Scott McPherson

Junior Games Programmer

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About Me

I am a recent graduate of Computer Games Technology at Abertay University with a passion of programming video games. I would love the opportunity to be a part of a team responsible for delivering exciting and unique experiences to players.

Technical Skills

Languages: C/C++ (4 years)

Software Experience: Visual Studio 2015/2017/2019, Unreal Engine 4, Unity (Foundational), OpenGL, DirectX 11, GitHub, Trello

Physics Programming: 3D physics simulation using 4th order Runge-Kutta and semi-implicit Euler algorithm in C++. Ragdoll Animation system in C++.

Tools Programming: Implementation of an interface tool to let designers use and learn about procedural terrain algorithms using C++ in conjunction with DirectX 11 and ImGui.

Gameplay Programming: Implementation of various gameplay systems and logic in C++, SFML, Unreal Engine 4 and Unity, including handling players input, creating a difficulty system, producing object collisions and camera cutscenes/transitions.

AI Programming: Constructed an AI entity to hide from player in a game of hide and seek in Unreal Engine 4. Implemented an AI aid to take player to the next point in their quest.

Other: Have experience working on an assigned project in a team of seven, including other programmers, designers and artists. I have also worked for TransformologyXR in an unpaid internship for six months where I would help the team in designing and creating an application as well as learning new features within the unreal engine.

Previous Project Experience

Bank of Abertay 2017

Languages: C++

Misc: A bank system where customers would be able to make transactions on their account and create new account. Application makes use of inheritance of classes to assign a bank account to a customer. Makes use of object-oriented features to update and receive information from bank accounts securely.

Available at - https://github.com/scottmcpherson99/Bank-of-Abertay.git

Building a scene using OpenGL software 2018

Languages: C++ (OpenGL)

Misc: A 3D graphics application and scene using the OpenGL API. The scene makes use of the following features: Lighting, Hand Crafted Geometry, Camera and Interaction, Hierarchical Modelling, Geometry generation, Geometry Storage.

Graphics Programming with Shaders 2019

Languages: C++ (DirectX 11)

Misc: A 3D graphics application and scene using the DirectX 11 pipeline. The scene makes use of the following graphical techniques: vertex manipulation, a post processing technique, Lighting, Shadows, Tessellation, Geometry Shader.

Network Application 2019

Languages: C++

Misc: A network application with a focus on the technologies used in fast-action networked computer games. The application contains, multiple real-time moveable objects, controlled by the player. Network communication between machines. Synchronisation of objects' positions between the machines, so all machines are capable of showing a consistent view of the game world. Use of prediction techniques to maintain smoothly synchronised movement even when the network connection is affected by latency.

Telling the Bees (PC) 2020

Roles: Engine and AI Programmer

Languages: C++ (Unreal Engine 4)

Misc: A 3D puzzle game where you play as a young mother who must ascend a mountain to the ruins of her old village to introduce her new born child to the spirits of their ancestors. It was a project assigned from the Chinese Room to a group of 7. I was responsible for programming the AI spirits movements, creating the cutscenes and transitions between levels, the camera movement when the player was moving around the world. Other in game world events such as rocks falling down hills leading to camera distortion.

Available at - https://github.com/Kacperbrozyna/DES310_Project_Source.git

Comparing the differences in the effect of gameplay between Behaviour Tree AI and Rule Based Systems AI 2020

Languages: C++ (Unreal Engine 4)

Misc: An application that would involve two different AI entities, behaviour tree and rule base system. Both entities would individually hide from the player in a game of hide and seek. The user would try and find each AI multiple times without being told which AI was which. The users were asked which was more enjoyable to play, which seemed more lifelike, which offered more challenge, and which AI offered the most replay ability.

Designing an interface to help designers overcome the challenges with procedural generation 2021

Languages: C++ (in conjunction with DirectX 11, ImGui)

Misc: An interface tool that would assist designers to create their own terrain using procedural terrain algorithms. The algorithm would teach designers about different procedural algorithms, show them how the algorithms worked with a visual demonstration and would give the designers a tutorial of how to use the algorithms to allow the designers to use these algorithms in their own terrain.

Available at - https://github.com/scottmcpherson99/Interface-to-help-designers-use-procedural-generation.git

TransformologyXR 2021

Languages: C++ (Unreal Engine 4)

Misc: An augmented reality program that would allow potential new home owners to get a virtual tour and allow them to customise the property to give them more of a homely feeling before purchasing the house. I had worked for the company on an unpaid internship for four months and was responsible for helping design and create the navigation for the user and creating the customisation feature for users using the unreal engines level variant sets.

Education

2017-2021: Bachelor of Computer Games Technology at Abertay University

Classification: 2:1 (Upper Second)

Miscellaneous

Favourite Games: Minecraft, Call of Duty, FIFA, GTA, Clash of Clans, Mario Party, Football Manager, Among Us.

Other: Ex Captain of Junior Golf Team, Ex Pipe Sargent of 145th Glasgow Battalion Pipe Band, Achieved Queens Badge from Boy's Brigade.