



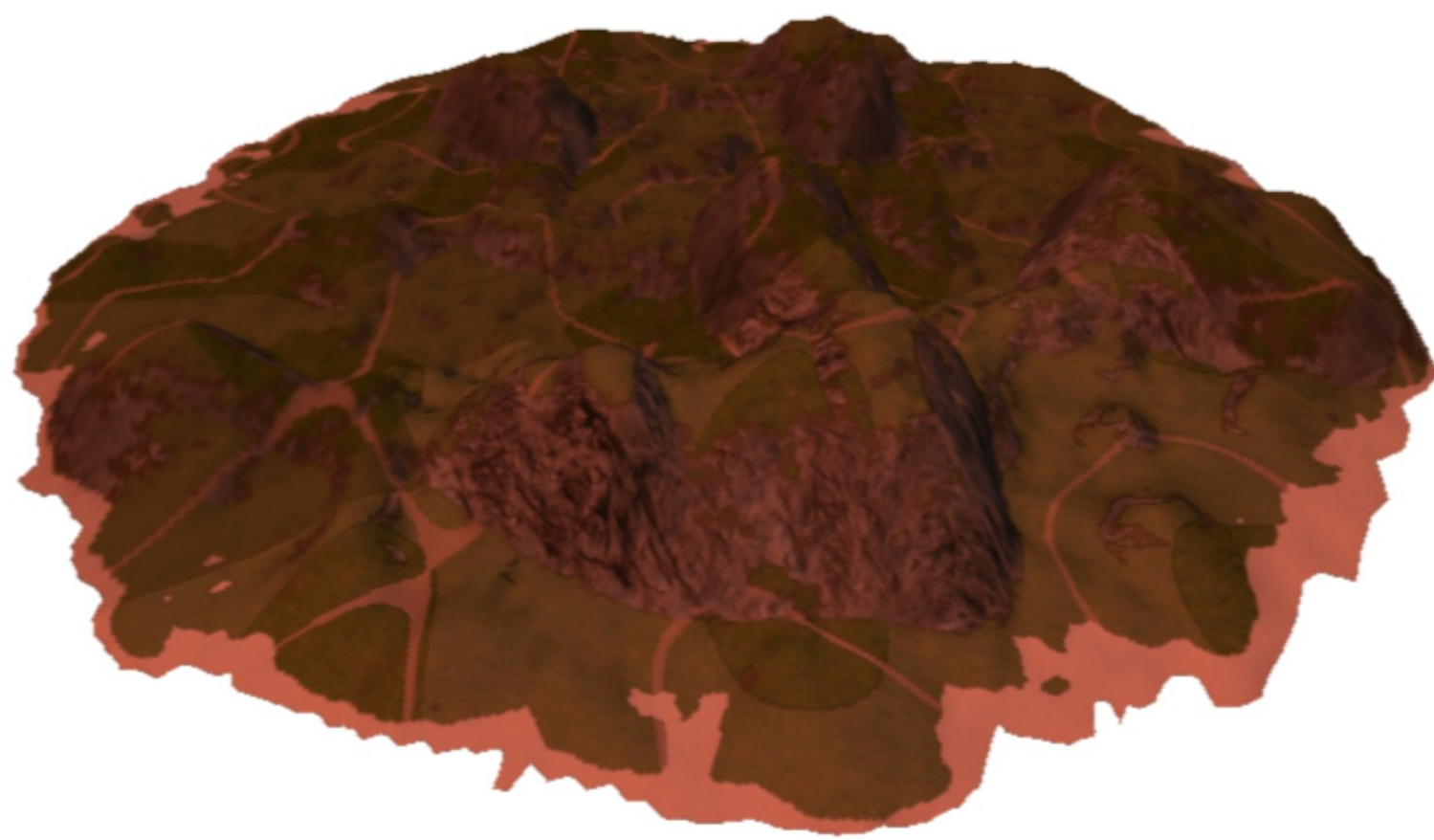
# TECHNICAL POSTER

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## Procedural Island Generation

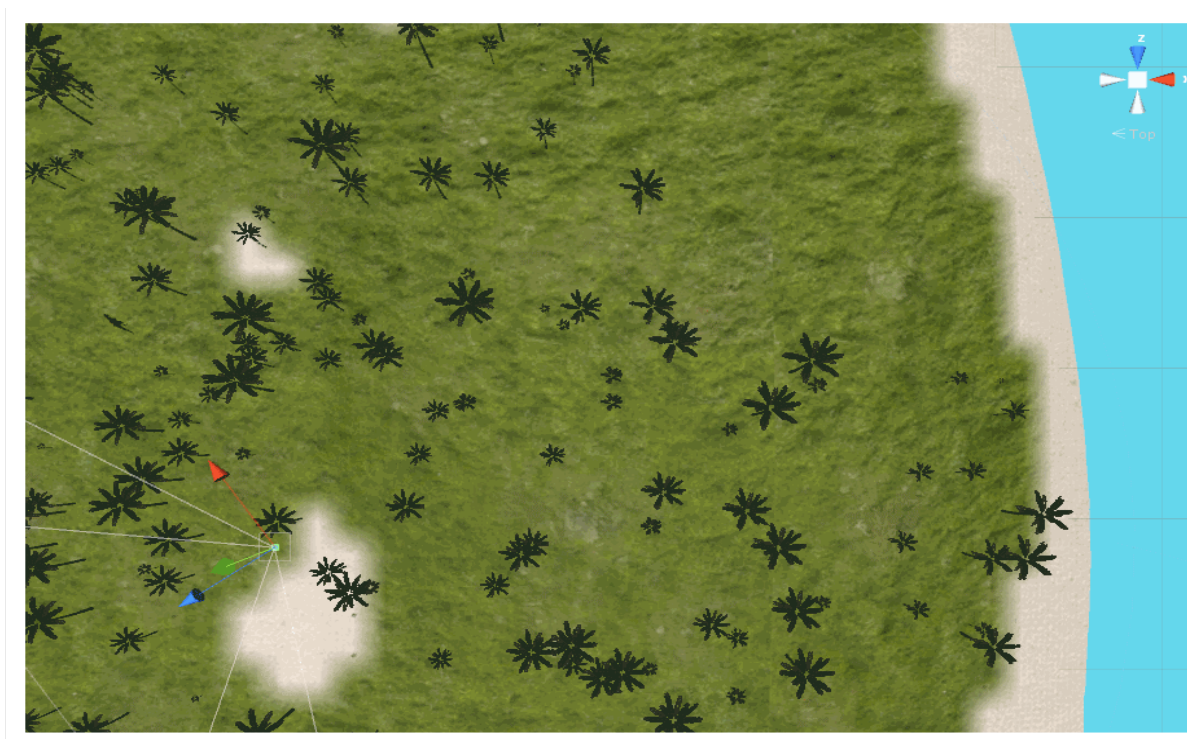
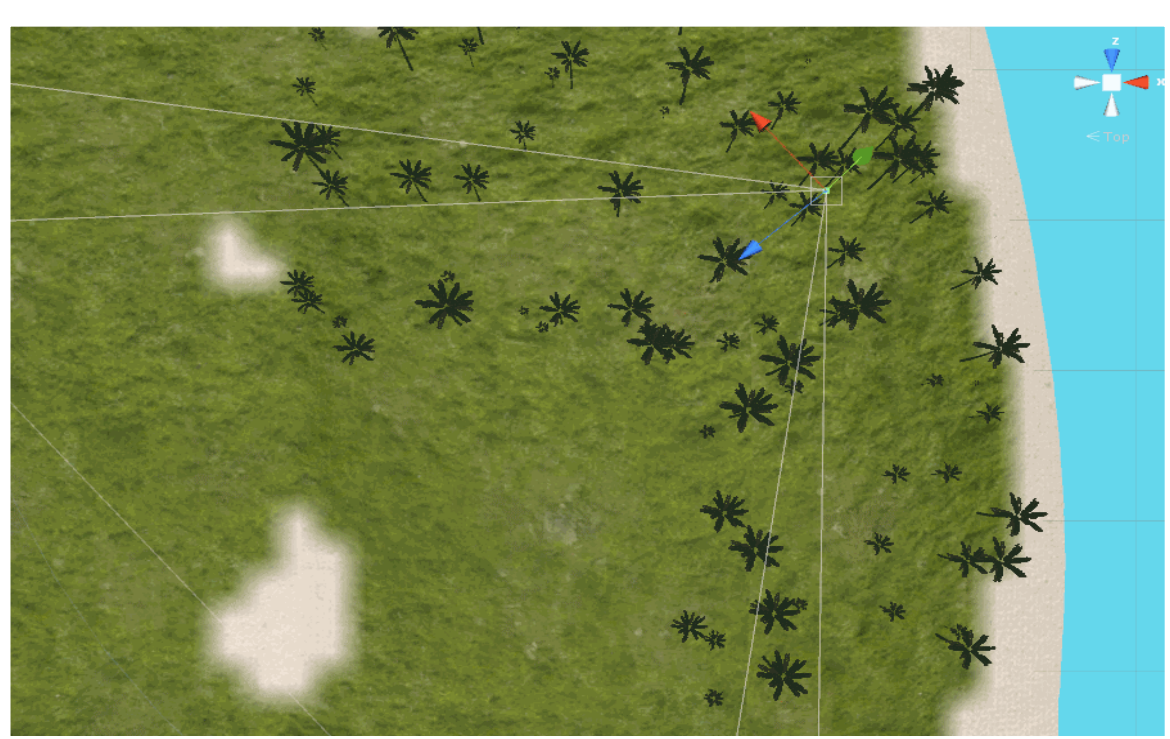
Island generation starts with creating a height map for the terrain. This height map is created using a layered combination of fractals and simplex noise; it is constructed from bottom to top starting with large, tall, dense features and ending with sporadic, small, short features. Lastly a parabolic constraint is applied to give the island a dome like shape ensuring that the edge of the island drops off gradually into the ocean.



## Terrain Texturing

The terrain of the island is textured using a combination of sampled height, slope, and simplex noise values. The slope value is used to determine where cliffs and dirt textures will be applied as vegetation becomes less dense with slope increase. For lesser slope values the height value is then used to split the terrain into 3 sub categories of beach, meadow/jungle, and mountain. Finally, simplex noise is used to split the meadow and jungle into separately textured areas. Simplex noise is also used to add additional texture variety to each texture area.

## Custom LOD System



A level of detail (LOD) system is implemented to manage both the level of graphical detail and level of interactivity of static (non-moving) objects based on their distance from the player. The LOD system divides the island into evenly sized square sectors arranged in a 2-dimensional array. All static objects are placed into sectors based on their initial position. Every few frames the sectors closest to the player are updated and trigger the switching of level of detail of the objects contained in those sectors.

## Dinosaur AI

Our dinosaur AI uses waypoints to dynamically plan a dinosaur's route around flora, players, enemies, and obstructive island terrain (e.g. mountains). Flocking and other group behaviors are implemented to give packs of dinosaurs an intimidating presence.

## The Dinosaur Food Chain

Dinosaurs interact with the other dinosaurs on the island using a number of heuristics. One of the most important is a literal food chain which dictates a dinosaurs decision to pursue, eat, flee, etc. from other dinosaurs.



## Pack AI

“Pack AI”, as we’ve coined it, is an artificial intelligence which moves packs of dinosaurs around the island to simulate macro dinosaur travel behaviors, and keep the dinosaurs within reasonable distance from the player.

## Flocking AI

While dinosaurs are typically found near others of their kind, they usually act independently of one another. However, some packs contain flocks of dinosaurs. Dinosaurs in a flock work together, and alerting one of them means alerting all of the other flock members. To accomplish this behavior, we implemented a modified “Boids” flocking algorithm, Dinosaurs in flocks are incredibly dangerous, so be wary!

## 3D User Interface

GetAway’s graphical user interface elements have been designed using 3D models and text to give them a realistic presence in the game.

## Data Driven Items & Crafting

Every item, island resource, and crafting recipe is defined by an external JSON formatted data file. This makes adding content to the game, and balancing existing content, quick and easy.

