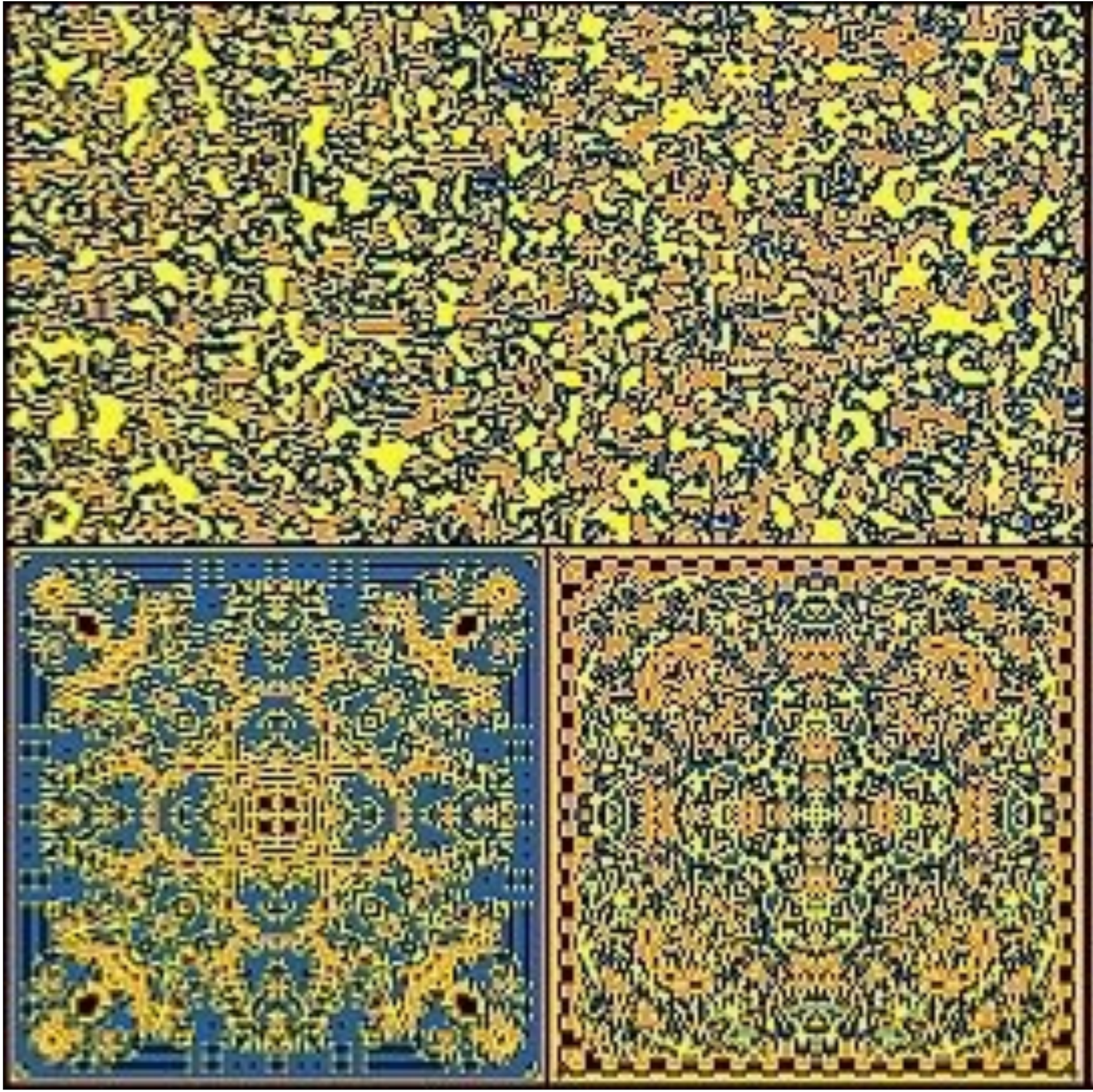
Alternative modelling approaches

School of Geosciences

cellular automata models



Conway was interested in a problem presented in the 1940s by mathematician John von Neumann, who attempted to find a hypothetical machine that could build copies of itself. The Game of Life emerged as Conway's successful attempt to drastically simplify von Neumann's ideas. From a theoretical point of view, it is interesting because it has the power of a universal Turing machine: that is, anything that can be computed algorithmically can be computed within Conway's Game of Life.

Conus textile exhibits a cellular automaton pattern on its shell.

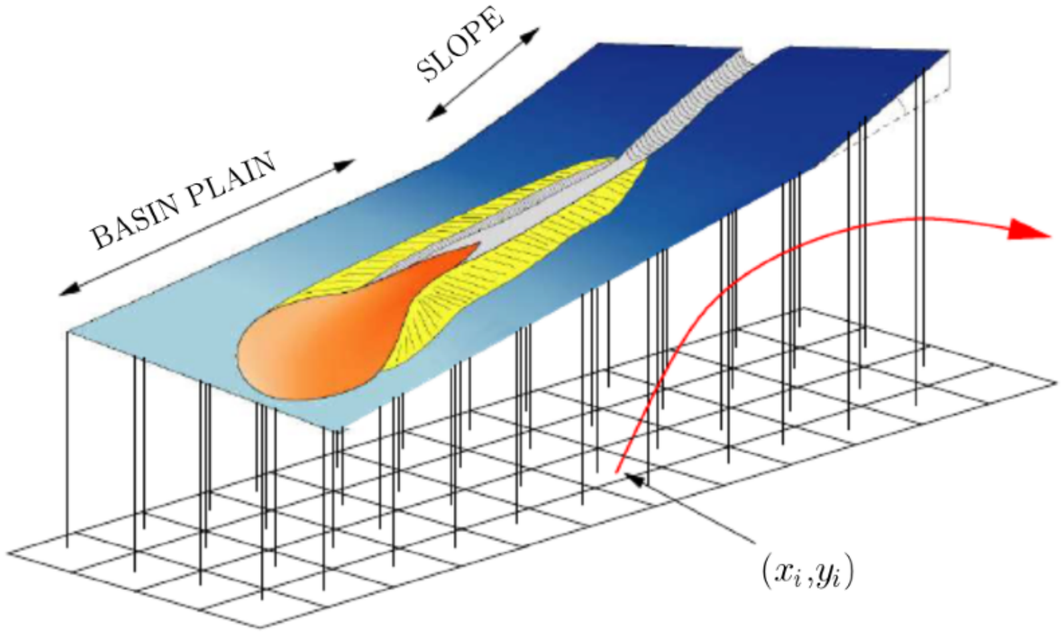
video fragment from Stephen Hawkings The Meaning of Life

game of life

Alternative modelling approaches

cellular automata models - hydrodynamic applications

- Rule based deterministic model
- Each cell evolves through time according to very simple rules based on contents of neighbouring cells



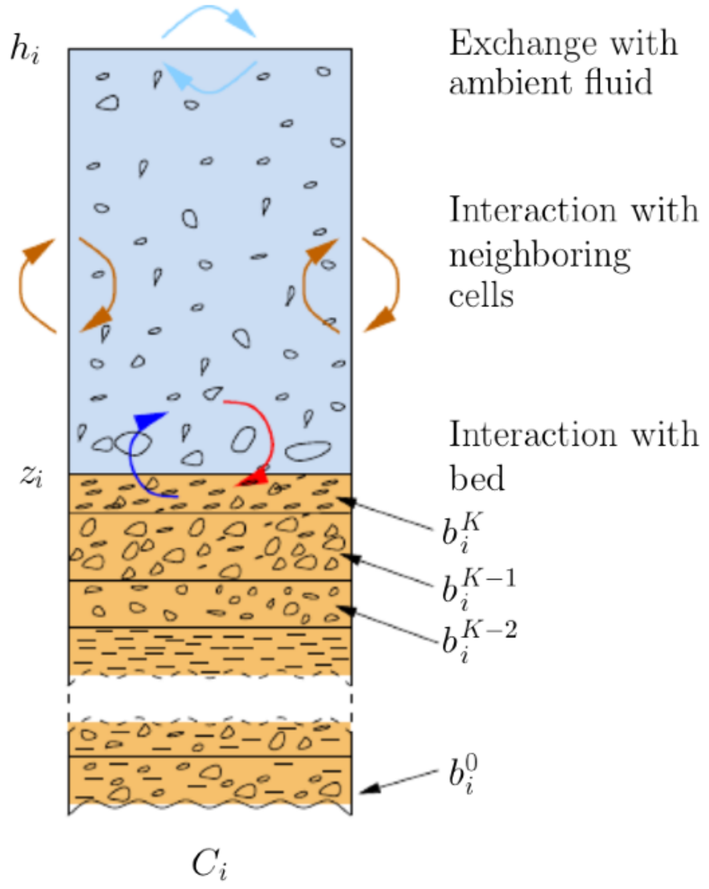


FIG. 1 – Discretization domain and rules applied to each cell.

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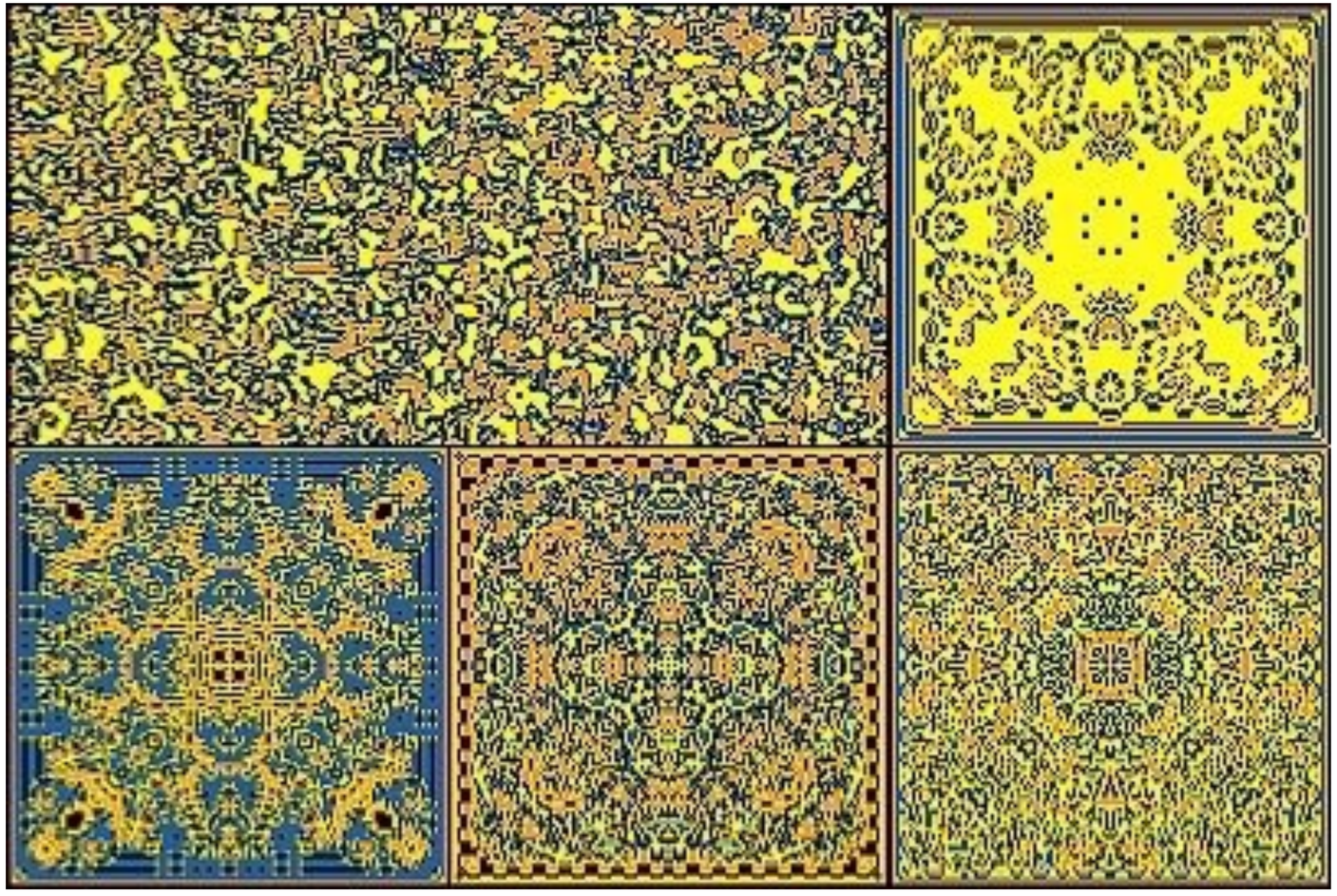

game of life

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