PhD program in Statistics
DSS Statistics Seminar
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Webinar **https://uniroma1.zoom.us/j/86881977368?pwd=SWRFc VFjMDZTa0IXZk05TE1zNm5adz09**
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Directional distribution depth function and its application to classification

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Statistical depth functions are introduced as a way to provide a center-outward ordering of the sample points in multidimensional space, which can be used for outlier detection, classification, and other exploratory tools. In this work we propose a novel definition of depth function for multivariate data using random directions, which preserves the Mahalanobis distance of the points in the original space. More specifically, the proposed depth function is the expectation of all depths along the potentially infinite random directions, which, in turn, are functions of the point percentiles estimated via parametric or nonparametric models.

The proposed method is evaluated through simulated experiments and real data applications, and is shown to be effective in supervised classification problems.

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