

Announcement

Seminar on Deformation Quantization and Geometry

28. 6. 2024 at 14:00 s.t.

Seminarroom SE 31

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An invariant for persistent homology of time series

Persistent homology is one of the most popular methods in topological data analysis. Given samples from an unknown space, persistent homology estimates the structure of that space by tracking the connectivity information across several spatial scales. That information is stored in a so-called persistence module. The framework of one-parameter persistent homology is complete in the sense that one can characterize the space of isomorphism classes of persistence modules completely by an invariant that is called the barcode. Given a time varying point cloud, we assign a persistence module to it that we call an extended zigzag module. Although in this case no complete invariant exists, we define an invariant for this kind of module that visualizes some interesting features of the data. Furthermore, we provide an algorithm to compute it and discuss useful properties.

Invited by Stefan Waldmann