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The stochastic topic block model

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Due to the significant increase of communications between individuals via social media (Facebook, Twitter, Linkedin) or electronic formats (email, web, e-publication) in the past two decades, network analysis has become a unavoidable discipline. Many random graph models have been proposed to extract information from networks based on person-to-person links only, without taking into account information on the contents. This talk will introduce the stochastic topic block model (STBM), a probabilistic model for networks with textual edges. We will address here the problem of discovering meaningful clusters of vertices that are coherent from both the network interactions and the text contents. A classification variational expectation-maximization (C-VEM) algorithm will be proposed to perform inference. Finally, we will rely on the methodology to study the Enron political and financial scandals.

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