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Charles Andrew Tannouri* (ctanno1@students.towson.edu), Baltimore, MD. *Efficient Graph Visualization for Applications: Databases, Data Mining, and Video Games.*

A graph is a visual representation of data characterized by a set of nodes connected by a certain number of edges. Graphs appear in a wide range of mathematical problems, and are used as an indispensable problem-solving tool in computer science and other fields. However, the complex and often convoluted nature of these data sets makes them very difficult to illustrate clearly and efficiently in a visually aesthetic form. Simplification of the visualization of such graphs yields the benefit of more friendly access, more efficient use, and easier analysis. Such graphs can be used in software such as those of data analysis tools, video games, or other programs that present cluttered and complex data. By applying graph transformations that take advantage of properties such as confluence, a graph can be represented in a more manageable form. Visualizing such a graph using a three-dimensional interface and rendering the edges using splines to better exhibit the graph's confluence can organize the data of the graph in such a way to simplify its use as a tool to aid in data mining and other graph-centric applications. Configurations of these splines are studied to determine the how effectively a graph can be visually simplified. (Received September 22, 2009)