

STABILITY AND STATISTICAL PROPERTIES OF TOPOLOGICAL INFORMATION INFERRED FROM DATA

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Computational topology has recently seen an important development toward data analysis, giving birth to Topological Data Analysis. Persistent homology appears as a fundamental tool in this field. It is usually computed from filtrations built on top of data sets sampled from some unknown (metric) space, providing “topological signatures” revealing the structure of the underlying space. In this talk we will present a few stability and statistical properties of persistence diagrams that allow to efficiently compute relevant topological signatures that are robust to the presence of outliers in the data.