Andrew Coggin
Engine and Game Programmer

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Professional Experience

Cybernetic Entertainment - *Programmer*   **2018 - Present**

Luminant Music - Unity-Powered music visualizer
- Implemented support for Spotify
- Helped manage internal build system

Luminant Robots - Educational Entertainment App using Unity
- Developed a block-building Lego-style system in Unity
- Blocks were dynamically attachable/detachable at runtime
- Supported efficient rendering via automatic dynamic mesh welding, hidden block removal, and hidden face removal (important for tops containing rounded studs).
- Implemented A star path finding for navigation and collision avoidance within a block scene
- Wrote custom subsurface scattering shader and implemented system to generate "thickness" property which changed whenever blocks were attached or detached

Nerd Kingdom - *Programmer*   **2017 - 2018**

Unannounced Project - Unity-Powered game for PC, Mac, iPhone, and iPad
- Implemented a fog-of-war style system, code and shaders, that reveals or modifies the look of the world wherever the player goes
- Developed the backend for a fully functional Diablo-style inventory system and its items
- Created a fully 3D UI for a Diablo-style inventory system that supported mouse and touch input
- Implemented the character controller for the main character along with all its physics including swimming

TUG 2 - Survival Sandbox Game for PC and Mac
- Implemented mouse-driven UI for the player's inventory and item hotbars
- Developed a fog-of-war style mapping system for the Eternus engine including, including the HLSL/GLSL shaders it uses

Doppelgamer LLC - *Lead Programmer / Co-Founder*   **2013 - 2018**

Xenophobia - Top-Down Roguelike for Multiple Platforms using Custom Engine (Pre-Alpha)
- Implemented 3D tileset system with cell-based scene management
- Added material-based automatic shader fragment generation
- Added skeletal mesh and animation support along with FBX importer
- Implemented tracing, collision, and pathfinding
- Developed particle system supporting billboards and beam/line emitters
- Implemented 4-player co-op with system featuring RPCs, variable replication, and data compression
- Developed simple scripting language used for data definition and commands

Skytrain Studios - *Programmer*   **2012 - 2016**

Cloud Spin - UDK-Powered Game for iPhone and iPad
- Sole programmer; wrote all game code
- Developed spline-based camera track code
- Implemented gliding and sliding physics
- Implemented UI including menus and in-game HUD
- Implemented all game logic including scoring, leaderboards, and achievements

Unannounced Project - Physics-Based Side-Scroller for Mac, iPhone, and iPad
- Developed custom 2D-3D engine (C++) with support for endless horizontal scrolling
- Developed OpenGL ES 2.0 renderer and support for static meshes and 2D animated sprites
- Developed editor (Mac OS X) that featured actor placement and a spline-based ground creation tool
- Implemented 2D dynamic collision system with support for inverted tracks and loops

Psyonix - *Game Programmer*

Unannounced Project **(Cancelled) - Unreal-Powered, 3D Side Scroller**
- Modified Unreal's pawn, camera, and physics code to limit movement to 2D
- Wrote custom 2D overlap avoidance code for dinosaurs
- Implemented various gameplay system such as ledge-grabbing and check-points

A.R.C. Squadron **(Multiplayer PC Version) - Unreal-Powered Jet Combat Game**
- Worked on capture the flag mode and weapon systems

Gearbox Software - *Programmer*

2006 - 2009

Unannounced Turn-based Strategy Game for Nintendo DS and Sony PSP
- Responsible for all game code on both Nintendo DS and PSP
  - AI and pathfinding
  - Tile visibility and fog of war
  - Unit animation and combat
  - Game state synchronization for multiplayer
  - In-game menus, windows, and states
- Implemented core renderer and terrain tile system for the Nintendo DS version
- Designed and implemented UI widget and menu window system

Aliens: Colonial Marines - Initial Prototype
- Contributed to early vertical-slice prototype
  - Worked on player net-code
  - Worked on weapon code

Education

The Guildhall at SMU – Dallas, TX
Graduate Certificate in Digital Game Development

Jan. 2005 - June 2006

Texas Christian University – Fort Worth, TX
B.S. – Major: Computer Science, Minor: Music

Sept. 1997 - Dec. 2002

Skills

Languages: C++ 11/14/17, C, C#, GLSL, HLSL, Lua, Squirrel, UnrealScript, Unreal Blueprint, Java, TypeScript
Engines/APIs: OpenGL, DirectX, Unity, Unreal, Nintendo NitroSDK/NitroSystem, FMOD, others
Software: Visual Studio, Xcode, Code Warrior, Perforce, SVN, Git, Photoshop (limited), Gimp (limited)
Programming: Skeletal Animation, Collision Detection, Shaders, AI, Pathfinding, Physics, Multiplayer, Particle Systems, Scripting
Language Implementation, 3D Terrain with Chunk-based LOD, Octrees, BSP Trees