

Design of intelligent non-player character in games

Like Chen 6518695

There are numerous kinds of NPC in the game. But in my view, it can be divided into two parts enemy NPC (the NPC that against the player) and friend NPC (the NPC that will not attack the player but make the whole game world closer to reality).

And either enemy or friend NPC is supposed to interact with the player, they should make different reaction for different situation, e.g. be attacked by player, they should fight back and keep chasing the player. And when they're idle, they should interact with each other or the environment to make the game world closer to reality.

And for this project, we mean to create an adaptable AI that can use by a set of game that have human NPCs, it should use the idea of object-oriented since we can treat every single NPC as an independent AI in game world, they should have their own action for different situation, and they should interact with each other as same as they interact with player, this can make whole game closer to reality. And this project should be user friendly, for example developer can simply add a component to the game object (which many game editors has, it represents an object in game) it will adapt to the game object, then the developer has the API of the set of states of this object, can use these states to let object have different reaction.

I been thinking about if this project can directly control the game object to running, chasing, attacking etc. But by my experience of game developing, different game has different method for controlling the game object, an object can be directly moving by position, can control by different moving component, the animation for each state is different, maybe in some game player can jump, can fly but other cannot, and this project should be highly adaptable, so developer should still have their own controlling method, but this project can change the states of the game object, developer can simply use the API of this project then the game object can connect to the game object by changing the state.

And firstly, I decide to use Unity + C# for develop this project, since currently Unity is the most popular game editor in the world, and I have

many experience in Unity game development (A year group project, and 2 months internship). And I already have experience for game object AI developing, e.g. my game object can detect other and environment, and the data were used to determine its next action.

See another attachment, there is some idea of AI functions.

Most of idea of this report is come from RPG games such *The Witcher 3*, *The Elder Scrolls 5*, *The Legend of Zelda: Breath of the Wild* etc.