IT-Universitetet i København
Center for Computer Games Research

DUNE·II

Spicing Up Map Generation

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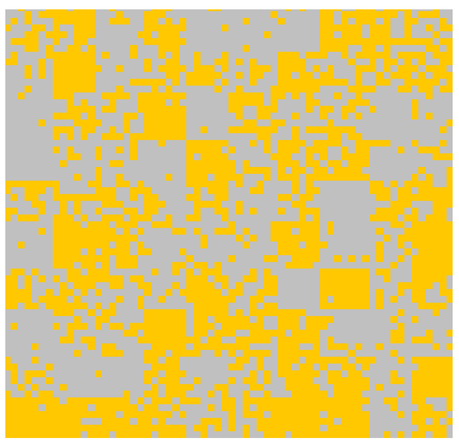
We describe a search-based map generator for the classic real-time strategy game Dune 2. The generator is capable of creating playable maps in seconds. Map genotypes are represented as low-resolution matrices, which are then converted to higher-resolution maps through a stochastic process involving cellular automata. Map phenotypes are evaluated using a set of heuristics based on the gameplay requirements of Dune 2

Evolved parameters
- Initial probability raster
- Number of iterations
- Moore Neighbourhood Size
- Moore Neighbourhood Threshold
- Number of resource spawns

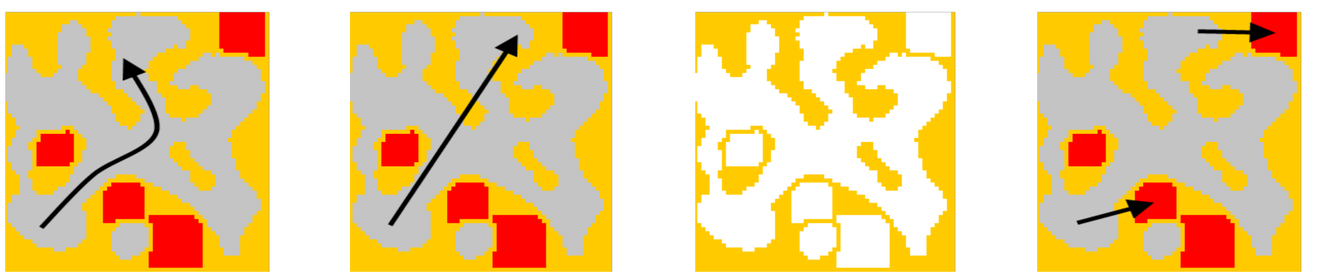
Initial noise map (genotype)



A cellular automaton iterates over the map using a Moore Neighbourhood

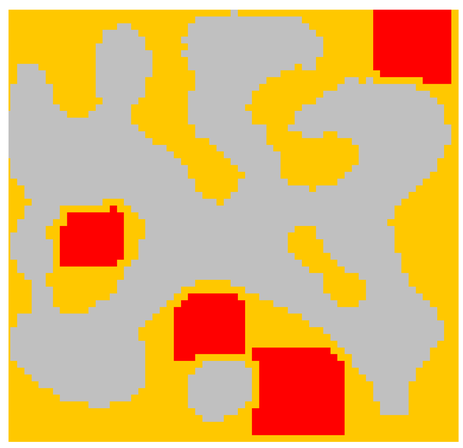
Iteration 1 Iteration 2

"The Spice must flow"



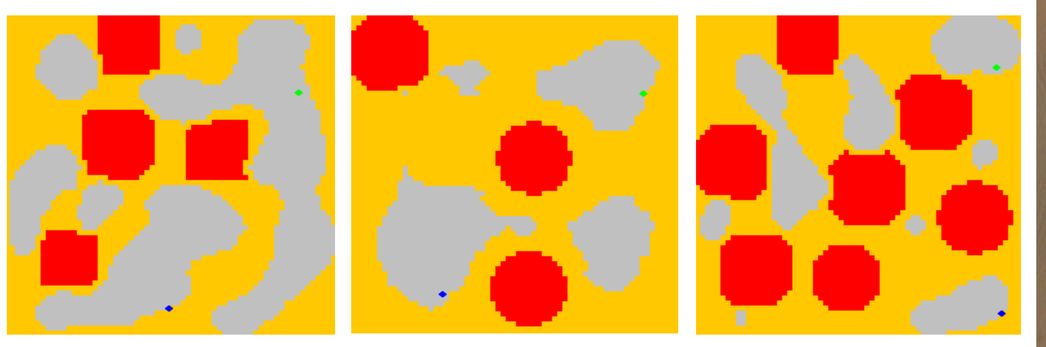
Avoid direct path between start positions | Maximise the distance between start positions | Maximise the amount of sand coverage | Equalise the distance to nearest resource

Fitness measures



Map (phenotype) with resources (using Kadane's algorithm)

Best Candidate



Examples

"He who controls the Generator controls the map"