

ABSTRACT

This research was conducted to analyze the application of the Multi Dimensional Reduction Method to parallel computer performance data. This method has previously been implemented to process time series scientific data, such as monitoring air quality in a country, a domain that is quite different from parallel computer data monitoring. This research was conducted to get an idea of what it would be like if the MDR method were implemented on parallel computer monitoring data (for example, as produced by the Turbostat tool). The many data dimensions in Turbostat's output need to be summarized (reduced) to simplify the data visualization process, so that domain scientists can understand the existing data better. This research reduces data in stages, first the data is reduced based on category, secondly the data is reduced over time. The reduction process uses the UMAP (Uniform Manifold Approximation and Projection) algorithm with parameter optimization for the number of neighbors taken into account, as well as the minimum distance between the 2 points you want to consider. From the parameter optimization results, it was found that the optimal neighbor value was 15, with a minimum distance value of 0.1. In the results of this research, dimensionality reduction processing can provide insight and convenience for researchers in their field to be able to analyze time series data, especially time series parallel computer performance data.

Keywords: *Multi Dimensional Reduction, Turbostat, reduction, dimensions, data*