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## Role of Mutual Information in Discrete and Continuous Time Markov Chains

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There are some limitations of discrete-time Markov processes modeled as approximations to continuous-time Markov processes. In discrete-time simulation models, *time* is discretised into uniform steps and transitions between states are described by transition probabilities whereas, in continuous-time Markov processes, state changes are driven by transition rates. In our research, we focus on adaptive epidemic networks which consist of two main processes, i.e., infection and rewiring. Mutual information is used to quantify how correlate these two epidemic processes are to one another. We observe the similarities and discrepancies of discrete-time and continuous-time via computer simulations, and show how discretisation of time affects mutual information.

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