Department of Mathematics,
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Zoom for Thought

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White box image classification via topological data analysis

Abstract:

The letters D and O are topologically indistinguishable (both are circles). However, after superimposing each symbol with their reflections across several axes, one *can* distinguish between them. The curvature in the O results in a different evolution in first homology when compared to the angled D. In this talk we will expand on this idea by explaining a white box classification algorithm which classifies an image as one of the 26 letters in the (capitalized) English alphabet. The driving force is the theory of persistent homology, as implemented in the Ripser package. This technique is less powerful than traditional techniques of machine learning (such as a neural net), but it is much more explainable.

Tuesday, October 5, 2021
2:00 PM
Please see email with subject "Graduate Student Seminar Information."

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