Centennial Honors College
Thomas E. Helm Undergraduate Research Day 2024

ABSTRACT

Major: Mathematics   Podium

Faculty Mentor(s):   Dinesh Ekanayake

Predicting area burned from forest fires using meteorological data.

Chirecce Robertson

Predicting the onset of forest fires and the extent of the area burned using meteorological data is a challenging regression task. We demonstrate that by reframing the problem as a classification problem, we can predict the onset of fires and the area burned with high accuracy. To illustrate, we employ a publicly accessible dataset that includes fire weather indices (FFMC, DMC, DC, FWI), temperature, relative humidity, wind speed, rainfall, and the area burned. Our findings shows that by using a random forest classifier with either the complete set of variables or just the location, temperature, relative humidity, and wind speed, we can predict the area burned within a range almost exactly.