Nonparametric Information Geometry

Session: Algebraic/Infinite dimensional/Banach Information Manifolds

Chair: Giovanni Pistone

August 28, 2013
Talks

• Asymptotically Efficient Estimators for Algebraic Statistical Manifolds. Kei Kobayashi and Henry P. Wynn

• Infinite-Dimensional Manifolds of Finite-Entropy Probability Measures. Nigel J. Newton

• Invariant geometric structures on statistical models. Hông Văn Lê

• The $\Delta_2$-Condition and $\phi$-Families of Probability Distributions. Rui F. Vigelis and Charles C. Cavalcante

• A Riemannian Geometry in the $q$-Exponential Banach Manifold Induced by $q$-Divergences. G. Loaiza and H.R. Quiceno

Definition

A $k$-integrable parametrized measure model is a quadruple $(M, \Omega, \mu, p)$, where $M$ is a smooth Banach manifold and $p$ a map from the manifold $M$ to the set $\mathcal{M}_+(\omega, \mu)$ of all finite measures on $\Omega$ which are equivalent to $\mu$, provided with the $L^1$-topology, such that

1. the real function on $M \ni x \mapsto \bar{p}(x, \omega)$ is Gateaux-differentiable for almost all $\omega$, $\bar{p} = dp/d\mu$.

2. for all $1 \leq h \leq k$ and all continuous vector field $V$ on $M$ the random variable $\omega \mapsto \partial_V \bar{p}(x, \omega)$ belongs to $L^h(\Omega, p(x))$ and the function $x \mapsto \| \partial_V \bar{p}(x, \omega) \|_{L^h(\Omega, p(x))}$ is continuous on $M$. 