World Academy of Science, Engineering and Technology
International Journal of Computer and Information Engineering
Vol:18, No:12, 2024

Parallel Coordinates on a Spiral Surface for Visualizing High-Dimensional Data

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Abstract : This paper presents Parallel Coordinates on a Spiral Surface (PCoSS), a parallel coordinate based interactive visualization method for high-dimensional data, and a test implementation of the method. Plots generated by the test system are compared with that generated by XDAT, a software implementing traditional parallel coordinates. Traditional parallel coordinate plots can be cluttered when the number of data points is large or when the dimensionality of the data is high. PCoSS plots display multivariate data on a 3D spiral surface and allow users to see the whole picture of high-dimensional data with less cluttering. Taking advantage of the 3D display environment in PCoSS, users can further reduce cluttering by zooming into an axis of interest for a closer view, or by moving vantage point and by reorienting viewing angle to obtain a desired view of the plots.

Keywords : human computer interaction, parallel coordinates, spiral surface, visualization
Conference Title : ICCIS 2024 : International Conference on Computer and Information Sciences
Conference Location : Bangkok, Thailand
Conference Dates : December 23-24, 2024