

Self-Tuning Robot Control Based on Subspace Identification

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Abstract : The paper describes the use of subspace based identification methods for auto tuning of a state space control system. The plant is an unstable but self balancing transport robot. Because of the unstable character of the process it has to be identified from closed loop input-output data. Based on the identified model a state space controller combined with an observer is calculated. The subspace identification algorithm and the controller design procedure is combined to a auto tuning method. The capability of the approach was verified in a simulation experiments under different process conditions.

Keywords : auto tuning, balanced robot, closed loop identification, subspace identification

Conference Title : ICCDSR 2016 : International Conference on Control, Dynamic Systems, and Robotics

Conference Location : Amsterdam, Netherlands

Conference Dates : August 04-05, 2016