SPRING 2021: Master thesis on strategic control and behavioral economics

Department of Automatic Control, LTH | Lund

November 2020

Start date: January 2021, or later.

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Type: Master thesis on modeling and control of non-stationary cognitive biases and large-scale decision-making processes.

Keywords: applied probability theory, game theory, inter-temporal choice

Description: Today you may prefer going to a party in favor of preparing for an exam; tomorrow, you may regret not preparing earlier. Over time your preferences can change. This nonstationarity poses a challenge for strategic decisions that need to take into account the future consequences of one's own actions *and* that of others. This project aims to extend mathematical models of decision-making processes with empirically validated cognitive biases in human decisions and study the possibilities for exerting strategic control in the eventual outcome of large-scale decision-making processes.

Tasks: Tasks relevant to the project include: Literature review; Fitting of model parameters to existing empirical data; Formulation of control strategies for various decision-making scenarios; Describing the effects of cognitive bias on equilibrium profiles; Comparing effectiveness of control strategies; Developing numerical examples.

Prerequisites: Enrolled as M.Sc. student at Lund University; Interest and willingness to learn about phenomena and models in behavioral economics; Comfortable with applied probability theory and mathematical analysis; Experience in Mathematica and/or Matlab.