

Using inference for recommendation and to obtain models from data: Is data always good enough?

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I will talk about two different problems that share a common behavior: a transition between a desired inference outcome and a less desirable one. My first example will be that of recommender systems (or bipartite graphs with multi-valued edges) and the use of node attributes (such as gender of a user and the genre of a movie) to increase prediction accuracy of unobserved ratings. My second example will be that of obtaining models from data using a Bayesian inference framework in the presence of noise. I will discuss

how data attributes are not always useful to make recommendations in the same way that increasing the noise in the data will prevent us from finding the model that generated the data. I will also discuss that if we increase the importance of the attributes or the noise, we observe a transition between a regime in which we only see the data and a regime in which we only see the attributes or models that are compatible with noise.