

Exponential Perspective Game Engine

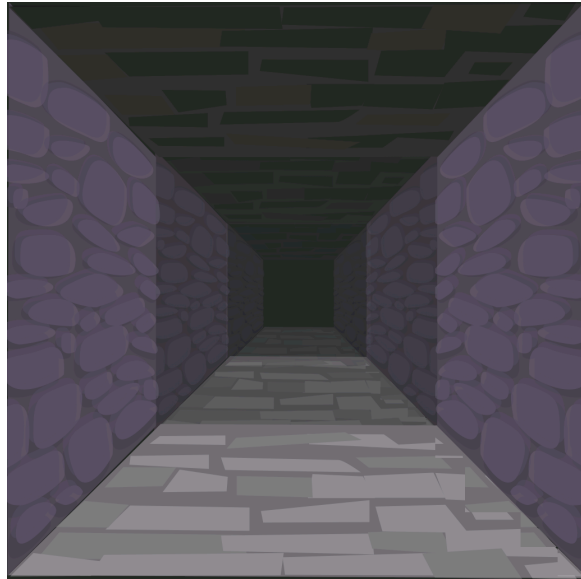
Sponsor Information:

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Project Description

Many games in the 80s and early 90s used hand drawn art to represent three-dimensional environments. Games like Dungeon Master used hand drawn walls, floors, and ceilings to make it feel like the gamer was walking through a dungeon. Drawing all of these assets was expensive (in terms of man hours) and some games would simply scale the assets by 50% or 75% in order to make the assets look farther away. This was visually effective but that's not actually how linear perspective works!

But what if perspective did work that way? We have characterized a set of perspective transformation equations that implement a non-photorealistic perspective we call "exponential perspective". In previous work Michael McCormick has demonstrated how tools such as Blender can be used to generate exponential perspective assets but what still needs to be done is to demonstrate this technique can be used as part of a rendering engine.



Your challenge is to develop a game engine (and a compelling game) that uses exponential perspective. And while the goal is to create an immersive 3D world, you will do it using only 2D transformations like scale and translation on pre-rendered 3D assets similar to pseudo-3D game engines from the 80s and 90s. This is all about faking 3D very creatively.

Knowledge, skills and expertise required for this project

- In-depth understanding of data-structures
- C and (potentially) Python programming
- OpenGL (which can be picked up on the way)
- Access to unix, windows, and/or OS X

Equipment Requirements

Deliverables:

Github code base implementing solution,
Documentation and test cases