

Selecting embedding delays: An overview of embedding techniques and a new method using persistent homology

Journal Article

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2023-03-01

Publication

Chaos 33, 032101 (2023)

33, 032101 (2023)

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Quality Indicators

Peer Reviewed

Q1 Journal as rated in SJR

Acknowledging the centre and awarded status as a "Featured" article. It's currently on the Journal's front page: <https://aip.scitation.org/journal/chaos>

Direct: <https://aip.scitation.org/doi/10.1063/5.0137223>

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Relevance to the Centre

This paper has three main objectives. # First, to provide a simple overview of the challenges of selecting good embedding parameters. # Second, to collate and compare the various popular methods across the dynamics-topology spectrum that have been proposed to tackle the problem of embedding parameter selection. We will focus on the particular case of optimizing time delay embedding. # Finally, to present a different approach based on the growing field of persistent homology—the significance score—that attempts to incorporate both dynamical and topological arguments into selection of embedding parameters.

DOI: 10.1063/5.0137223