A Computation Optimization Method in Computer Mediated Teleoperation

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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

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Index Terms

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Computation load optimization spatial state vicinity tele-robot time-critical computation mediator computer