

## Ryan J. Smith – Senior Gameplay Engineer

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### SUMMARY

Senior Gameplay Engineer with 10+ years of experience building combat systems, animation-driven mechanics, and multiplayer gameplay features in Unreal Engine. Shipped four commercial game titles — *WWII Online: Chokepoint*, *Perception*, *Bacon Man*, and *Shadows of the Lost (alpha)* — along with four Unreal Engine network VR/AR simulators deployed to the U.S. DoD and allied military forces worldwide.

Specializes in scalable C++ gameplay architecture bridging mechanics, AI, animation systems, physics, UI, and networking. Focused on responsive combat, clean object-oriented C++ design, and extensible gameplay systems supporting animation-heavy, highly reactive player experiences across PC and console.

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### EXPERIENCE

#### Senior Gameplay Engineer | Playnet, Inc. – WWII Online: Chokepoint (2025–Present)

- **Redesigned core weapon handling** and gameplay state systems in C++ to ensure deterministic client/server authority and responsive combat behavior.
  - **Built loadout customization system integrating Common UI**, inventory logic, and multiplayer spawn states.
  - **Implemented gunfire positional audio** using the **Gameplay Ability System (GAS)** using custom notify classes improving prediction reliability and synchronization across 32-player online sessions.
  - **Profiled gameplay systems using Unreal Insights** and Stat commands; reduced Blueprint tick overhead and improved combat-scene frame stability.
  - **Architected** networked **footstep audio** via the Ability System Component with Animation Notifies & Gameplay Cues to deliver surface-based sounds with authoritative replication and stance-aware dynamic attenuation.
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#### Senior Gameplay Engineer | Bode Software – Shadows of the Lost (2025)

- **Designed modular combat damage framework** supporting multiple damage types, stat scaling, resistances, and triggered status effects, implemented in C++ with data-driven structs and curve tables to allow designer-configurable tuning without recompilation.
  - **Extended Behavior Trees** with leash systems and designer-configurable combat radius constraints, integrating NavMesh validation and runtime boundary checks to prevent unintended pursuit states, AI desynchronization, and edge-case pathing failures.
  - **Built trace-based fall damage and collision-response systems** using scalable damage curves and vector math, encapsulated within reusable C++ components exposed to Blueprint for consistent player/AI behavior.
  - **Developed boss encounter management framework** coordinating arena boundaries, Sequencer-driven animation events, UI feedback, Niagara VFX triggers, and gameplay phase transitions via state-controlled phase logic and event binding.
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## Senior Software Engineer (Unreal) | Raytheon Technologies (2017–2025)

- **Architected Unreal Engine gameplay systems** for Patriot Multi-Echelon Trainer, programming C++ and C# COM bridge integration, HUD management, inventory stacking, and TMDE diagnostic tools UI while maintaining Game Manager and simulation state coordination across multiple code bases.
  - **Led design** and deployment of a **real-time TMDE tablet application for displaying diagnostic tool signals** (Unreal + C#/.NET), implementing bidirectional socket communication, tablet state synchronization, and secure hardware telemetry validation to maintain deterministic behavior during live field installation at Ft. Sill.
  - **Developed proportional navigation missile guidance** and real-time vector math systems for Stinger Virtual Trainer, converting Blueprint logic to optimized C++, isolating calculations to multithreaded workers, and improving frame stability during multiplayer sessions in a VR & missile launcher HW model hybrid environment.
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## Gameplay Programmer | The Deep End Games – Perception (2017)

- **Designed core player abilities** and AI state-driven behaviors in Unreal using C++, Animation Blueprints, BP Interfaces, and Event Dispatchers to coordinate environmental triggers, AI responses, and cinematic events.
  - **Developed the game's signature echolocation mechanic** by synchronizing animation notifies, audio cues, and collision traces to generate dynamic material and particle feedback across streamed levels, ensuring consistent player feedback under varying lighting and occlusion conditions.
  - **Profiled and optimized** Animation Blueprints, level streaming transitions, and particle systems using **Unreal** FrontEnd and in-engine stat tools, reducing CPU overhead and stabilizing frame times across target platforms.
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## TECHNICAL SKILLS

**Unreal Engine 5 (UE5/UE4):** C++ Gameplay Programming (UE5), Unreal Blueprint Scripting, Gameplay Ability System (GAS), Animation Blueprints, Animation Montages, Animation Notifies, Blend Spaces, Enhanced Input System, UMG, Level Sequencer, Unreal Insights Performance Profiling, Multithreaded Development

**Gameplay Systems:** Gameplay Combat & Abilities Systems, Inventory & Item Systems Architecture, Physics & Collision Systems, Data-Driven Systems (Data Tables, Data Curves)

**AI Systems:** Unreal AI Systems (Behavior Trees, Blackboard, EQS, NavMesh), Finite State Machines, perception-driven logic, combat targeting, leash systems, designer-configurable behavior tuning

**Multiplayer & Replication:** Client-Server Model, RPCs (Server/Client/NetMulticast), Net Relevancy, bandwidth optimization, client prediction, authoritative state validation, 32-player synchronization

**Engine & Physics Experience:** Implemented a custom C++ game engine integrating the Havok Physics SDK, including rigid body simulation, collision detection, and continuous collision detection (CCD).

**Programming:** C, C++, C#, Python

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## EDUCATION

**B.S. Game Programming & Development** – Southern New Hampshire University - GPA: 3.98

**Harvard CS50x / CS50g Certificates** – Computer Science & Game Development