Joan Dot Sastre

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Skills

Coding C++, C#, GDScript, GLSL, Lua, Python
Tools Renderdoc, DAP, Git, CMake
APIs Vulkan
Languages Spanish (native), Catalan (native), English (Cambridge C2 Proficiency)

Experience

Game Programmer, Game Motion   2022 − 2023

- Implemented custom 3D features to 2D procedural meshs via shader vertex folding based on camera transform and other techniques achieving a 3D look in a 2D isometric game.
- Boosted performance of farthest LODs from an average of 26 fps to 60 fps using instanced rendering.
- Created a system for writing specific objects to a buffer region, with unique "color" identifiers. This was interpreted as a mask at the bit level, enabling targeted shader effects on the corresponding objects.
- Devised a system enabling artists to create limitless prop variations intuitively with a single scene structure, including composition, transform manipulation and recoloring of the pieces.
- Developed a 2.5D sprite-based parallax system with both horizontal and vertical parallax, zoom, and camera-tilt layer adjustment.
- Developed shader effects for water, clouds and ground of various types for river, biomes and background.

Junior Game Programmer, Ninju Games   2021 − 2022

- Built 2D procedural map generation system with specified biome distribution and non colliding river placement.
- Created prop placement and destruction system based on GDD's specifications, achieving constant world refill and specified distribution patterns over space and time.
- Implemented a custom, multi-threaded game resource manager for asynchronous tracking and management of asset loading. This system also supports caching and is capable of fetching assets from remote sources when required.

Projects

Marching Cloudscapes   github.com/DinDotDout/marching_cloudscapes

- Developed a raymarcher shader for a skybox, incorporating physically based volumetric clouds, flat high altitude clouds and simulated atmospheric scattering.
- Researched and tested many optimization techniques, achieving a consistent 144fps given optimal parameters.
- Provided a broad range of customizable parameters and settings to simulate various cloud types.
- Added artist drawable cloudscape maps for scenary building.
- Explored various noise functions and their combinations for generating realistic cloud shapes.

Godot Texture Composer   github.com/DinDotDout/noise_texture_composer

- Encountered a situation where shader performance in Godot was being hindered due to multiple texture lookups, as the inbuilt texture creation utilities were using only one channel. In response, I created a tool that combined single-channel Godot noise or gradient textures into a multi-channel texture. This resulted in single shader texture lookup, significantly optimizing shader performance.

Neural Network for Tetris99 on Nintendo Switch   github.com/DinDotDout/tfg_tetrisIA

- Developed a reduced replica of Tetris99 for training a neural network.
- Implemented real time image processing techniques for game state extraction and noise filtering.
- Used Arduino for console input, enabling the machine learning model to interact with the game environment.
- Trained a neural network to play the game, achieving an average of 0.467 lines cleared per second on the console.

DOT (Procedural Planet Game/Editor)   github.com/DinDotDout/dot

- Built interactive, non-blocking procedural planet generation in the menu.
- Implemented height based shader texturing on the planet.
- Added randomized non colliding prop spawn.
- Created three game modes: tower defense, third person sword combat and space-ship flight and shoot.

Education

UIB − BS in Computer Science   2020