4D - VISUALIZATION

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Abstract:

4D visualization is the study of biology and medicine relied on visualization. "4D" is shorthand for "four-dimensional", the fourth dimension being time. It helps to study the relationship of an atomic structure to biological function and to detect the disease to be treated. Visualizable objects extend across vast range of scale, additionally, these visualizations can be either direct or indirect. The practice of medicine and biological investigations lies indirectly in the field of scientific visualization, the term "four-dimensional visualization" usually refers to the process of rendering three-dimensional field of scalar values. Four-dimensional data is usually accomplished by assigning three dimensions to a location in three-dimensional space, and the remaining dimension to some scalar property at each three-dimensional location. In simple 4D visualization takes three- dimensional images and adds the element of time to the process. The capabilities of new three-dimensional (3-D) and four-dimensional anatomy moving in real-time are quite revolutionary. For example, look at an image of a cube, the image is completely two-dimensional, but you understand that the depicted object is a three-dimensional object. We have different techniques to reconstruct the three-dimensional nature of an object from simplified representation. We can use the same analogies for four-dimensional objects (composed of several cubes) into three-dimensional space. One example for the application of 4D visualization technology is management in Metro Construction. Time will show the significance of 4D visualization and its edge as an emerging technology.