

Dimension Reduction in Functional Data Analysis

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Functional data are, by nature, infinite dimensional data, and their analysis need necessarily specific attention to the possible effects of high (in fact, infinite) dimension on the behaviour of statistical procedures. Semi-parametric modelling and variable/model selection are two fields of modern Statistics having developed methodologies for dealing with dimensionality in high (but finite) multivariate data analysis.

The aim of this talk will be to discuss how these multivariate ideas (semi-parametric and variable selection) can be nicely adapted to FDA, with much more attention to the second one (variable selection) since the first one (semi-parametrics) was already discussed in an earlier seminary in April 2013. In some sense, even if it will be self-contained, this talk could be seen as complementary to the earlier one.

The talk will be mainly methodological and centered around the presentation of the main interests of the proposed methods, which can be summarized as:

- good predictive power;
- interpretability of outputs;
- easiness of implementation.

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