

**Data Science Seminar**  
Hosted by Department of Mathematical Sciences

- Date: Tuesday, March 02, 2021
- Time: 12:00pm - 1:00pm
- Room: Via Zoom
- Speaker: Brian Franczak (MacEwan University)
- Title: On using mixtures of shifted asymmetric Laplace distributions for model-based classification

**Abstract**

Broadly speaking, there are three levels of classification: supervised, semi-supervised, and unsupervised. Model-based classification refers to the use of finite mixture models for classification. In this talk, we will discuss the development of mixtures of multivariate shifted asymmetric Laplace (SAL) distributions for semi-supervised and unsupervised classification. In particular, we will discuss a parameter estimation scheme for the mixture of SAL distributions based on the expectation-maximization (EM) algorithm. The associated pitfalls of this approach will then be given, and a Bayesian remedy will be proposed. Following this, some interesting extensions of the mixture of SAL distributions will also be presented. All approaches will be demonstrated using both simulated and real data sets.

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