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JERAD DUNN

#### **PROFESSIONAL EXPERIENCE**

#### **Obsidian Entertainment -** Irvine, California

The Outer Worlds 2 - Senior Engineer (AI/Gameplay) - Unreal Engine 5 - PC / Xbox Series X | S

- Architected, prototyped, and established new equipment type, collaborating with design lead; providing interfaces for both player and NPCs
- Prototyped and established new traversal actions for the player, collaborating with gameplay design and animation leads to reach desired feel
- Prototyped and established new animation-based traversal actions for NPCs, including mechanism to adjust root motion to hit specific locations
- Added mechanism to statically evaluate world geometry and automatically place navlinks as part of nav build, based on designer-tuned data
- Took ownership of NPC navigation; diagnosing/fixing issues with Unreal's Recast implementation and setting up automated nav build process
- Took ownership of NPC perception; adding features, improving debug tools, and diagnosing/fixing bugs for NPC sight, hearing, and damage
- Created toolset for authoring behaviors that control groups of NPCs for gameplay and scripting purposes, working closely with lead AI engineer
- Mentored junior engineers by performing code reviews, providing technical guidance/coaching on debugging and scheduling strategies

The Outer Worlds - Senior Engineer (AI/Gameplay) - Unreal Engine 4 - PC / PlayStation 4 / Xbox One

- Added new and modified existing NPC behaviors to finalize design's desired gameplay experience, using Unreal's behavior tree implementation
- Designed and implemented Wwise-based music system, including Unreal Blueprint and company-wide proprietary toolset scripting support
- Took ownership of save/load system; adding missing features, optimizing, and fixing bugs to bring it to stable, shippable state across all platforms
- Proposed and co-implemented process to automate portions of basic gameplay, providing a different avenue to identify stability/gameplay issues

## Electronic Arts Tiburon - Orlando, Florida

Madden NFL 18 - Software Engineer II (Presentation) - Frostbite Engine - PlayStation 4 / Xbox One

- Ported presentation systems (e.g., in-engine real-time cutscenes, camera framing logic, flow selection logic, etc.) and toolset to Frostbite engine
  Madden NFL 17 Software Engineer II (Presentation) Ignite Engine PlayStation 4 / Xbox One
  - Served as tech lead for small, multi-discipline team responsible for the narrative portion of the title installation gameplay experience
  - Exposed portions of gameplay systems to the presentation toolset, allowing design to influence gameplay to support a desired narrative
  - Iterated upon existing engine/presentation element scripting, increasing in-engine cutscene fidelity to decrease reliance on pre-recorded videos
  - Designed and implemented system for design to author UI-driven branching in-engine cinematics, with assistance from UI team

Madden NFL 16 - Software Engineer II (Presentation) - Ignite Engine - PlayStation 4 / Xbox One

- Served as tech lead for small, multi-discipline team responsible for sideline, crowd, and onfield character real-time postplay reactions/behaviors
- Added support for crowd characters to dynamically spawn and interact with in-hand prop objects, including designer scripting support

Madden NFL 15 - Software Engineer II (Presentation) - Ignite Engine - PlayStation 4 / Xbox One

- Created new after-play behavior set to allow onfield characters to exhibit real-time responses to the last play's result, decreasing cutscene reliance
- Debugged/resolved issues in and added minor features to proprietary animation system (e.g., locomotion, blending, multi-character interaction)

Madden NFL 25 - Software Engineer I (Presentation) - Ignite Engine - PlayStation 4 / Xbox One

- Replaced existing sideline and crowd character implementation to improve visual fidelity and responsiveness for new console generation
- Created mechanism to distribute limited number of animations (with time staggering) across a large number of characters
- Created scripting system to allow design to influence sideline and crowd animations in response to in-game play results and presentation flows
- Created mechanism to temporarily allow sideline characters to become unique to run their own logic, behaviors, and animations

Madden NFL 13 - Software Engineer Intern (Graphics), Software Engineer I (Presentation) - Impact Engine - PlayStation 3 / Xbox 360

- Created new sky rendering model that supported multiple animated layers of normal-lit clouds and progressive time of day lighting adjustments
- Implemented modular system to allow players to create a coach with swappable parts that was supported by in-game cinematics and UI screens

## **OTHER PROJECTS**

Autotron - Breeding a neural network to play Robotron: 2084 (work in progress, PC)

- Modified open-source C++ Multiple Arcade Machine Emulator (MAME) to add new functionality to existing Lua scripting mechanism
- Implemented C# version of <u>NeuroEvolution of Augmenting Topologies</u> (NEAT) genetic algorithm to create/breed neural networks
- Implemented C# program to launch MAME, play Robotron: 2084 via Lua plugin, then score/breed new neural network generations using NEAT

# TECHNICAL COMPETENCIES

Languages - C++, C#, C, HLSL, GLSL, Lua, Python, Java, SQL

**Technologies -** Unreal Engine 4/5, Unity, Perforce, Jira, Confluence, Swarm, Git, Hansoft, DevTrack, Code Collaborator

Skills - Peer Code Reviews, Object-Oriented Programming, Technical Documentation, Console Development, Scrum, 3D Math, Artificial Intelligence

## EDUCATION

Master of Science, Interactive Entertainment • Florida Interactive Entertainment Academy • University of Central Florida • Orlando, Florida Bachelor of Science, Digital Arts and Sciences (with honors) • University of Florida • Gainesville, Florida

2011 - 2017