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Predictive Control with MATLAB. Designing and Simulating Models (Paperback)

By A Taylor

Createspace Independent Publishing Platform, 2017. Paperback. Condition: New. Language: English . Brand New Book ***** Print on Demand *****. Model Predictive Control Toolbox provides functions, an app, and Simulink blocks for designing and simulating model predictive controllers (MPCs). The toolbox lets you specify plant and disturbance models, horizons, constraints, and weights. By running closed-loop simulations, you can evaluate controller performance. You can adjust the behavior of the controller by varying its weights and constraints at run time. To control a nonlinear plant, you can implement adaptive and gain-scheduled MPCs. For applications with fast sample rates, you can generate an explicit model predictive controller from a regular controller or implement an approximate solution. For rapid prototyping and embedded system implementation, the toolbox supports automatic C-code and IEC 61131-3 Structured Text generation. The most important features that this Toolbox provides are the following: -Inroduction: Learn the basics of Model Predictive Control Toolbox -Plant Specification: Specify plant model, input and output signal types, scale factors -MPC Design: Basic workflow for designing traditional (implicit) model predictive controllers -Adaptive MPC Design: Adaptive control of nonlinear plant by updating internal plant model at run time -Explicit MPC Design: Fast model predictive control using precomputed solutions instead...

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