



High Dimensional Nonstationary Time Series

IRTG 1792

Short Course

Vladimir Spokoiny

Adaptive nonparametric clustering

This course discusses the problem of nonparametric clustering. After a short overview of different clustering methods Professor Spokoiny will present a new approach to non-parametric cluster analysis called Adaptive Weights Clustering (AWC). The idea is to identify the clustering structure by checking at different points and for different scales on departure from local homogeneity using statistical tests of „no gap“ between local clusters. The method is fully adaptive and does not require to specify the number of clusters or their structure. The clustering results are not sensitive to noise and outliers, the procedure is able to recover different clusters with sharp edges or manifold structure. The method is scalable and computationally feasible. Our intensive numerical study shows a state-of-the-art performance of the method in various artificial examples and applications to text data. We also provide a rigorous theoretical study of the procedure and state its optimal sensitivity to deviations from local homogeneity.



Professor Spokoiny is the head of the research group "Stochastic Algorithms and Nonparametric Statistics" of the Weierstrass Institute for Applied Analysis and Stochastics. Furthermore he is Professor at the Departments of Mathematics and Economics of the Humboldt University of Berlin as well as a member of interdisciplinary center C.A.S.E. at the HU Berlin

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Haindorf Seminar



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