Active Visualization in a Multidisplay Immersive Environment

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Building a system to actively visualize extremely large data sets on large tiled displays in a real time immersive environment involves a number of challenges. First the system must be completely scalable to support the rendering of large data sets. Second, it must provide fast, constant frame rates regardless of user viewpoint or model orientation. Third, it must output the highest resolution imagery where it is needed. Fourth, it must have a flexible user interface to control interaction with the display. In this talk I shall present a prototype for a visualization system which meets all four of these criteria. It details the design of a wireless user interface in conjunction with a foveated vision application for image generation on a tiled display wall. The system emphasizes the parallel, multidisplay and multiresolution features of the Metabuffer image composition architecture to produce interactive renderings of large data streams with fast, continuous frame rates.