

A Python Implementation of Generative Network Automata

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We are developing a generalized modeling framework based on Generative Network Automata (GNA) [1] that can effectively describe the state-topology coevolution of complex adaptive networks [2]. Specifically, the framework would allow the automatic discovery of a set of dynamical rules that captures the state transition and topological transformation of the complex network [3]. The framework is being developed in Python using NetworkX [4] and graphML. The current and initial phase of development is the creation of algorithms and software tools for automatic discovery of network rewriting rules from a sequence of configurations that represent the evolution of a complex network. We will present the current status of development, demonstrate the usage of the framework given network evolution data, and receive feedback in order to provide a maximally useful tool to the scientific community.

Bibliography

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