Wijdan Butt

Game Programmer

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# Technical Skills

* Proficient in C, C++, Unity(C#)
* Some Proficiency in C# and SQL
* Version Control, specifically Git and GitHub
* Experience with MS Office, Windows XP, 7, 8

# Academic Experience

**HookShot Hero - Unity 5 2016-2017**A first person multiplayer racing game with the addition of using a grappling hook across 6 uniquely varied maps.

* Worked with and managed a team of programmers, designers and modellers
* Had the role of the project manager for the team
* Implemented some of the animations, movement, audio system,checkpoint, trail customization, UI and some of the physics of the grappling hook
* Managed the capacity and milestones planning , work assignment and risk assessment

**Marching Cubes - Unity 5.0**Created an implementation of the Marching Cubes algorithm.

* Constructed a 3D voxel grid
* Partitioned Voxel map into into chunks for optimization
* Conversion from Voxel Map to a triangle mesh is done through isosurface extraction and finds the isovalue.
* Extracted the isosurface (surface that represents points of a constant value within a volume of space) by processing each cell in a voxel map first independently of the others.
* For each cell, determine what part of the isosurface passes through the cell and generates a triangulation. Result from all cells are combined to form the complete isosurface
* Checks the state of the 8 corners in a cell for all possible 256 distinct cases
* Filling the gap cells along the different dimensions
* Added support for editing the voxels such as filling and emptying

**Procedurally Generated Voxel World - Unity 5.0**Created a procedurally generated voxel world.

* Creating a structure to help optimize rendering for the world. Done by using chunks, which are a selection of grouped up blocks, which remove interior polygons. Comparisons to the neighbouring blocks help with this.
* Using a 16x16 texture atlas which has all the individual textures placed on a grid in a single file
* Using Fractal Brownian Noise to procedurally generate terrain and textures
* Saving and loading chunks by storing the data that needs to be preserved and converting it into a stream of bytes ready for writing to a file
* Spawning and deleting chunks as the player moves depending on the players position and their relative radius
* Ability for player to spawn 5 different block types in the world and for the player to be able to hit blocks and destroy them.

**Mini 3D Game Engine - C++**Created a mini 3D game engine. Used the DirectX 12 API for 3D rendering

* Implemented pixel and vertex shaders that can support Displacement, Normal,Shadow and Height Map
* Implemented Post Processing effects
* Implemented Model Importing for 3D models
* Implemented animations using Keyframes

**Various VR Mini Games - Unity 5.0**Helped create 3 VR games for different VR headsets

* Made a simple VR shooter mini game for the Google Cardboard
* Made a simple VR soccer mini game for the Oculus Rift
* Made a simple flying VR mini game for the HTC Vive

# Education

## The Art Institute of Vancouver, Burnaby, BC January 2013-December 2017

### Bachelor of Science in Game Programming