

BRIAN ERNST

[linkedin.com/in/leetnightshade/](https://www.linkedin.com/in/leetnightshade/)

SKILLS & SPECIALTIES

Languages: C++, Python, C#, Java, ActionScript 3, Lua, etc.

Platforms: PC, Nintendo Switch, Steam, PS4, XboxOne, iOS, Android, Nintendo DS, Linux (limited)

Engines: Unreal 4&5, CryEngine, Godot (limited), Gameloft's Glitch Engine (Irrlicht based), Unity 3D (limited)

APIs: WinAPI, WinForms, Win/POSIX Threads, Berkeley Sockets, DirectX 9/10 & HLSL, OpenGL 2/ES

Unreal Engine: Animation Blueprints, Animation State Machines, Blend Spaces, Blueprints, Common UI, Data Assets & Tables, Enhanced Input, Gameplay Ability System, Gameplay Debugger, Material Shaders, Montages, Networking, Unreal Insights, etc.

EMPLOYMENT HISTORY

Singularity 6, Senior Gameplay Engineer

Apr 2019 – Apr 2024

Palia (PC, Switch, Steam)

- Cozy multiplayer community game in Unreal 4 and 5 with C++, Blueprint, and Python, using UE's Gameplay Ability System
- With Animation lead set foundation for character's locomotion and tool handling, and how fish animate in the minigame
- Wrote RFCs to: set the foundation for creating cheats and debug tools for every gameplay feature; set the foundation for feature creators to create and maintain feature test maps; Animation Blueprint best practices
- Wrote docs on: Actor & Component Replication guarantees to improve upon private Unreal docs around it; Montage gotchas; Gameplay Debugger use; cheats for every gameplay feature and accompanied UI cheats, console variables/commands, and Gameplay Debuggers for said feature
- Wrote build and launch scripts and material shaders as needed
- Worked on most of my team's systems, player skills, player components, player abilities, UI, generic interactor and interactable system, gatherables & shops, player & NPC movement optimization, telemetry, etc.
- Added first accessibility feature: 3 different sprint modes so players can choose their preferred mode

Treyarch Studios (Activision), Gameplay Engineer

Mar 2017 – Apr 2019

Call of Duty: Black Ops 4 (PC, PS4, XboxOne)

- Worked with C++, game script, and Lua
- Developed weapons, gadgets, and score streaks
- Single engineer who guided designers/scripters with Combat Training
- Fixed script serverfield system, Script VM bugs
- Worked on player abilities, created three minigames, vehicle flare for impacting incoming missiles, flying vehicle roll with fancy cam, vehicle AI behavior, vehicle tail/brake/reverse lights
- Made material physics affect vehicles, friction and fluid depth resistance (water, mud, sand, etc.), and hydroplaning

Blind Squirrel Games, Gameplay Programmer

Mar 2016 – Feb 2017

Trove (PS4, XboxOne)

- Helped port PC MMO, Trove, to PS4 and Xbox One
- Improved input action system and made data driven bindings, fixed controller issues, camera issues, etc.
- Fixed tricky memory violations and compute shader issues
- Saved UI weeks of work, designers were so happy they hugged me

Red 5 Studios, Gameplay Programmer

Oct 2015 – Feb 2016

Firefall (PC)

- Prepped Firefall for the Chinese market and helped port x64 client
- Worked on cool new features like the time dilation bubble

IllFonic, Gameplay Programmer

Nov 2013 – Sept 2015

Star Citizen (PC)

- Created magnetic boots for walking around arbitrary surfaces (Crytek praised)

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- Handled player rotation and movement, including making CryEngine support zero-gravity player movement
- Set up all weapons and gadgets; revamped weapon sway and recoil
- Created grapple beam gadget with impulses to cancel extra velocity, speed player toward walls, and slow before impact
- Created IK based weapon sway, and procedural helmet sway to replace animation-based movement

Gameloft, Generalist Programmer

Dec 2011 – Oct 2013

Cosmic Colony (iOS), *Ice Age Village* (iOS), *Oregon Trail American Settlers* (iOS)

- Lead prototype, created Python data pipeline that efficiently handled gigabytes of data
- Performance improvements, dynamic loading/unloading sprites, fixed memory leaks, created monetized mini-game, built/uploaded DLC, managed a DLC release, did QA and Gold builds for iOS App store, etc.
- Worked on Python scripts and C# tools that made once tedious work quickly manageable

1st Playable Productions, Gameplay Programmer (Co-Op)

Jun 2009 – Nov 2009

World of Zoo (NDS), *Club Penguin: Herbert's Revenge* (NDS)

- Created mini-games in C++ for World of Zoo (pictured on the back cover), and for Club Penguin
- Setup story sequences, puzzle items, & created scripting queue system for Club Penguin, etc.

FREELANCE

Underminer Studios, VR Contractor (Part-time)

Jan 2016 – Jul 2016

Vrideo (PC, PS4)

- Created Unity C++ HTTP video streaming plugin with FFmpeg for Win32 and made sure it worked flawlessly with HTC Vive and Oculus Rift; created 60fps Unity C++ HTTP video streaming plugin for PS4

PROJECTS

Distorted Realities, Gameplay Programmer (Indie)

Present

[Untitled greybox prototype] (PC, Steam Deck, Linux)

- C++ and GDScript. Experimentally pushing the limits of Godot Engine. Diving into AI, aiming for F.E.A.R. and Left 4 Dead
- Singleplayer FPS trainer, help player improve their weapon handling skills and make them feel like a GOD

EDUCATION

Rochester Institute of Technology, Bachelor of Science, Cum Laude (Video Game Design & Development)

2011

ACADEMIC PROJECTS (Select)

2D PlasmaTech Engine, Engine and Game Systems Programmer

2010 – 2011

- C++ with DirectX 10. Setup rendering systems: Effect file, Sprite Sheet, Camera, Mesh, etc
- Wrote Content Manager for loading textures and models. Added Math-helpers (ray picking screen-to-world, etc.)

Upwards (open world voxel game in sky), Engine Programmer

2010

- C++ with DirectX 9. Start of my **cross-platform** Warp Engine w/ components abstracting platform functionality
- From scratch: UI systems, gadgets, font renderer with Unicode code points, etc.

Robo Assault, (3rd Person Networked Shooter), Gameplay Programmer

2010

- C# with XNA
- Setup camera & controls, players physics, networking, networked game statistics, chat, and robust kill-feed messaging

Fluffymaner & unnamed RTS, (3rd Person Shooter & Top down RTS), Gameplay Programmer

2008 – 2009

- C# with XNA
- Systems creation: NPC AI, spatial store, skinned animation, debug primitive batch drawing, etc.