Lefebvre / Bruyninckx / de Schutter

Nonlinear Kalman Filtering for Force-Controlled Robot Tasks

This monograph focuses on how to achieve more robot autonomy by means of reliable processing skills. "Nonlinear Kalman Filtering for Force-Controlled Robot Tasks " discusses the latest developments in the areas of contact modeling, nonlinear parameter estimation and task plan optimization for improved estimation accuracy. Kalman filtering techniques are applied to identify the contact state based on force sensing between a grasped object and the environment. The potential of this work is to be found not only for industrial robot operation in space, sub-sea or nuclear scenarios, but also for service robots operating in unstructured environments co-habited by humans where autonomous compliant tasks require active sensing.

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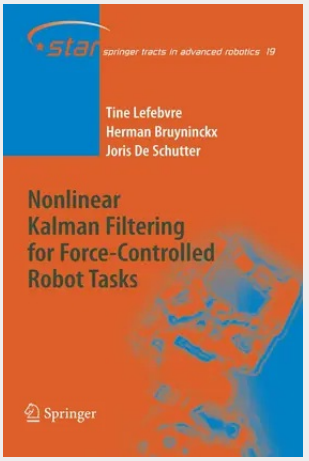

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