Bocconi
Università Commerciale Luigi Bocconi

Department of Decision Sciences

Statistics Seminar

Have I seen you before? Principles of Bayesian predictive classification Revisited

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

Abstract

Classification of objects into a finite set of alternative classes based on observed features of the objects is a common task in statistical machine learning. An important application example familiar to most of us is spam filtering of email messages. In this talk we review the probabilistic basis of generative classification and show how a particular inductive rule of classification arises from basic principles of predictive probabilistic modeling pioneered by Seymour Geisser in 1960's. The standard practice of classifying objects one by one, which follows from an i.i.d. assumption, is demonstrated to be at odds with laws of predictive probability and we show also that it can be motivated as an asymptotic approximation to a more coherent rule. A novel inductive principle of predictive classification is introduced and we discuss its properties in relation to other principles.

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