



STATISTICAL INFERENCE

ORGANIZER: LUÍS GUSTAVO ESTEVES, UNIVERSITY OF SÃO PAULO, BRAZIL

TALK 1: ESTIMATION OF CAUSAL FUNCTIONAL LINEAR REGRESSION MODELS

SPEAKER: JOSÉ CARLOS SIMON DE MIRANDA, UNIVERSITY OF SÃO PAULO, BRAZIL

We present a methodology for estimating causal functional linear models using orthonormal tensor product expansions. More precisely, we estimate the functional parameters α and β that appear in the causal functional linear regression model:

$$Y(s) = \alpha(s) + \int_a^b \beta(s, t)X(t)dt + \varepsilon(s),$$

where $\text{supp } \beta \subseteq \mathfrak{X}$, and \mathfrak{X} is the triangle whose vertexes are (a, a) , (b, a) and (b, b) . We assume we have an independent sample $\{(Y_k, X_k): 1 \leq k \leq N, k \in \mathbb{N}\}$ of observations where the X_k 's are functional covariates, the Y_k 's are time order preserving functional responses and ε_k , $1 \leq k \leq N$, is i.i.d. zero mean functional noise.

TALK 2: ON MAKING STATISTICAL INFERENCE UNDER MODEL NONIDENTIFIABILITY

SPEAKER: LUÍS GUSTAVO ESTEVES, UNIVERSITY OF SÃO PAULO, BRAZIL

(JOIN WORK WITH SERGIO WECHSLER AND RAFAEL IZBICKI)

We discuss the concepts of identifiability and identifying functions in simple probability calculus. Emphasis is given to Bayesian solutions. In particular, we compare Bayes and maximum likelihood estimators. A comparison between Bayesian and Frequentist solutions to the problem of hypothesis testing is also focused. Finally, we advocate adoption of informative prior probabilities for the Bayesian operation in place of diffuse or reference priors.