Greg Peterson

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Education

Massachusetts Institute of Technology Cambridge, MA

Bachelor of Science in Computer Science Engineering and Game Design (CMS)

Shipped Title

CLEVR: Collaborative Learning Environments in Virtual Reality

MIT GameLab

Technical Skills

Languages: C++, C#, Python, JavaScript, Java, Bash
Engines: Unreal Engine 5/4, Unity, Gamemaker
Plugins: Gameplay Ability System (GAS), Modular Gameplay, Gameplay Message Subsystem, CommonUI
Developer Tools: Unreal Insights, Perforce, SVN, Git, Rider, Visual Studio
3D Art Pipeline: Blender, Substance, Photoshop, ZBrush, RizomUV

Professional Experience

Crowbar Collective, unannounced game June 2021 – Present

Unreal Engine and C++ Gameplay Programmer *Remote*

- **Gameplay**: Designed and implemented multiplayer FPS systems such as weapons, inventory, and interaction. Utilized Gameplay Ability System to create abilities such as vaulting. Developed player animation graphs and state machines to handle weapon animations. Maintained data persistence across levels and sessions by creating subsystems and save game objects. Designed and developed main menu UI loop using Unreal's UMG UI Designer.
- **Optimization**: Reduced load times using Unreal Insights, Profiler, and Size Maps and freed over 1 GB of hard-referenced memory. Integrated third-party NVIDIA and AMD plugins to further optimize play experience.
- **Testing and System Design**: Implemented testing suites to help designers integrate Blueprint code. Designed systems using data modeling and concept structure with UML and Alloy.
- **Leadership and Teamwork**: Trained junior engineers in system design and proper Unreal coding principles. Collaborated across various art, programming, and design teams to ensure the release of polished systems.

MIT GameLab, CLEVR Jan. 2019 – September 2021

Unity VR Gameplay Programmer *Cambridge, MA*

- **VR Gameplay**: Designed and developed features for VR-based gameplay such as a questing system guided by an AI robot. Saved game data across levels using static classes and displayed the data on the VR user interface. Developed a graph and state machine for designers to create gameplay events.
- **Optimization**: Implemented object pooling for thousands of respawning objects and improved the game thread by 5ms. Responsible for maintaining framerate at 60 FPS to ensure smooth VR experience.
- **Research and Presentation**: Worked with research team to collect player statistics during play sessions and wrote logging code that stored data in a database. CLEVR, including my gameplay features, was presented and pitched to schools in Boston, leading to the writing of several research papers on spatial learning.

Projects

Chicken Game | *Unreal Engine 5, C++, Blueprints, Perforce* Jan 2023

- **Modular Design Plugins**: Leveraged plugins such as Game Features, Modular Gameplay, and Gameplay Message Subsystem to design and develop entire first-person clicker-based game in 2 weeks.
- **Remote Production**: Created a Perforce server, AWS EC2 instance, and utilized UE5 multi-user editing with Hamachi to maintain production for a remote team.
- **AI**: Developed roaming animal AI using Unreal's Behavior Trees and EQS
- **Optimization**: Optimized GPU thread by using Unreal's profiling tools to investigate lighting improvements with Lumen and Nanite.

Various Unreal Projects | *Unreal Engine 5/4, C++, Blueprints, Git* Jan. 2020 – Present

- **Algorithms and Analysis**: Designed and implemented a 3D A* pathfinding algorithm for enemy AI and a boids algorithm to mimic flocking birds. Analzyed and revised standard implementations of both algorithms to favor speed while maintaining fidelity.