeline with DirectX 12, Render Graphs, Virtual Geometry

NRHI

NCoder's Render Hardware Interface

Features:

- DirectX 11, DirectX 12 Supports
- Flexible, Optimized Multiple APIs Abstraction
(static linking for single API + virtual table for multiple APIs)

NTS

NCoder's Task System

Features:

- Fiber-based tasks
- JS-like Async-Await syntax

NMath

NCoder's Math Library

Features:

- Vectors, Matrices, Quaternion
- X86 SIMD

NSurface

NCoder's Surface Library (for creating windows)

Features:

- Win API Supports

NCPP

NCoder's Base C++ Library

Features:

- Customized Memory Management
- Tagged Heaps, ...
- Customized Logging System
- Macro Tricks
- Macro-based Reflection System

SELF - RESEARCH

Order-Independent Transparency for Virtual Geometry

(Private)

This research aims to find out a high performance order-independent transparency solution that works efficiently with GPU-Driven Rendering techniques such as Virtual Geometry.

