Applied Mathematics Seminar

Ms. Rachel Roca

Computational Math, Science, and Eng.- Michigan State University

Friday, January 21, 2022

1-1:50pm - MAK B2124 or via zoom (request password from ortizron at gvsu dot edu)

An Introduction to Topological Data Analysis (TDA) on Geospatial Data with the Help of Squirrels

Abstract: Topological Data Analysis (TDA) allows us to examine the shape of data and has been a rapidly growing field for the past few decades. In this talk, I will introduce core concepts used in TDA, such as simplicial complexes and persistent homology. Further, I will highlight utilizing TDA with geospatial data, that is, data that has geographic components to it. While we explore these concepts, we will ground ourselves in an example of geospatial topological data analysis of the squirrels living in Central Park. The data comes from the NYC Open Data Hub and was collected by the Squirrel Census in 2018. With these 3023 squirrels, we will see TDA in action and discuss how to interpret results from persistence diagrams. This talk will be accessible for all students and aims to demonstrate a minuscule amount of the exciting prospects of using TDA on data in an intuitive and fun way.

More info: http://bit.ly/applied-math-seminar