

Department of Decision Sciences

Statistics Seminar

Conjugate Projective Limits

Peter Orbanz

University of Cambridge

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12:30pm Room 3-E4-SR03 Via Röntgen 1 Milano

Abstract

Bayesian nonparametric models can be regarded as Bayesian models on infinite-dimensional spaces. These infinite-dimensional distributions can be constructed from finite-dimensional ones using the projective limit approach familiar from stochastic process theory. I will discuss how this approach can be generalized from probability measures to conditional probabilities. The generalization results in a projective limit calculus applicable to the construction and representation of virtually any nonparametric Bayesian model.

Intuitively, rather than constructing a stochastic process from finite-dimensional probability measures, we construct a nonparametric Bayesian model from finite-dimensional Bayes equations. Specific properties of the finite-dimensional models -- such as posterior updates, sufficient statistics and posterior conjugacy -- carry over to the infinite-dimensional case.

I intend to sketch a few construction examples and, time permitting, will discuss in how far the constructions are generic and what mathematical complications we have to expect.