Adaptive and predictive controls

Component
École Nationale Supérieure d'Électrotechnique d'Électronique

In brief

- **Ametys Code:** N9EE19A
- **Open to exchange students:** Yes

Presentation

Objectives

Master the basic concepts of adaptive and predictive control and carry out an initial implementation on Matlab

Description

The course details the motivations, showing the limitations of LTI modeling for representing real systems. The major levers of adaptive and predictive control design are discussed and illustrated using gain sequencing methods, MRAC, and classic predictive control (quadratic cost and linear constraints). The course includes exercises to prepare for the final exam, which focuses on the control of a nonlinear MIMO system (this year, a set of interconnected tanks).

Pre-requisites

Linear control (1A), state space (2A)