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Friday, November 13, 2015 - 2:30pm
SIG 225

Tensor Decomposition Approaches for Learning Mixture Models

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In many applications, we face the challenge of modeling the interactions between multiple observations and hidden causes; such problems range from clustering points in space to document retrieval, where we seek to model the underlying topics, to community detection in social networks. The (unsupervised) learning problem is to accurately estimate the model (e.g. the underlying clusters, hidden topics, or the hidden communities in a social network) with only samples of the observed variables. In practice, many of these models are fit with local search heuristics. This talk will show how (provably accurate) tensor based approaches provide closed form estimation methods for a wide class of these models.

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