

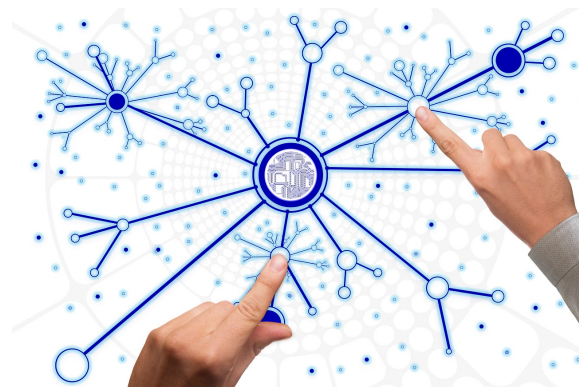


BA/MA/SA:

Infection Spreading in Graphs

What could be a more timely research topic than to study how a virus spreads through a network?

In general, the propagation of some entity through a network has countless different applications. In social science, you want to understand how the political opinion of some people can influence the opinions of their friends; in marketing, you want to know how an advertisement about a product can reach the highest possible number of people in a social network; in epidemiology, you want to model how fast a virus spreads through a network of people.



While all these topics have already been thoroughly studied, there are still various open questions in the area. In particular, there are numerous factors that can influence the dynamics of such a propagation process in a graph: our model for the interaction of nodes, the structural properties of the graph, the timing of the process, the initial state of the system, and many others.

In this project, you will develop, study and compare different models of infection spreading in a network. The main focus of the project is an empirical evaluation of these models, i.e. to simulate the process on specific classes of graphs and analyze the behavior we observe. However, our experiments and analysis should be based on intuitions about the underlying graph problems, so an affinity to theoretical computer science and graph-theoretical reasoning is also essential for the project.

Requirements: Interest in theoretical computer science, and programming skills in a programming language of your choice. We will have weekly meetings to discuss questions and new ideas.

Interested? Please contact us for more details!

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