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Closed-loop model identification of cooperative manipulators holding deformable objects (Conference Paper)

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Abstract   ⌄ View references (14)

This paper presents system identification to obtain the closed-loop models of a couple of cooperative manipulators in a system, which function to hold deformable objects. The system works using the master-slave principle. In other words, one of the manipulators is position-controlled through encoder feedback, while a force sensor gives feedback to the other force-controlled manipulator. Using the closed-loop input and output data, the closed-loop models, which are useful for model-based control design, are estimated. The criteria for model validation are a 95% fit between the measured and simulated output of the estimated models and residual analysis. The results show that for both position and force control respectively, the fits are 95.73% and 95.88%. © Published under licence by IOP Publishing Ltd.

Indexed keywords

Engineering controlled terms: Carrier concentration   Deformation   Manipulators   Position control

Compendex keywords: Closed loop models   Cooperative manipulator   Deformable object   Input and outputs   Master slave principles   Model based control design   Position and force control   Residual analysis

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