JUAN D. LUGO

juandlugopro@gmail.com | (850) 848-7065 | Portfolio: juandlugo.com
LinkedIn: linkedin.com/in/juan-diego-lugo | GitHub: github.com/JDMAXilius.com

PROFESSIONAL SUMMARY

Technical Director and Senior Unreal Engine Developer with 10+ years of experience architecting high-performance, AI-driven systems, multiplayer frameworks, and simulation environments. Expertise in C++, Unreal Engine 5, and AI systems including Behavior Trees, Utility AI, and GOAP. Specialized in scalable networking, physics integration, and real-time rendering for immersive applications.

Proven leadership across 15+ complex modules including DevOps infrastructure, audio pipelines, AR/VR systems, and UI/UX. Experienced in multithreading, iOS development, and Python-based tooling for data processing, automation, and machine learning integration.

PROFESSIONAL EXPERIENCE

Technical Director | Mulholland AI | October 2024 – Present

- Leading architecture and development of Unreal Engine-based intelligent education assistant, integrating machine learning with real-time AI systems for natural interaction
- Designed and implemented modular AI framework using Behavior Trees, Utility AI, and ML inference to drive adaptive learning behaviors and user-personalized responses
- Developed multi-threaded subsystems to handle concurrent audio processing, animation control, and dialogue management across mobile and desktop platforms
- Integrated iOS and Android functionality, including speech capture, real-time inference, and mobile-optimized UI with Blueprint, Objective-C, and C++
- Connected real-time features with Firebase, OpenAI API, and Eleven Labs for authentication, chat completion, and high-fidelity speech synthesis
- Collaborated with designers and ML researchers to align conversational AI, visual feedback systems, and character responsiveness for fluid user experience

Lead Game Programmer | DNE Games | July 2024 – April 2025

- Led development of core gameplay systems and combat mechanics for *New Moons*, a competitive multiplayer FPS built in Unreal Engine
- Architected advanced networking solutions, including custom state synchronization, lag compensation, and client-side prediction for responsive online play
- Engineered precision hit registration, movement prediction, and anti-cheat validation systems to ensure fairness and low-latency multiplayer experiences
- Designed modular weapon and ability systems using the Gameplay Ability System (GAS), supporting custom attributes, recoil logic, and animation states
- Developed matchmaking, session management, and region-based server scaling with support for reconnection and cross-region latency smoothing
- Collaborated with designers and technical artists to implement complex player movement (sliding, wall-running), progression systems, and UI features

Senior Backend Engineer | SHIB The Metaverse | January 2024 – August 2024

- Developed and maintained backend gameplay systems in Unreal Engine, including custom implementation of the Gameplay Ability System (GAS) for managing character abilities, attributes, and combat mechanics
- Engineered dynamic weapon system supporting both hitscan and projectile logic, integrated with GAS for real-time ability and equipment transitions
- Built scalable session and lobby infrastructure using Epic Online Services (EOS) and PlayFab for authentication, matchmaking, and player state persistence
- Integrated voice and chat communication systems using EOS, ensuring secure, performant real-time player interaction
- Managed dedicated server orchestration with Docker, Kubernetes, Agones, and AWS, enabling on-demand scaling and high availability
- Contributed to Web3 feature integration through blockchain wallet authentication and interaction with Shib application APIs

Lead AI Programmer / Game Programmer | Zollpa | October 2022 – November 2023

- Led architecture and development of advanced AI behavior systems using Behavior Trees, EQS, Utility AI, and Smart Objects across multiple game modes (Team Deathmatch, Capture the Flag, Control Points)
- Designed modular combat logic driven by the Gameplay Ability System (GAS), enabling dynamic targeting, weapon switching, ammo management, and team-based tactical decisions
- Built AI navigation and perception systems using NavMesh, line of sight checks, and point-of-interest evaluation for reactive and evasive bot behavior
- Implemented AI spawner systems, match rules, game state progression, and combat decision-making across both PvE and PvP scenarios
- Developed robust multiplayer logic in C++ and Blueprints, integrating EOS, Redpoint, and PlayFab for data persistence, session management, and player profiles
- Collaborated with designers to balance AI difficulty, define win/loss logic, and tune responsiveness across game modes

---

KEY PROJECTS

RoboSquad Revolution | Lead AI Programmer & Game Systems Developer | Zollpa | 2022–2023
Published on Epic Games Store and Steam

- Designed and implemented AI combat systems using GAS, EQS, and Behavior Trees
- Developed modular weapon logic, team coordination, and game mode rule sets
- Led integration of dynamic animation, spawner logic, and state-driven AI behavior

New Moons | Lead Game Programmer | DNE Games | 2024–2025
Available on Steam

- Built game's networking core, including lag compensation, matchmaking, and scalable session architecture
- Designed weapon and ability systems with GAS, including recoil, projectile logic, and syncing combat states
- Implemented complex player movement systems including sliding and wall-running mechanics

The Blind Forest | Lead Programmer & Technical Artist | Independent Project | 2021
Published on simmer.io

- Developed interactive visual novel using Unity, integrating 2D animation, logic-based progression, and branching dialogue trees
- Led all technical implementation, art direction, and deployment to web platform

Lord of Kings | Lead Developer | Independent Project | 2022
Published on Steam

- Built tactical fantasy combat game using Unreal Engine 4
- Created character abilities, faction systems, and AI-driven combat loop
- Handled gameplay programming, animation integration, and game state design

---

TECHNICAL SKILLS

Programming Languages: C++ (Advanced), Blueprint, Python, Objective-C, HLSL, GLSL

Game Engines & Frameworks: Unreal Engine 5, Unity, Gameplay Ability System (GAS), UMG/Slate, Enhanced Input System

AI & Simulation Systems: Behavior Trees, EQS, Utility AI, GOAP, AI Perception, Machine Learning Integration, Spatial Reasoning, Decision-Making Systems

Animation & 3D Tools: Unreal Engine Animation Systems, Animation Blueprints, State Machines, Motion Warping, Inverse Kinematics

Multiplayer & Networking: WebSockets, Replication, State Synchronization, Lag Compensation, Client-Side Prediction, Matchmaking, Epic Online Services, PlayFab, Session Persistence

Mobile & Cross-Platform Development: iOS & Android Development, Unreal/iOS Bridge, Firebase Integration, Real-time Audio & UI Integration

Rendering & Graphics: Custom Shaders (HLSL/GLSL), Post-Processing, Lighting Systems, Dynamic LOD, Material System, Cinematic Systems

Audio Systems: Spatial Audio, Real-Time Processing, Audio-driven Gameplay, Voice Chat Integration

DevOps & Deployment: Docker, Kubernetes, Agones, Jenkins, GitHub Actions, AWS, Google Cloud Platform, CI/CD Pipelines

Tools & Source Control: Git, Perforce, Plastic SCM, Jira, Trello, Slack, Notion, Figma, JetBrains Rider, Visual Studio

Mathematics & Physics: 3D Mathematics, Linear Algebra, Physics Simulation, Kinematics, Pathfinding, Navigation Systems

---

EDUCATION

Bachelor of Science in Game Development | Full Sail University, Winter Park, FL | 2020–2022
GPA: 3.62 | Course Director Award