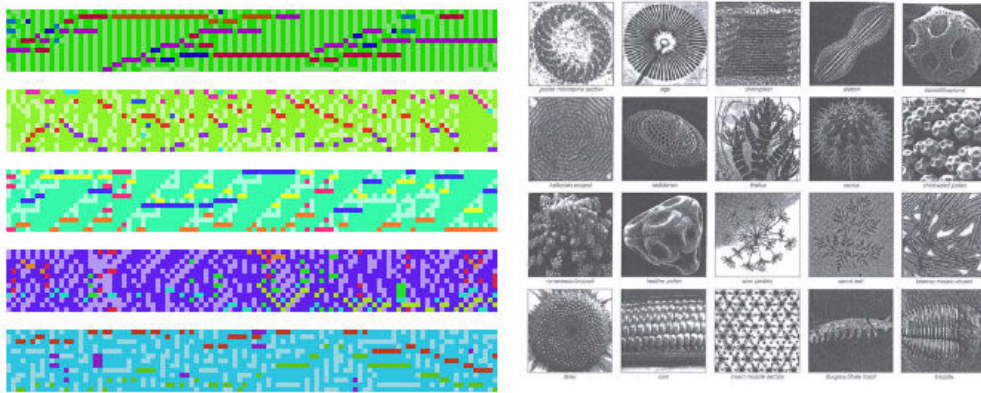
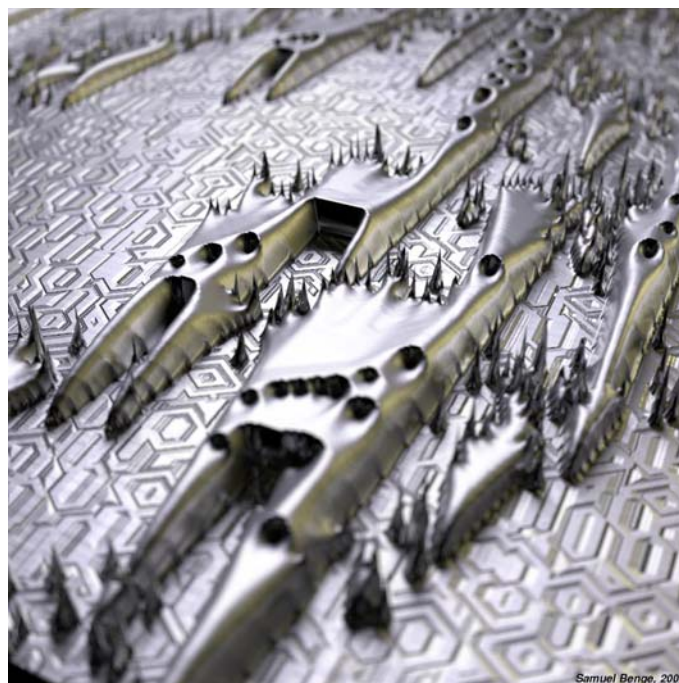


Granular Synthesis and Chaosynth

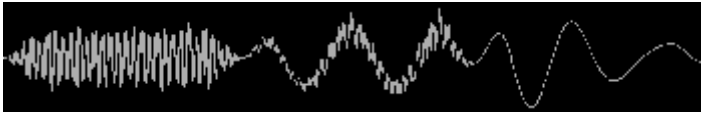


Cellular automata are the simplest models of spatially distributed processes. A cellular automaton is a collection of cells on a grid of specified shape. The cells evolve through a number of changes, according to a set of rules based on the states of neighboring cells. Each cell on the grid is allowed to be in one of a few states. At the same time, each cell affects the state of its neighbors. Using this information each cell applies a simple rule to determine what state it will change to in the next generation. This same basic step, or cell sequence, occurs across the grid continuously. Some of the patterns produced by several simple cellular automata become visually elaborate when one graphs many generations of this evolving sequence.



Granular Synthesis and Chaosynth

Granular synthesis works by generating a rapid succession of very short sound bursts called granules (e.g. 35 milliseconds long) that together form larger sound events.



A rapid succession of tiny sounds form larger complex sounds.

The results tend to exhibit a great sense of movement and sound flow. This synthesis technique can be metaphorically compared with the functioning of a motion picture in which an impression of continuous movement is produced by displaying a sequence of slightly different images at a rate above the scanning capability of the eye.

So far, most of these systems have used complex mathematical formulae (e.g. probabilities) to control the production of the granules; for example, to control the waveform and the duration of the individual granules. Chaosynth uses a different method: it uses a cellular automaton called ChaOs. ChaOs is much more efficient and flexible to use than most mathematical methods used by other granular synthesis systems so far.