

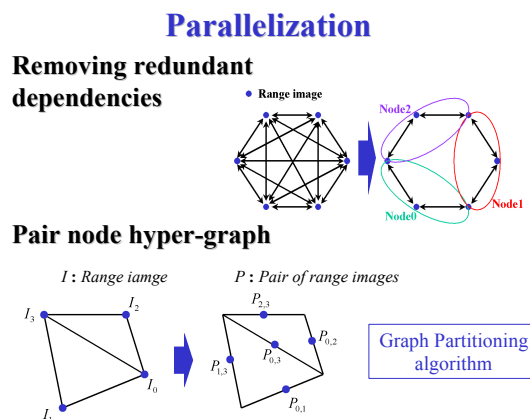
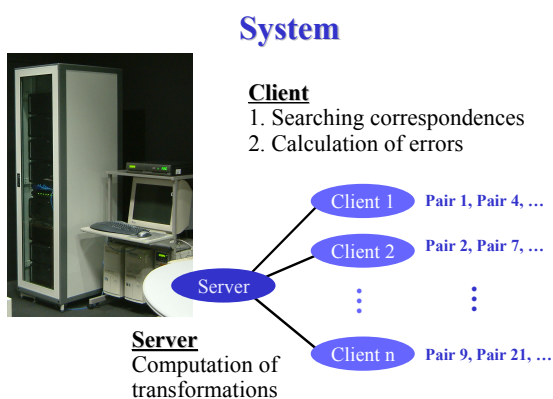
Parallel Alignment of a Large Number of Range Images

Takeshi Oishi Ryusuke Sagawa Atushi Nakazawa Ryo Kurazume Katsushi Ikeuchi

This paper describes a method for parallel alignment of multiple range images. Although a general simultaneous alignment algorithm searches correspondences for all pairs of all range images, by rejecting redundant dependencies, our method makes it possible to accelerate computation time and reduce the amount of memory used on each node. Since the computation between two range images can be performed independently, each correspondence pair of range images is assigned to each node. The graph partitioning algorithms are applied to this problem in order to reduce the amount of memory used on each node. The method was tested on a 16 processor PC cluster, where it demonstrated the high extendibility and the performance improvement in time and memory.

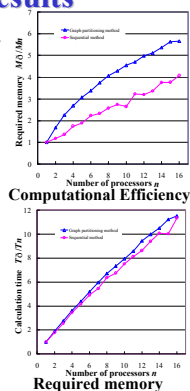
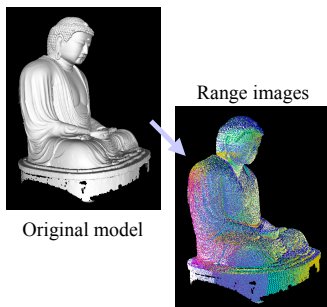
Publication

1. Takeshi Oishi, Ryusuke Sagawa, Atushi Nakazawa, Ryo Kurazume, Katsushi Ikeuchi, "Parallel Alignment of a Large Number of Range Images," Proc. The 4th International Conference on 3D Digital Imaging and Modeling (3DIM 2003), pp.195-202, October 2003.

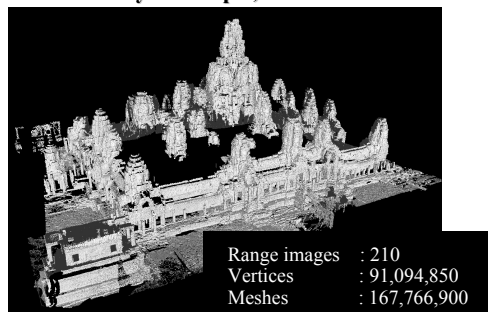


Experimental Results

<Kamakura Great Buddha, Japan>



< Bayon Temple, Cambodia >



nProcessor	Time(sec)/nIteration	Max Mem(MB)	Min Mem(MB)
4	103.9	1608	1456
16	40.2	559	472