Colloquium Series

Fitting Multi-Modal Densities by Dynamic Programming

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Abstract: Estimating the density of a mixture model is an important topic in statistics. However, fitting mixture densities with an arbitrary number of modes is rarely considered in the literature. Modes are not only important features of densities, but also provide convenient ways to clustering. In this talk, we consider fitting a probability density function when it is constrained to have a given number of modes. We propose a dynamic programming approach to solving this problem numerically. When the number of modes is not known, our method can also be used to create data-driven ways for selecting it.

Keywords: Mixture Models; Modes; Density Estimation; Dynamic Programming.

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