

## Procedural World Generation

### Abstract

Procedural content generation (PCG) is one of the most advanced and useful tools in modern gaming development, which helps game developers to create the elements of a gaming world environment. Latest researches show the advantages of PCG algorithms in fields like machine learning, texture generation, genetic algorithm implementation, etc... According to 2D/3D games, specifications and nowadays technologies, there are still many open problems waiting for their solutions. The aim of this thesis is to show the advantages of PCG using an example of creating procedural generation galaxies using the Unity engine as a framework. Each time the galaxy has unique stars, and each of the stars has their own unique star system full of planets. Also, there will be shown some successful texture generation algorithms and examples of already working procedural generation games like No Man Sky MMO-Open world-RPG genre.