Alexander Wilson

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Education

The University of Texas at Austin Expected May 2025

Bachelor of Science in Computational Physics *Austin, TX*

- **Elements of Computing Certificate**
- **Relevant Programming Coursework:** Elements of Programming (Python), Elements of Software Design (Python), Elements of Graphics (Java), Elements of Game Development (Godot), Elements of Networking (Python), Intro to Computational Physics (MATLAB)
- **Relevant Math Coursework:** Calculus (I,II,III), Matrices and Matrix Calculations, Probability I, Differential Equations with Linear Algebra
- **Relevant Physics Coursework:** Electronic Techniques

Projects

ILIAGC: I Live In A Graphing Calculator (Game Page) | *GameMaker Studio 2*

- Worked independently to create an educational game that mixes a graphing calculator with a 2D platformer using the GameMaker Studio 2 game engine, currently totalling 20 downloads and 154 browser plays.
- Implemented a token system with expression trees in GameMaker Language to parse and convert user input into an equation that can be graphed and checked for object collisions.
- Designed to encourage creativity, exploration and problem-solving in math by allowing the user to come up with their own solutions to the infinite problem sets that occur while playing.

Radioactive Waste Training (Game Page) | *Godot*

- Worked in and helped lead a team of 4 over a semester using agile methodology to develop and produce a top-down action game using the Godot game engine.
- Implemented random level generation by using a variation of the flood fill algorithm that utilizes random indexing into an array of neighbors rather than using a queue.
- Utilized various project management tools such as GitHub and Trello to delegate tasks and keep the team on track for each build deadline.

OH3D (Game Page) | *Java, Processing*

- Worked independently to create a small 3D arcade shooter using Processing with Java in order to learn various aspects of the graphics pipeline.
- Utilized matrix transformations for various aspects such as drawing 3D primatives and camera movements.
- Implemented a BOID-like algorithm (align, separation, and cohesion) for enemy pathfinding that allows enemies to both pursue the player while moving in a somewhat fluid and cohesive manner.

Technical Skills

Languages: Python (proficient), GML(Expert), Java (prior experience), Lua (prior experience), GDScript (prior experience), MATLAB (prior experience)
Technologies: GameMaker Studio 2, Godot, MATLAB, Visual Studio, GitHub, Latex, PICO-8