

INSTITUTE FOR STUDIES IN PRAGMATISM

Workshop Part 1:

Python: Visualization Methods Topological Data Analysis

Wednesday, March 6, 2024

3:00 pm-4:00 pm

Library Rm 305

Open to All Faculty, Staff, & Graduate Students!

How do we think? How does a pandemic spread? How do economies coordinate? These are broad questions about complex systems that require an interdisciplinary intelligence. To investigate these types of problems, we often use data that has been collected from measuring how these systems change over time. Examples include collecting brain activity readings from medical scanners, measuring the number of daily cases admitted to hospitals, and mapping out the value of stocks as they are traded through international exchanges.

When we think about analyzing lots of data, we often think about statistics. Statistics gives us a mathematical way to discuss trends that we observe in our data. One drawback of statistics, though, is that we often have to make assumptions about how the data was generated and these assumptions might alter our interdisciplinary analysis. What if, in addition to things like statistics, we could let the patterns in our data speak for themselves? What if we could also do that without needing a PhD in mathematics? Topological data analysis (TDA) is a field of mathematics that studies relationships between data and shape. Many computational tools have been developed that can help us understand this relationship without needing specific mathematical training. Furthermore, many of the core ideas from TDA can be explained using an intuitive, visual approach.

In this workshop, we will visually illustrate the ideas behind TDA and demonstrate the computational tools that you can use to develop important interdisciplinary conversations around your data, today.

Join us, and let's help the voice of your data take shape.

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Workshop Instructor

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