

**Ric Colasanti** (Swansea (Computer Science))

**Cellular automata models in plant ecology**

**Abstract**

Cellular automata is a type of self playing game. It treats an environment as a series of separate spaces and states. Time in a cellular automata is described as discrete steps. A cellular automata dynamically changes over time as a consequence of a finite set of global rules that act locally on the cellular automata states. The overall behaviour of a cellular automata model can be said to emerge from the action of the local rules on the collective state spaces. The most well known cellular automata model that exhibits emergent behaviour is the game of Life. I will use this as an example of cellular automata modelling and then go on to show how cellular automata have been used in ecological modelling to simulate the emergent ecological behaviour of biodiversity. I will briefly describe CSR strategy theory and show how its lower level rules of resource use, when implemented in a cellular automata, give rise to a hump-backed biodiversity / abundance behaviour.