Junxuan Hu

junxuan.hu678@gmail.com | (+1) 801-641-2602 | Portfolio | GitHub | LinkedIn

SKILLS

Programming Languages: C/C++, C#, Java, Python, Blueprints, SQL, HiveQL
Software: Unreal Engine, Unity, Visual Studio, Git, Perforce, Jira, Office
Game Engineering Experience: Gameplay Programming, Game Engine Development, Virtual Reality, AI Design and Implementation, User Interface
Mathematical Background: Linear Algebra, Discrete Math, Probabilities, Stochastic Process, Numerical Optimization
Data Processing Experience: Data Analysis, Data Visualization, Modeling, Machine Learning, Image Processing, Database

WORK EXPERIENCE

Tencent Games | Honor of Kings: World May 2024 – Aug. 2024
Technical Designer Shanghai, China

- 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.

Seasun Games May 2022 – Aug. 2022
Intelligence Analyst Guangdong, China

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

GAME PROJECTS

Serenity Citadel – Chief Programmer, Producer Nov. 2023 – Present
Unreal Engine | Blueprint, C++ | Portfolio Page

- Adapted as an interactive installation with alt control and displayed in the Fusion Symbiosis Art Installation Exhibition in Nanjing, China.
- Implemented a grid map spawner and random terrain generation based on Perlin Noise with easy designer access by Unreal Utility.
- 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.

Dream Circuit Virtual Reality – Chief Programmer, Producer Dec. 2024 – Jan. 2025
Unreal Engine | Blueprint, C++ | Portfolio Page

- Quickly mastered Unreal VR features to implement the game loop, including hand tracing, hand interactions, and haptics feedback.
- Implemented user interfaces in VR and iterated the UX design to alleviate motion sickness.
- Used subclasses and interfaces in the code structure to enhance decoupling, flexibility, and easy access in Blueprints.
- Provided readable interfaces in Blueprints for designers to prototype and test quickly.

The Post Oracle – Chief Programmer, Producer Dec. 2020 – Jan. 2023

Association: Duke Kunshan University Innovation and Entrepreneurship Initiative
Unity Engine | Java, C# | *Portfolio Page*

- 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 data table.
- Crafted the UI/UX in both design sense and programming sense.
- Serialized data and implemented a save & load system to keep consistent game data through multiple sessions.

Planet X – **Chief Programmer, Producer** Oct. 2019 – Jan. 2023
Association: Duke Kunshan University Humanity Research Center
Unity Engine | C# | *Portfolio Page*

- 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.

ENGINE PROJECTS

Graphics System *Project Link* Sep. 2024 – Nov. 2024

- Designed and implemented a graphics system in C++ for rendering triangle-based meshes and shaders, supporting both Direct3D and OpenGL with platform-independent interfaces.
- Built an exporting plugin for Maya to export meshes into JSON files that the graphics system can read, enhancing the efficiency of the pipeline.
- Built console apps run by Lua scripts to build JSON files into binary files and implemented loaders to convert binary data into C++ instances, balancing readability and runtime performance.
- Developed a procedural terrain generator as a console application, producing random terrain in binary mesh files for rendering within the custom graphics system.

Game Object, Physics & Collision System *Project Link* Jan. 2024 – Apr. 2024

- Developed a game object system with physics and collision components from scratch in C++
- Incorporated Entity Component System (ECS) architecture.
- Implemented 2D collision detection based on the AABB algorithm.
- Created functions to instantiate game objects with components from JSON files.

Memory Allocation System *Project Link* Sep. 2023 – Dec. 2023

- Developed a memory management system from scratch in C++, with custom malloc, new, free, and delete functions.
- Combined both fixed-sized and dynamic memory managers to ensure efficient memory allocation.

ACHIEVEMENTS

Fusion Symbiosis Exhibition: Serenity Citadel presented as an interactive installation (Jiangsu, China, 2024)
First Prize: Chinese University Students Game Development Summer Camp (2021)
Honorable Mention: Mathematical Contest in Modeling (2021)
Strategic Game AI Research: A solution based on Rainbow Deep Q Network

EDUCATION

Division of Games, University of Utah *GPA:3.95/4.00* Aug. 2023 – expt. May 2025
Master of Entertainment, Arts, and Engineering – Engineering track
Duke University *GPA:3.76/4.00* Aug. 2019 – Jun. 2023
Bachelor of Science, Data Science