**Interactive visualization of high-dimensional**

**data via continuous low-dimensional**

**projections**

Nicholas Spyrison

Monash University,

Faculty of Information and Technology

Abstract:

Exploratory data analysis is the first step to exploring data and validating model assumptions. Visualizations of data-spaces convey a better representation than numeric statistics alone. Yet, display of more than 3 attribute dimensions (p > 3) is non-trivial.

Traditionally, methods suggested looking at several *discrete* linear projection bases highlighting a feature. A visualization ‘tour’ shows an animation of *continuous* change in many near-by projection bases that better allow for tracking and understanding of structure continuity.

This PhD research project focuses on one type of tour, known as a manual tour. A manual tour allows for the contribution of a selected variable’s contribution onto the projection. This uniquely allows the analyst to control the basis of a projection rather than a predefined path.

In the latest work we are in the midst of performing a with-in participant experimental study. Where every participant performs tasks using 3 visual factors: principal component analysis, ‘grand’ tour, and manual tour. We seek to answer the hypothesis; *Does the finer control afforded by the manual tour improve the ability of the analyst to understand the importance of variables contributing to the structure?*