Biosketch:

Gilles Ducharme obtained his PhD in Statistics in 1983 from The University of Montréal. After two years at the Department of Statistics, UC Berkeley, he joined the Department of Mathematics and Statistics at the University of Montreal in 1985 and was promoted full professor in 1993. In 1995, while on sabbatical leave at the University of Montpellier, he was offered a full professor position at its Department of Mathematics and has been there ever since. He chaired the Probability and Statistic Laboratory from 2005 to 2009.

His research interests encompass both theoretical and applied aspects of statistics. On the theoretical side, he contributes to the problem of selecting and validating statistical models, to bootstrap and other resampling methods, to the analysis of data on manifolds and, more recently, to statistical learning. He is interested by many applied statistical problems in biostatistics, micro-electronic, signal processing, hydrology, marketing and finance.

He is also much concerned with the formative aspects of the discipline. He designed and directed many programs in statistics at the University of Montpellier and is involved with the development and maintenance of international programs, notably with the University of Sherbrooke and the Lebanese University. He has been the advisor of 20 Ph.D. students.

Goodness-of-fit of statistical models : the smooth test paradigm

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Abstract

A large part of statistic revolves around statistical models and pertains to the inferences that derive from them, i.e. point and interval estimation of their parameters and test of statistical hypotheses. When such models are appropriate, they can greatly help in deciphering the complex interactions between elements of a phenomenon under investigation. However, for these models to be useful, they must be valid at the resolution offered by the data at hand. Many methods have been derived to assess this validity, Among these, an important class of tools are goodness-of-_t tests. In this talk, I will describe the smooth test approach to evaluate the goodness-of-_t of statistical models. This approach turns out to have many advantages over its competitors. Two of these advantages, recently unearthed, are 1) they can be extended to many complicated contexts encountered in statistic and 2) they have diagnostic capabilities that allow the user, when the test rejects, to get some solid intelligence regarding the aspects of the model that are not supported by the data and must be corrected. I will present some of the extensions and capabilities that have become conceivable in an ecosystem where powerful computing tools are mainstream.