ADAMASTOR: A Case Study on Generative Game Design

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ABSTRACT

Adamastor is an exploration game with rogue-like elements that uses a Generative Game Design approach. The game takes place on a living planet where the player must search for a sanctuary hidden in the game world. The planet is sentient, and using procedural generation shifts its own land masses and oceans, while adapting its terrain types and geology to create obstacles, affect the player's perceptions to trying and stop the sanctuary to be found. The idea is to use *PCG* (Procedural Content Generation) to mediate emotions such as the feeling of challenge of going against the elements and uncertainty of exploring the unknown.

The focus of this design is in exploring the Discovery and Challenge aesthetics from the *MDA framework* (Hunicke, LeBlanc, and Zubek 2004), using the dynamics described in (Smith 2014) as *Searching in a Vast World*, *Building Generator Strategies* and *Practicing in Different Environments*. It takes also inspiration from various games, such as the map generator of *Civilization IV* (Firaxis Games 2005), exploration of large open spaces like in *Elite* (Acornsoft 1984) and the use of diverse biomes in *Terraria* (Re-Logic 2011). The design uses a mix of Procedural Content Generators that will work on different moments. The first one works *offline* to create the world before the beginning of the game, based on *Pseudo-Random Number Generators* to create various layers of data for the world, such as height maps and ocean currents. The second one works *online*, during gameplay, and will generate content based on the analysis of player behaviour. This includes changing the terrain unexplored by the player to adapt to the playstyle, creating obstacles such as natural barriers, dynamic challenges such as moving obstacles, or manipulating player's perceptions of the environment.

Conceptually, the game design was inspired by the method of exploration the XV and XVI century Portuguese explorers undertook during the "*Descobrimentos*" (The Portuguese Discoveries), as well as the feelings they experienced during their voyage,

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recorded in works such as *Os Lusíadas* (Camões 1572). The objective of those discoveries was finding the maritime route to India, and to accomplish this they adopted a careful method of exploration, sending the explorers into the sea, always keeping in mind that they should at all costs return home with what they found, even if nothing. The knowledge they found on each expedition allowed for them to perfect the methods and technologies they used to explore the seas, adapting and surpassing the challenges they encountered. This is the challenge that the design of this game will create for the players.

In the game the player won't be a human explorer but a seed of a plant, which is trying to find a place in the world where it can grow and prosper far from danger. The seed is made up of various fragments that are connected by a core, randomly chosen at the start of the game and each with a special skill. As the game progresses the player will be able to trade and enhance the fragments in order to adapt to the challenges created by world. To control the seed's movement the player is given the power of the wind, as to create a flow with a direction and velocity which the seed will follow while floating around the world.

While exploring the world, there are things the player has to manage in order to be successful: The wind is a resource that declines whenever the player uses it, but it will constantly recharge until it hits a maximum limit given by the seed; Since the seed is floating, the player has to control its altitude, if the seed hits the ground on a wrong kind of terrain it can be destroyed or drowned; Also, the player must be careful with the seed as the fragments can break up, meaning the end of the game. The seed resistance is determined by the number of fragments it's composed, and the abuse of the wind power like creating high speeds or hitting obstacles will make those fragments break up.

But falling in ground is also the method which the player can adapt to the world, by sowing the seed and growing a new temporary plant that can create a new seed. So, depending where the seed falls on the ground, it can create a new plant or be destroyed. And if the plant grows, the terrain type will affect how the player will be able to modify the new seed.

Adamastor is an experiment in designing a game around a *PCG* and not use it only as a tool to generate game content, but also to create the experience.

Keywords

Generative Game Design, Game Content Generation, Digital Game

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