Abstract

In modern master slave system, which have computer mediator between the two sides, the mediator computer faces high and non deterministic computational load arising from complex problem of computing instantaneous physical distances of moving robot from the modeled objects in the workspace. The problem is acute for mediators that work in pre-contact state where tool-tip is in close vicinity to object body. A novel vicinity model based method has been developed to minimize real time computation load. Fixed quantum, minimized floating point computation attains deterministic real time performance while mediating in force feedback modality.

References


Cohen Or, D., Kaufman, A., "Fundamentals of Surface Voxelization"
Graphical Models and Image Processing, 57, 6 (November 1995), 453-461.


- Samel H. "Design and analysis of spatial data structures in Computer graphics, Image processing and GIS". Addison Wesley, Reading M. A. 1990

**Index Terms**

Computer Science  
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