Information retrieval in large graphs and networks

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In this talk, I will describe two methods that have been devised in the "Large Graphs and Networks" research group at UCL and that allow to efficiently extract information in large graphs and networks.

In the first method I will show how to compute similarities between nodes in graphs. This method has been successfully applied to the automatic extraction of synonyms in a monolingual dictionary.

I will then describe an algorithm, introduced in 2008, that allows to detect communities in very large networks. Our algorithm outperforms all previously known community detection methods. It has been applied to a large mobile phone communication networks and to a web graph with more than a billion links.

Both methods can be applied to arbitrary graphs and networks. If time permits I will try to describe possible applications of these methods in a biological context.