

# Solving Problems with Data Science at Virginia Tech

## Summer REU 2023

### Data Sciences Project:

Data-Driven Methods for Science and Engineering (Ross Lab)

### Project Description:

Students working in the Ross Lab will work on analysis of data for classification or prediction. For summer 2023, projects depend on data availability and may include: (1) automated detection of drunk driving from vehicle movement, (2) data-driven modeling of wind profiles for weather forecasting, (3) coastal air quality forecasting related to Florida red tide, or (4) data-driven prediction of freshwater harmful algal blooms. Past REU research has involved epidemic forecasting of respiratory diseases, such as COVID-19 and predicting respiratory irritation due to exposure of airborne toxins from harmful algal blooms.

### Expected Qualifications of Students:

Students from STEM majors expected; familiarity with mathematical modeling is a plus.

### Faculty Bio:

Dr. Shane Ross is a professor at Virginia Tech in Aerospace and Ocean Engineering. He has a B.S. in physics and a Ph.D. in applied mathematics (control and dynamical systems), both from the California Institute of Technology (Caltech). Working with students is his favorite part of the job. He's also worked at the University of Southern California, NASA/JPL, and Boeing.

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