**Parametric estimation for fractional stochastic differential equations in the Yuima package**

Alexandre Brouste*
Université du Maine, Institut du Risque et de l'Assurance du Mans, France -
Alexandre.Brouste@univ-lemans.fr

The fractional Brownian motion is a useful generalization of the Wiener process. It can present long range dependence property (observed in several applications in finance, biology, physics, internet traffic, etc.) and its paths can be more regular (in the Holder sense) than the Wiener paths. But solutions of stochastic differential equations driven by fractional Brownian motion are no longer semimartingales and do not present the Markov property. In this presentation, we will review the estimation procedures that still work in this context (for the large sample convergence scheme, for the high-frequency scheme and for the mixed scheme). The long range dependence property of the solutions implies generally to deal with all the correlations of the sample components to reach efficiency. It leads to heavier computational estimators. If we seek rate optimality, faster algorithms can be presented for some values of the Hurst parameter. Our theoretical results will be illustrated with the Yuima package.

**Keywords**: diffusion processes; fractional Brownian motion; maximum likelihood estimation; Hurst parameter.