Arnold Wu

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SKILLS

Programming Languages:
C# (Advanced) | C++ (Intermediate) | Unreal Blueprint (Intermediate) | Python (Intermediate) |
Java (Familiar) | C (Familiar)

Gameplay & Systems Programming:
A* Algorithm | Behavior Tree | State Machines | 2D Collision & Physics System | Procedural Generation (Unity) |
Space Partitioning (QuadTree)

Engines & Frameworks:
Unity 2D (Advanced) | Unreal Engine (Intermediate) | Unity Addressables

Tools & Workflow:
Git | GitHub | Perforce | Agile Development Practices | Visual Studio | Jupyter Notebook | Aseprite

EXPERIENCE

DOPC | Personal Project | 2D Platformer (Unity Engine)   2023 - 2024
Solo Developer

- **Designed, programmed,** and **illustrated** a solo pixel-art platformer, owning core gameplay systems, enemy AI, and visual assets.
- **Developed** a custom **A* pathfinding algorithm** tailored for 2D platform geometry, supporting obstacle navigation, elevation changes, and dynamic targets.
- **Experimented** with **multi-threaded** AI updates to improve performance with increasing enemy counts, identifying real-time **constraints** and **optimization challenges**.

Neon Vengeance: Atavysm| Academic Project | 3D Hack N Slash (Unreal)   Aug 2024 - April 2025
Gameplay Programmer | Quality Assurance Lead

- **Collaborated** with a 22-member **cross-disciplinary** team including designers, artists, programmers, and an audio producer to develop a hack-and-slash game in **Unreal Engine**.
- **Developed** in-engine tools in Unreal Engine to streamline designer and artist workflows, **enabling faster iteration**, **improved asset integration**, and **reduced manual overhead**.
- **Served** as the **Quality Assurance Lead**, managing **bug tracking pipelines**, verifying fixes, coordinating with feature developer, and ensuring delivery of high-quality **weekly builds**.

Astro Odyssey | Academic Project | Custom Engine   Sept 2023 - April 2024
Programmer

- **Collaborated** with a cross-disciplinary team of 7 developers, including 3 designers and 4 programmers, to support fast iteration and system integration.
- **Implemented** core gameplay systems—including weapons, companions, enemy behavior, and combat logic—using C++ and C#.
- **Engineered** a custom 2D physics engine with **collision detection** and **resolution**, and integrated it into a fully custom C++ game engine.
- **Delivered** a custom 2D C++ engine with embedded **.NET runtime support**, enabling **C# scripting** for gameplay systems.

EDUCATION

DigiPen Institute of Technology   Graduated Dec 2025
B.S. Computer Science and Game Design | Minor in Mathematics

Relevant Coursework

Computer Science: Computer Graphics | AI for Games | Data Science | Low Level Programming
Game Programming/Design: System Design | Technical Design | Level Design
Mathematics: Discrete Mathematics | Linear Algebra | Probability and Statistics