

An Interactive Parallel Multiprocessor Level-Set Solver with Dynamic Load Balancing

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Abstract

Level-set methods, which deform implicitly defined surfaces using partial differential equations, have applications in a wide range of fields including vision, image processing, visualization, graphics, and computational physics. We propose a novel interactive parallel scalable level-set algorithm, based on a narrow band method, which incorporates dynamic load balancing. We show results on a distributed-shared-memory SGI multiprocessor. The interactive update rates combined with real-time visualization allow users to dynamically control the motion of the level set surface.