

Spore game procedural animation

Here is a list of interesting procedural animations I found from the game demo videos.

1. Body components of creatures

The creature is composed of body components: spine, leg, eyes, mouth, arm, paw, and hands.

This simplifies the procedural animation since we might only need to generate animations for these body components at every moment.

2. Animation control

How the animation is performed during the game?

I suspect they have a certain hierarchical structure to decide the procedural animation at various moments:

(Step1) Decide what action type (walking, resting, attacking, defending)

(Step2) Retrieve animation data for each body component for that action from database based on the action type

(Step3) Perform animation

3. Multi-leg walking animation

How walking animation is generated for creatures with the various numbers of legs, e.g. one leg, two legs, three legs, four legs, etc.

I suspect the game use the same walking motion data for all types of legs. But for creature with various numbers of legs, it might just have a certain delay between legs' motion, and perform animation accordingly.

Pseudo code:

Input: A list of leg pose keys

A list of key times

Elapsed time

Output:

Interpolated leg pose

Steps:

(1) $StartTimePosition = LegID * (MotionLength / LegNumber)$;

(2) $TimePosition = StartTimePosition + ElapsedTime$;

(3) Interpolate the leg motion data with $TimePosition$;

4. Attacking/defending strategy

When a group of creatures want to attack/defend another group of creatures, how can we procedurally animate individual creature action so that they behave with intelligence?

I suspect the game use the if-then-else logic to determine its animation action based on various factors.

Pseudo code:

Input: a list of actions

Output: action to be performed in the next

Steps:

(1) if (...)

(2) then pick action1

(3) if (...)

(4) then pick action2

5. AI in the game

What kind of AI technique is useful to create intelligent behaviors for social interation?

The game demo does not include any introduction about its AI component. In addition to if-then-else logic, how does AI technique is used in the game?