Henry Earnest

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EDUCATION

Brown University | B.Sc, Computer Science | GPA: 3.9 Providence, RI | **Expected Graduation May 2025**

- Relevant Coursework: *2D Game Engines, 3D Game Engine Development, Advanced Computer Graphics, Data Structures and Algorithms, Computer Vision, Software Engineering, Deep Learning, Computer Systems*

GAME DEVELOPMENT PROJECTS

Producer | Brown-RISD Game Design's *Hungry Haus* | Godot *(team of 20)* *Providence, RI | Feb 2025 – Present*

- Led a Godot Engine workshop, introducing fellow programmers to core engine concepts in a hands-on format.
- Managed a team of 20+ programmers and artists, assigning tasks to ensure steady, weekly progress.
- Facilitated key design discussions, guiding decisions on narrative, core mechanics, and game systems.

Lead Programmer | *Scale Mail* | Godot *(team of 7)* *Aug 16th-20th, 2024*

- Ranked #4 out of 7600+ entries in the Game Maker's Toolkit yearly 4-day game jam as an inventory management game.
- Ranked #2 in the Enjoyment category, with satisfying inventory management mechanics and charming art.
- Received the "Top Marks" award, a category for the top 20 games handpicked by the jam creator, Mark Brown.
- Designed and implemented the item system, including resizing, placement, and inventory mechanics.
- Programmed screen transitions, the level select screen, interactive credits screen, victory screen, and most UI elements.
- Developed unique mechanics like the item weight system, candy jar scoring system, and 3-star scoring system.

Lead Programmer | Brown-RISD Game Design's *Inkbound* | Unity, C# *(team of 15)* *Sep 2024 – Nov 2024*

- Created 30+ tasks for fellow developers to complete in an organized programmer notes document.
- Described the 12 C# classes in the codebase in the same document for programmers to reference.
- Implemented the core mechanics in a demo prototype for early feedback.

C++ Programmer | Arduino Game Console | Arduino C++ *(team of 3)* *Providence, RI | Oct 2024 – Dec 2024*

- Ideated and implemented 2 arcade games on an Arduino, achieving 85+ FPS gameplay on an SPI screen with joysticks.
- Improved framerate by >2000%.by optimizing the SPI drawing bottleneck for 30+ objects moving every frame.
- Programmed a FSM for game logic, with bonus features for game switching, watchdog timers, and ISRs for menu buttons.

3D Game Engine | C++, Qt *(solo)* *Spring 2024*

- Built a complex 3D game engine with 3D mesh collisions, an entity-component system (ECS), and navmesh pathfinding.
- Collaborated to create an aim trainer game with polished UI as a final project, with real-time rendering and bullet raycasting.

2D Game Engine | Java, JavaFX *(solo)* *Fall 2023*

- Constructed an extensible Java 2D game engine, writing 9500+ lines of code over the course of a semester.
- Received 10+ playtests of a game created using the engine for a final project, implementing custom physics joint constraints.
- Implemented concepts including a UI toolkit system, polygon collisions, A* pathfinding, XML loading, and 2D physics.

TECHNICAL EXPERIENCE

2D Game Engines | Head Teaching Assistant, Lecturer *Providence, RI | Sep 2024 – Present*

- Lecturing 12-25 students weekly on game development and game engine material.
- Grading programming assignments from students, requiring analysis of unfamiliar codebases.
- Holding 4 office hours every week for conceptual questions and debugging support.

Brown University School of Engineering | IT Technical Assistant *Providence, RI | Sep 2022 – Present*

- Wrote 3 Google Apps Scripts to automatically email IT employees, updating them on inventory status and room status.
- Condensed 10+ inventory Google Sheets into two, enabling easy location of items in inventory.
- Solved a bug that blocked IT operations for 30+ days, documenting both causes and solutions of the issue.

Town of Normal | IT Intern *Normal, Illinois | Jun 2023 – Aug 2023*

- Condensed 8+ onboarding pages into one TypeScript-based interactive web part for onboarding new employees.
- Converted 2 years of unorganized Fire Department calendar data into an accessible, modern SmartSheet for future usage.

SKILLS & INTERESTS

Programming Languages: C#, GDScript, C++, Java, Python, JavaScript, UE Blueprints, HTML/CSS, C, x86 Assembly
Frameworks/Libraries: Godot, Unity, Unreal Engine, Qt, Git, Adobe CC, Shaders (GLSL, HLSL), OpenGL, Eigen, NumPy
Activities & Interests: Pixel Art, Music Production, Competitive Gaming, Jiu Jitsu, Calisthenics, Meditation