Supervised and unsupervised classification of networks

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Abstract

Networks represent a convenient model for many scientific and technological problems. From power grids to biological processes and functions, from financial networks to chemical compounds, the network representation of data makes it possible to highlight both topological and qualitative characteristics. In this talk, we report recent developments in supervised and unsupervised classification of network data. Given a dataset whose members are networks, we show how to cluster them. In case a class label is available, we show hot to build a mathematical model for their supervised classification. We focus on networks with labeled nodes and weighted undirected edges, defining distances between networks. We provide empirical results on datasets of biological interest.