**ABSTRACT**

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## A Mathematical Programming Approach to Sparse Canonical Correlation Analysis

Recent developments in the interplay between Operational Research and Statistics allowed to exploit advances in Mixed Integer Optimization (MIO) to improve the quality of statistical analysis. In this work we tackle Canonical Correlation Analysis (CCA), a dimensionality reduction method that summarises multiple data sources jointly, retaining their dependency structure. We propose a new technique to encode Sparsity in CCA based on a new mixed integer non-linear programming formulation. Different alternative solution methods are proposed, which allow to obtain an exact solution or a feasible one of good quality. We show the performances of our proposal through extensive experimental results and comparisons with the existing approaches in the literature