

CHRISTIAN NEWMAN

Software Engineer

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SKILLS

| Languages | Software & APIs | Platforms | Etc. |
|-----------|-----------------|-----------|-----------------------------|
| C / C++ | Visual Studio | Windows | Linear algebra |
| Python | Direct3D 11 | Xbox One | Game engine architecture |
| C# | Git, SVN | UWP | Object-oriented programming |

PROJECTS

FORTNITE

Epic Games

Optimization Team, March 2022 – September 2022

- Worked on performance optimizations for Fortnite's Battle Royale game mode.
- Refactored weapon pickup handling to be server-only, eliminating collisions with pickups on the client and saving CPU time.
- Implemented a feature to unload dynamically created actors on the client after the player leaves the area, reducing memory usage late into matches.
- Consolidated systems used to control gameplay determinism for automated tests into one to improve maintainability.

AION RENDERER

Student project, DigiPen Institute of Technology

Solo Project, June 2020 – April 2021

- Custom-made 3D graphics demo using Direct3D 11 developed as a year-long solo project.
- Implemented features such as physically based materials, cascaded shadow maps, and screen-space reflections.
- Implemented a dynamic voxel-based global illumination system supplemented by screen-space GI.

TURBO ENGINE

Student project, DigiPen Institute of Technology

Team Turboclock, September 2019 – April 2020

- Custom 3D game engine developed using UWP targeting Xbox One by a team of nine programmers.
- Developed a templated Entity-Component-System framework to act as the core of the engine.
- Implemented a deferred renderer using Direct3D 11 featuring many modern rendering features.

KING AUTHOR AND THE SUNDERED STORY

Student game, DigiPen Institute of Technology

Team Indigo Isles, September 2018 – April 2019

- 2D puzzle platformer created with a custom engine by a multidisciplinary team of thirteen people.
- Designed core engine architecture following a definition-by-composition philosophy.
- Heavily refactored existing rendering code, created an in-engine editor GUI and scripting interface.

WORK EXPERIENCE

ENGINE PROGRAMMER INTERN

Epic Games

March 2022 – September 2022

- Worked alongside Fortnite's optimization team to improve the game's performance and memory usage.
- Added additional quality-of-life features and bug fixes to performance analysis tools commonly used by the performance team and perf QA.

EDUCATION

DIGIPEN INSTITUTE OF TECHNOLOGY. Redmond, Washington

Bachelor of Science in Computer Science in Real-time Interactive Simulation.

September 2017 – December 2021