Abstract:

Interval-wise testing (IWT) is an inference procedure used to test hypotheses about functional data. The procedure provides an adjusted p-value function, correcting for multiple testing, which is used to identify intervals of the domain with statistical significance. Interval-wise testing is based on permutation tests and was originally developed for independent one-dimensional functional observations. In this talk I explain the ideas behind IWT and extend IWT to dependent functional data (using a functional linear mixed model framework) and to multivariate functional data. More specifically, think of situations where several treatments are tested on the same subjects such that dependence between (possibly multivariate) functions from the same subjects must be taken into account in order to have valid inference. I illustrate the method on simulated data and on gait data from horses. This is joint work with Alessia Pini, Anders Tolver, and Simone Vantini.