

Alexander Wilson

Software Engineer — Game Development

Austin, TX

Programmer with a background in computational physics, experienced in simulation, multiplayer networking, procedural generation, pathfinding, and AI systems (FSMs, behavior trees).

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Projects

- 2D Online Multiplayer Game - V-Shift** ([View Project](#)) | *Unity, C#* September 2024 - Present
- Showcased at GDC, published on Steam (2025 release), and selected by the UEL esports organization for competitive play.
 - Developed a fast-paced competitive online multiplayer 2D action platformer in a small, multidisciplinary team.
 - Applied design patterns including FSMs for player physical states and behaviour trees for AI, ensuring scalable and maintainable gameplay systems.
 - Engineered human-like singleplayer bots with scalable difficulty, avoiding costly pathfinding while remaining flexible for future extensions.
 - Implemented combat abilities and corresponding multiplayer netcode, ensuring responsive and synchronized gameplay across clients.
- 2D Math Game - ILIAGC** ([View Project](#)) | *GameMaker Studio 2, GML, GLSL* April 2023 - April 2025
- Partnered with Coolmath Games to publish to their platform (2025 release), reaching a broad educational gaming audience.
 - Developed an educational math game where players graph equations to generate terrain and solve problems.
 - Built a graphing calculator using a token system and expression trees to parse player input into fully interactive graphs.
 - Implemented GLSL shaders for dynamic color changes and visual effects, enabling asset reuse.
- 2D Physics Engine - nbphysics** ([View Project](#)) | *GameMaker Studio 2, GML* April 2025 - Present
- Developed a particle-based 2D iterative impulse-based physics engine inspired by 'Game Physics Engine Development' (Ian Millington).
 - Implemented collision detection and iterative contact resolution for rotated rectangles and circles, ensuring stable and accurate simulations.
 - Built an extensible architecture allowing custom force and contact generators, with a central registry for entity interactions.
 - Optimized performance with object sleeping, reducing unnecessary calculations in large simulations.

Experience

- In-Store Shopper** February 2021 – July 2023
HEB Austin, TX
- Collaborated with team members in a fast-paced environment to correctly and efficiently fulfill customer grocery orders.
 - Provided responsive in-store support by assisting customers while simultaneously managing order collection.

Technical Skills

Languages: C# (proficient), Python (proficient), GML(Expert), GLSL (prior experience)
Technologies: Unity (proficient), GameMaker Studio 2 (Expert), Git (proficient), Shader programming, JSON

Education

- The University of Texas at Austin** 2021-2025
BS in Computational Physics - incomplete Completed 90% of degree coursework
- **Elements of Computing Certificate**
 - **Relevant Programming Coursework:** Elements of Programming (Python), Elements of Software Design (Python), Elements of Graphics (Processing, Java), Elements of Game Development (Godot, GDScript), Elements of Networking (Python), Elements of Software Engineering I (Python), 2D Game Development Capstone (Unity, C#)
 - **Relevant Math Coursework:** Calculus (I,II,III), Matrices and Matrix Calculations, Probability I, Differential Equations with Linear Algebra
 - **Relevant Physics Coursework:** Intro to Computational Physics (MATLAB), Electronic Techniques