

PhD School in Statistics – XXIII Cycle

Specialistic Course 2008

AN INTRODUCTION TO PROBABILISTIC GRAPHICAL MODELS

by

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Abstract

Probabilistic graphical models are an elegant framework which combines probability and graph theory. They provide a natural tool for dealing with uncertainty and complexity. Fundamental to the idea of a graphical model is the notion of modularity: a complex system is built by combining simpler parts. Probability theory serves as the glue whereby the parts are combined, ensuring that the system as a whole is consistent and providing ways to interface models to data. The framework is quite general in that many classical multivariate probabilistic systems can be described as graphical models. This course gives an introduction to the theory of graphical models. The emphasis is on presenting a set of tools that are useful in a large number of applications.

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School Director*