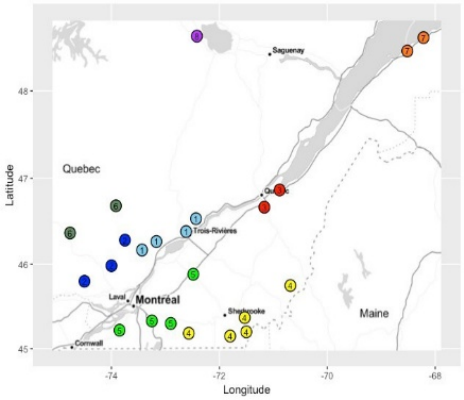
Orla Murphy
Statistics

Dr. Murphy's primary research interests include high-dimensional multivariate modeling, clustering, and extreme value analysis.



With technology yielding larger and more diverse data collections, many scientific domains seek innovative ways to investigate **big data**. Big data appears in diverse fields including medicine, economics, marketing, food science, biology, and environmental sciences. Can modifications be made to standard methods to analyze this type of data? Can we propose new methods that balance flexibility with computational burden?

Often, we are interested in the assignment of observations in big data to groups based on commonalities, without any prior knowledge of the correct grouping. This procedure is called **clustering** and is a type of unsupervised learning method. How can we cluster big data? How can we select the number of clusters?

Extreme events in nature can have severe impacts on infrastructure, agriculture, and human life. These events are difficult to model as they are infrequent by definition but have far-reaching consequences when they occur.

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MATHEMATICS AND STATISTICS