Department of Mathematics, Statistics and Computer Science
St. Francis Xavier University
Presents

Machine Learning Design: Optimizing Performance and Stability with Novel Validation and Evaluation Techniques

by
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This research is focused on novel validation and analytic methods to aid in the design of machine learning algorithms with a focus on healthcare applications. The purpose of the techniques being developed is to aid in producing the most reliable and consistent diagnostic methods based on multivariate machine learning. This will involve the development of validation and evaluation techniques that assist in producing reliably low error rates, with the highest levels of consistency in error profiles between randomized validation trials. Sample size and the quality of the underlying feature measurements will be investigated as mechanisms that affect machine learning performance and stability. Datasets containing real-world medical data will be used to assess the analytic validation techniques developed. Objectives include investigation of effect size and other metrics to reach these goals in a reproducible manner over different datasets containing many real-world health records.