RYAN J SMITH

GAMEPLAY PROGRAMMER & SENIOR SOFTWARE ENGINEER

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CAREER OBJECTIVE

Passionate and detail-oriented Senior Game Developer with 8+ years of experience in game development, simulation, and interactive experiences. I am skilled in Unreal Engine, C++, and AR/VR gameplay programming, I specialize in developing core gameplay mechanics, AI behaviors, UI/UX experiences, database integrations, and performance optimizations. My expertise spans multiplayer simulations, immersive training environments, and real-time interactive experiences for both the gaming and defense industries. I have worked on VR training simulations, missile guidance algorithms, and Test Maintenance Diagnostic Equipment (TMDE) tools integration, focusing on realism and precision. Dedicated to leveraging my technical expertise and creative problem-solving skills to develop engaging and high-quality gaming experiences.

WORK EXPERIENCE

Software Engineer & Unreal Engine Gameplay Programmer
Raytheon Technologies | 2017 – 2021

Patriot Multi-Echelon Trainer (PMET) | 2017 - 2021

- Developed a simulation-based classroom training tool for the Patriot Missile System using C#, C++, and Unreal Engine within a cross-functional team.
- Served as a core architect, designing, implementing, and debugging a globally deployed simulation used by 17 nations.
- Key contributions:
    - Created a COM Bridge messaging interface between C++ and C# legacy codebase.
    - Co-developed UI/UX for main game loop mechanics.
    - Implemented digital replicas for T&M diagnostic equipment.
    - Designed training scenarios using SQL queries.
    - Enhanced interactable radar part functionality and animations.
    - Refactored the user tool inventory system.
- Notable Achievement: Designed and implemented Spectrum Analyzer and Digital Oscilloscope functionality, doubling training scenario testing capacity.

Patriot Maintenance Trainer (PMT) | 2018 – 2019

- Developed a hardware-based training simulation for the Patriot Missile System using Unreal Engine, C#, SQL, and XML.
- Key contributions:
  - Refactored the messaging system for seamless communication between C# and Unreal Engine.
  - Optimized multi-threading and XML read functionality.
  - Re-engineered parts data structures and resolved critical system failures in a classified hazardous environment.
- Notable Achievement: Synchronized 500+ radar parts across Unreal Engine, XML hardware input files, and SQL databases in under two weeks, reducing regression testing time by 20%.

Test Maintenance Diagnostic Equipment (TMDE) Tablet App | 2019 – 2020

- Led the design and development of a real-time MS Surface application interfacing with Patriot Maintenance Trainer hardware simulations.
- Key contributions:
  - Built a UI/UX-focused application using Unreal's UMG UI system.
  - Designed emulated diagnostic tools (Power Meter, Frequency Counter, Digital Oscilloscope, Spectrum Analyzer).
  - Developed C# socket-based network communication and refined the supplementary trainer station application.
  - Established wireless communication between the tablet and hardware simulation.
  - Managed the build and testing process for MS Surface deployment.
- Notable Achievement: Part of the final install team at Ft. Sill, resolving last-minute bugs, producing release builds in a classified lab, and passing the IPSEC Security Audit despite a six-month development delay.

Patriot Maintenance Augmented Trainer (PMAT) | 2020 – 2021

- Led a team in converting the PMET simulation into an augmented reality (AR) experience using MS HoloLens2 and Unreal Engine's Extended Reality Plugin.
- Notable Achievement: Delivered a fully functional prototype in just three months, successfully executing training scenarios.

Additional Contributions to Patriot Trainers

- Set up, maintained, and administered Perforce source control.
- Adapted PMET for CAVE technology at Raytheon Andover.
- Spearheaded IT infrastructure improvements.
- Assisted in debugging and optimization of Patriot Trainers' build processes.
- Ensured compliance with security protocols during Army product deliveries.

Senior Software Engineer
Raytheon IRAD & Vertex Aerospace | 2022 – 2023

Stinger Virtual Trainer (SVT)

- Developed a multiplayer VR training simulation for the FIM-92 Stinger Missile System using C++ and Unreal Engine.
- Key contributions:
    - Implemented Proportional Navigation Missile Guidance algorithms.
    - Designed and developed the menu system.
    - Performed performance profiling and network replication optimizations.
    - Integrated report card tracking and Ukrainian localization.
- Notable Achievement: Successfully collaborated remotely with Ukrainian engineers and Vertex Aerospace, completing the final 30% of an MVP build within three weeks.

THAAD Radar Virtual Trainer (TRVT)

- Assisted in developing the Terminal High Altitude Area Defense (THAAD) training simulator, leveraging experience from Stinger and Patriot training simulations.
- Key contributions:
    - Co-developed SQL pipeline communication and interactable parts base class.
    - Refined the inventory system.
    - Managed collaboration between Raytheon and Vertex Aerospace for MBSE documentation and Test-Driven Development (TDD) strategies.
- Notable Achievement: Optimized the MBSE pipeline, reducing milestone completion times by 33%.

Unreal Engine Gameplay Programmer
The Deep End Games | 2017

Perception

Played a key role in the development of Perception, a multi-platform horror adventure title, by leveraging expert knowledge of Unreal Engine to optimize performance, enhance gameplay, and accelerate development milestones. Successfully surpassed project goals ahead of schedule, leading to a 20% reduction in the cost-to-sales ratio.

Key contributions

- Unreal Engine Expertise – Worked extensively with Unreal's C++ API, Blueprint scripting, AI state machines, UMG UI interaction, cinematic events, event handling, blueprint interfaces, and performance profiling with Unreal FrontEnd.
- Gameplay Innovation – Developed and refined core mechanics, including AI behavior and the main character's whistling mechanic, improving player immersion and overall game appeal.
- Technical Leadership - Spearheaded optimization efforts in level streaming, combat systems, animation blueprints, particle effects, and material manipulation to enhance game stability and engagement.

The culmination of these efforts contributed to Perception's successful launch across multiple platforms, delivering an innovative sensory-driven horror experience to players worldwide.

Unreal Engine Gameplay Programmer
Robot Loves Kitty | 2016

Upsilon Circuit

As part of the Upsilon Circuit team at Robot Loves Kitty, we worked to create an ambitious and innovative indie game. Using Unity, we enhanced gameplay systems, refined mechanics, and optimized network infrastructure for a smooth player and viewer experience on mobile and PC. Advanced AI techniques—Pathfinding (A*), Finite State Machines, and Behavior Trees—brought NPC interactions to life. Our multiplayer implementation leveraged Photon, Socket.IO, and REST APIs within a Client-Server Architecture for seamless online play.

Key Contributions:

- Revamped core gameplay elements, including network performance, item database accuracy, web server functionality, level streaming, world triggers, AI Pathfinding, and power-up interactions.
- Developed a custom Slack plugin integrating Mantis bug tracking, reducing testing time by 15%.
- Automated playtest setup scripts, cutting setup time by 50%.
- Managed the Mantis bug database on an Apache server, reducing debugging time by 25%.
- Built and maintained test cases, supporting QA and enabling milestones to be met within a 10% margin.
- Oversaw nightly automated builds and ensured playtest readiness for publishers.
- Served as the primary point of contact (POC) for publisher communication during daily standups.

Playtesting & Broadcast Ops:

- Configured game servers for stable multiplayer and publisher showcases.
- Developed test cases for server integrity and gameplay performance.
- Set up and operated broadcast hardware for live playtests.

Technical & Creative Contributions:

- Implemented Monetization Strategies (F2P, In-App Purchases, Ads) and supported LiveOps for player engagement.
- Fostered team collaboration, cross-disciplinary communication, and deadline-driven development in a remote and onsite setting.

This role required problem-solving, creative thinking, and leadership, balancing time management with the complexities of cross-platform game development while pushing the boundaries of innovation.

Unreal Engine Gameplay Programmer
Skymap Games | 2015

Bacon Man

As an intern at Skymap Games, I played a pivotal role in the development of "Bacon Man: An Adventure," a 3D action platformer inspired by classic titles like "Mega Man X" and "Earthworm Jim." During my tenure, I contributed to the team's growth, witnessing a significant expansion of over 600% in team size.

Key Contributions:

- **Custom Level Design:** Collaborated with the primary Kickstarter backer to conceptualize and create a unique level in "Bacon Man." This involved designing 3D models, integrating them into the game, and ensuring seamless collision mechanics to enhance gameplay.
- **Bug Tracking Implementation:** Developed and managed a comprehensive bug-tracking system, streamlining the identification and resolution of issues, which improved overall game stability.
- **Beta Testing Coordination:** Organized a beta testing event at Southern New Hampshire University, engaging over twenty participants. This session generated more than twenty-five pages of valuable feedback, directly influencing game refinements.

"Bacon Man: An Adventure" was successfully funded through Kickstarter and is available on platforms like Steam and Nintendo Switch.
store.steampowered.com

This experience honed my skills in game design, project management, and collaborative development within a rapidly growing team.

TECHNICAL SKILLS

Programming & Software Development

- Languages: C, C++, C#, Java, JavaScript, Python, XAML, XML, HTML/CSS, Lua
- Engines & Simulation: Unreal Engine, Unity, Steam API, Love2D, Construct
- Development Tools: Visual Studio, VS Code, SQL Server Management Studio, Linux, Apache, Cameo MBSE, Flask, Moq, Jira, GitLab, GitHub, SVN, Perforce
- Networking & Security: DevSecOps, Test-Driven Development, MBSE, Security Protocols
- AR/VR/XR Development: Microsoft HoloLens 2, Unreal Engine XR Plugin, 3DS Max

Infrastructure & Database Management

- Cloud & DevOps: Azure DevOps, Docker, Kubernetes
- Databases: SQL, Entity Framework, JSON, XML, XAML

Miscellaneous

- Arduino Hardware Programming
- 3D Modeling & Graphics Software
- Debugging & Performance Optimization

SOFT SKILLS

- **Problem-Solving** – Quickly identifying and resolving technical and design challenges.
- **Creativity** – Thinking outside the box for game mechanics, storytelling, and level design.
- **Collaboration** – Working effectively with designers, artists, and other developers.
- **Communication** – Clearly articulating ideas, feedback, and technical concepts.
- **Adaptability** – Adjusting to changing project requirements and new technologies.
- **Time Management** – Meeting deadlines and managing workloads efficiently.
- **Attention to Detail** – Ensuring quality in code, UI/UX, and gameplay mechanics.
- **Patience & Resilience** – Handling bugs, setbacks, and iteration cycles.
- **Player Empathy** – Understanding the player's perspective for better design decisions.
- **Leadership** – Guiding teams, mentoring others, and managing projects as needed.

NOTABLE ACHIEVEMENTS

- Two promotions within the first three years at Raytheon.
- Certified Instructor for SNHU online courses.
- Gameplay Developer on the published title Perception.
- Winner of the SNHU Art Gallery Exhibit – artwork displayed on campus.
- CEO of a tech startup with extensive customer service & sales experience.
- Active DoD Secret Clearance.
- Harvard University CS50x Computer Science Certificate
- Harvard University CS50g Game Development Certificate