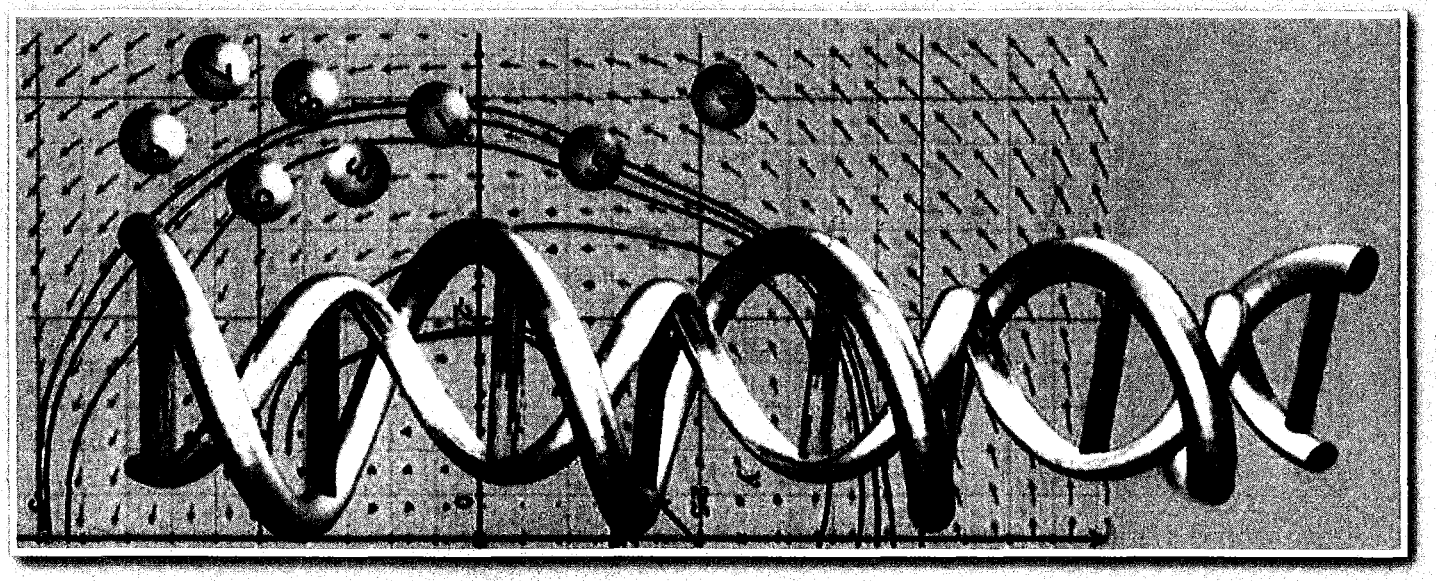
6th WORKSHOP ON STATISTICS, MATHEMATICS AND COMPUTATION

3rd PORTUGUESE - POLISH WORKSHOP ON BIOMETRY



BOOK OF ABSTRACTS

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Global Approach for the comparison of Clustering Results

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Abstract: The extraction of useful knowledge from a Hierarchical Cluster Analysis (HCA) is a complex process which depends on many factors, such as the applied clustering algorithms and the strategies developed in the initial stage of the HCA. We present a global approach for evaluating the quality of clustering results based on the comparison of partitions from the different clustering algorithms using the most relevant information available (e.g. stability, isolation and homogeneity of the clusters). In addition, we suggest a visual method to facilitate the evaluation of the quality of the partitions that allows us a quick perception of the similarities and the differences between the partitions, including the behaviour of the elements in the partitions. We illustrate our approach using a real data set (horse data). We applied HCA based on the weighted generalized affinity coefficient (similarity coefficient) to the case of complex data (symbolic data), combined with 26 clustering (classic and probabilistic) algorithms. Finally, we discuss the obtained results and the contribution of this approach to a better knowledge on the cluster structure of a data set.
Keywords: Cluster Analysis, VL Methodology, Affinity Coefficient, Comparing Partitions, Cluster Stability and Cluster Validation.

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