Dominic Barbuto
Systems/Gameplay Programmer

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OBJECTIVE

As a versatile game developer, I am driven to blend my programming and artistic knowledge to craft immersive gameplay systems, delivering fun and engaging gaming experiences that resonate with players.

SKILLS

- Game engine architecture fundamentals
- Graphics/rendering, physics, collision detection and resolution
- Low and high-level gameplay logic systems
- Strong understanding of 3D math (linear algebra, trigonometry, calculus)
- Rapid prototyping, maintenance, and optimization
- Strong written/verbal communication and collaboration skills with strong attention to detail

TECHNOLOGY

- C/C++ (5+ years), C# (6+ years), Python (2+ years)
- Unity (6+ years), Unreal Engine (4+ years)
- Visual Studio (8+ years),
- DirectX 11/12, HLSL (2+ years)
- Git (4+ years) – SourceTree + Bitbucket, GitHub
- Perforce (2+ years)
- JIRA, Confluence, Trello (All 2+ years)

EDUCATION

Full Sail University | Winter Park, FL | 11/2023
- **Bachelor of Science | Game Development**
- Course Director Awards: Programming II, Project Portfolio

Hudson Valley Community College | Troy, NY | 12/2021
- **Associate of Science | Computer Information Systems**
- President's List Award & Dean's List Award

CERTIFICATIONS

Unity
- Certified Associate: Programmer
- Certified Associate: Game Developer
- Certified User: Programmer

WORK EXPERIENCE

Unreal Engine 5 C++ Game Programmer | Cornered Rat Software | Internship
02/2024 – Present
- Assigned tasks related to bringing over proprietary technology from WWII Online 1.0 (legacy game engine available for play now) over to Unreal Engine 5 (WWII Online 2.0).
- Strong communication and collaboration between lead developer and peers regarding blocking issues and assigned tasks via Slack
- Ticketing workflow process via JIRA/Confluence/Bitbucket
- Participate in weekly and monthly development team meetings, discussing current and future sprints
- Partake in documentation revision efforts

MAJOR PROJECT EXPERIENCE

Systems/Gameplay/Graphics Programmer | Puzzle Paradox | Full Sail Capstone Project | First-Person Puzzle Platformer | 11/2023 (4 Months)
Built with Custom C++ Engine | Team size of 1
A unique first-person puzzle platformer. Evade hazardous obstacles while solving puzzles in a dark, ancient tomb setting.
Tasked with designing and building core systems, custom asset pipeline, gameplay systems, and rendering.
Core/sub-systems and the interaction/communication across systems:
- Designed and built lower-level systems (2D and 3D renderer, audio, input, event dispatcher, game and render states, cleanup).
- Built higher-level gameplay systems using a Fast Lightweight Entity Component System (FLECS).
- Utilization of several third-party open-source API's. Heavy documentation research.

(Continued)
Custom asset pipeline:
- Exporting custom level data (models and other assets) from Blender to custom engine.
- File input/output and string manipulation for exporting and importing of data in a data-driven manner.

Gameplay systems:
- Implemented ECS and built all game logic systems utilizing entites and systems that run across the entities.
- Custom pipeline phases/order of execution and the coordination/timing of the various gameplay systems.
- Implementation of third-party 2D and 3D positional/rotational audio systems.
- Custom physics and collision detection/resolution systems with great use of mass, gravity, velocity, acceleration.
- Matrix transformations including quaternion rotations and transforming vectors through various spaces.
- Custom view-to-world space raycast interaction system, similar to screen-to-world point in Unity.

DirectX 11 renderer:
- Initialization of vertex, index, instance buffers and many other interfaces abstracted across several render state wrapper classes for modularity and ease of access. Handling of their transitions and cleanup without memory leaks.
- Custom lighting and material interactions following standard lighting models (Diffuse, Ambient, Specular) and practices (Lambert's Cosine Law/Schlick Fresnel, Blinn Phong). This includes implemention of directional, point, and spot lights with custom attenuation and range settings assigned and exported from Blender.

Systems/Gameplay Programmer | Infinity Field | Full Sail Mid-Capstone | Sci-Fi Shooter | 01/2023 (2 Months)

Built with Unity | Team size of 6
A fun, first-person linear sci-fi shooter filled with a wide variety of enemies, weapons, and level aesthetics.
Tasked with handling core gameplay, visuals, animation, and overall player experience. Very rapid work pace.

Gameplay & AI:
- 3 unique boss fight scenarios and boss behaviors via state machine design pattern.
- Interactable doors, elevators, vending machine shops. Breakable/lootable props and hazardous environments.
- Different actions and behaviors for each weapon and player character type.
- Enemy squad communication, line-of-sight detection, player's last known location, intricate enemy wave system.

Art & UI:
- Textured 6+ weapons, 6+ enemy types with multiple variations.
- All UI including menus and HUD. Main menu cutscenes, menu navigation, and audio.

Animation:
- Custom rigs and animations for all unique enemy types with foot/hand IK pinning.
- Unique weapon switch, shoot, and reload animations for each weapon type.
- Duplicated/converted third-person humanoid enemy rig and animations for the player's first-person arm rig.
- Complex animation controllers and smooth transitions between various blend trees and states.

MINOR PROJECT EXPERIENCE

Lead Programmer | Drenched in Midnight | 1-Bit Game Jam | Horror | 08/2023 (1 Week)

Built with Unity | Team size of 2
Watch out for the vicious scream stalkers that only come out in the rainy darkness in this weird and creepy horror.
Did all level design and most gameplay systems including game loop, player and AI controller, and player interactions.
Wrote custom HLSL post-processing effects utilizing multiple render passes to achieve old-school pixelated visuals.

Lead Animator | Guardian of Root | Global Game Jam | 2.5D Platformer | 01/2023 (1 Week)

Built with Unity | Team size of 2
The natural, organic world has been taken over by robots and it is up to you, a goo-jerm, to restore nature to its roots.
Tasked with texturing, rigging, animating, as well as all UI and most player/AI mechanics.