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🌐 [Portfolio](#) [GitHub](#) [LinkedIn](#)

Junxuan Hu

- Technical Designer
- Game Engineer

Programming Languages

- C/C++
- Python
- C#
- Java
- Blueprints
- SQL

Software

- Unreal Engine 4/5
- Unity 2D/3D/VR
- Visual Studio
- Git/Perforce Source Control Tools
- Jira/Trello Management Tools

Skills

Coding: gameplay, engine, AI

Math: linear algebra, discrete math, probabilities, stochastic process

Data: analysis, visualization, machine learning, database, image processing

Education

Master of Entertainment Arts and Engineering: Engineering Track

University of Utah | Exp. May 2025

Bachelor of Science: Data Science
Duke University | 2023

Engine Dev Projects

Graphics System

A graphics system on both D3D and OpenGL platforms | C++ | [Portfolio](#)

- A graphics system rendering triangle meshes and shaders
- Platform independent interfaces for Direct3D and OpenGL
- An exporting plugin for Maya to export meshes in custom-defined structure
- Console apps run by Lua scripts to build JSON files into binary files
- A console app that generates random terrain as binary mesh files [Portfolio](#)

Memory Allocator

A memory management system developed from scratch | C++ | [GitHub](#)

- Malloc, new, free, and delete functions
- Combination of both fixed-sized and dynamic memory allocation

Game Object, Physics & Collision System

A physics and collision system developed from scratch | C++ | [GitHub](#)

- Entity Component System architecture
- 2D collision detection based on AABB algorithm
- Creation of game objects with components from JSON files

Work Experience

Tencent Games | Technical Designer Intern

Honor of Kings: World | May 2024 - August 2024 | Shanghai, China | Unreal, Blueprints

- Redesigned and implemented the logic for a core gameplay mechanic, incorporating inter-Blueprint communication, server-client synchronization, and server-side saving/loading, leading to classes decoupling, loading time improvement, and an 80% reduction in configuration overhead.
- Created Blueprint classes with Unreal Engine's network features, enabling them for online gaming.
- Designed and integrated a new interactive animation logic that combined walking and motion warping, easily configurable via data tables, resulting in smoother and more natural interactions.
- Created sublevels and transferred existing actors without data loss by Python, enhancing open-world loading performance.
- Crafted animations and camera movements by Sequencer, improving player interactive feedback.

Season Games | Intelligence Analytics Intern

May 2022 - August 2022 | Guangdong, China | HIVE

- Collected and filtered data from social medias
- Constructed a database in HIVE to monitor the trend of game market
- Drafted 3 analysis reports with data visualization

Game Dev Projects

Serenity Citadel | Chief Programmer, Designer, Producer

2023 - Present | University of Utah

Unreal Engine | Programming Language: Blueprint, C++ | [Portfolio Link](#)

- Adapted as an interactive installation with alt control and displayed in Fusion Symbiosis Art Installation Exhibition in Nanjing, China.
- Using Unreal Utility, implemented a grid map spawner and random terrain generation based on Perlin Noise with easy designer access.
- Programmed level transition using level streaming and sublevels, realizing quick and consistent level loading.
- Realized character switching and controller action remapping using Enhanced Input System.
- Applied singleton design patterns with Unreal subsystems.

Planet X | Chief Programmer, Producer

2019-2023 | Duke Kunshan University Humanity Research Center

Unity Engine | Programming Language: C# | [Portfolio Link](#)

- Programmed the game loop including player actions, numerical systems, and UIs.
- Engineered game AIs based on behavior trees, simulating imperfect information decision making.
- Designed and implemented designer configuration method reading json.

The Post Oracle | Chief Programmer, Producer

2020-2023 | University Innovation and Entrepreneurship Initiative

Unity Engine | Programming Language: C#, Java | [Portfolio Link](#)

- Engineered a visual novel framework in both Java and Unity enabling designers to create dialogues, branches, and animations in natural languages, and keep track of the narrative branches in a datatable.
- Crafted the UI/UX in both design sense and programming sense.

Achievements

Fusion Symbiosis Exhibition: Serenity Citadel displayed as an interactive installation (Jiangsu, China, 2024)

First Prize: Chinese University Students Game Development Summer Camp (2022)

RTS AI research: A method based on Rainbow Deep Q Network (2023)