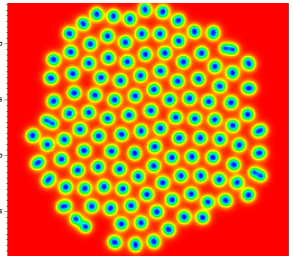
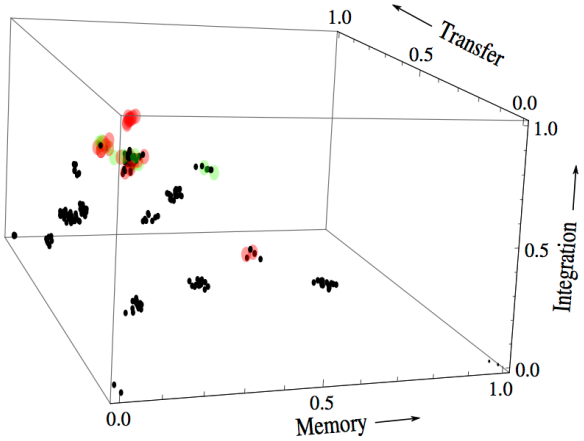
Sophocles Computational Exploratory

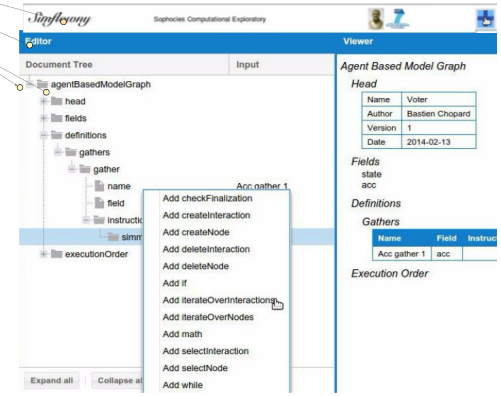
Integrated Toolkit for Complex Systems Analysis and HPC Simulations

Benchmark Models

Ising (graphs and lattices), Cash and Goods, Voter Model, Potts, Gray-Scott, Brusselator, Collective Motion ABM, …





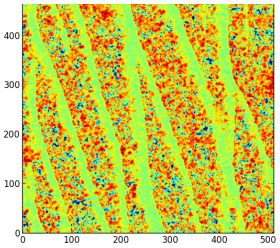


GUI programming

Users can easily create new models and problems for Agent Based Models, Cellular Automata and Partial Differential Equations. It generates automatically high performance parallel simulation code. The workflow includes visualization tools and an information processing python library.

Information Metrics

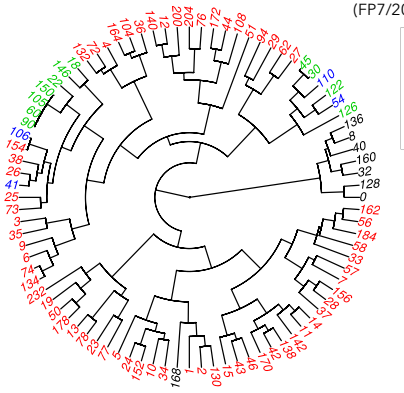
Shannon entropy, Kullback-Leibler, Surprise, IDT, Inf. Integration, Multi-inf. Mutual Inf., Helliger distance, Time Series Early Warning, Fisher Inf.



Research from the Sophocles project

Above, image showing the Information Processing Space for the Elementary Cellular Automata Rules. Below, a dendrogram representation of the rules. To the right, a network graph of articles making up one of the identified "threads" in the New York Times historical data.

The research leading to these results has received funding from the European Union (FP7/2007-2013) under grant agreement n 317534.



Sophocles

See a demo of the Computational Exploratory on the satellite meeting **"Information Processing in Complex Systems"** on Wed, Sep 30 2015.

Download the open source toolkit, including the documentation and video tutorials from:

www.sophocles.eu/ce