

Control in The Presence of Uncertainty

List of Topics

Dispense del Corso di Controllo Robusto e Adattativo

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- Signal Norms, Systems Gains
- Barbalat's Lemma
- Dissipativity
- Passivity
- Hill-Moylan and KYP conditions
- Positive realness
- L_2 -gain
- Stability and Stabilization of Dissipative Systems
- The Passivity Theorem
- Loop Transformations
- The Small Gain Theorem
- Parameteric Models
- Linear Parametric Models
- Bilinear Parameteric Models
- Multiplicative Perturbations
- Feedback Perturbations

- Parameter Estimation
- Sufficiently Rich Signals
- SPR Design for Linear Models
- Gradient Identifiers
- Projection and Normalization
- DREM
- SPR Design for Bilinear Models
- Adaptive Luenberger Observers
- Adaptive Frequency Estimation
- MRAC – Examples
- MRAC – State Feedback
- MRAC – SISO Systems
- Adaptive Backstepping

- Basic Feedback Loop
- Internal Stability
- Performance
- Robust Stability
- The H_∞ Control Problem Formulation
- Robust Performance
- Controller Parameterization
- The State Feedback H_∞ Control Problem
- The Measurement Feedback H_∞ Control Problem
- Design Constraints
- The Regulator Problem
- The Full Information Regulator Problem
- The FBI Equations
- The Error Feedback Regular Problem
- The Internal Model Principle