Karim Djouani (Créteil)

Title. Machine Learning and Stability and Robustness in Nonlinear Systems Modelling and Control

Abstract. Data Driven Approaches such as Neural Networks and Deep Learning have been widely used for System Modelling and Control. During this talk and based on practical examples, some ideas on machine learning application in this context will be discussed. Firstly, we will discuss the general problem of real-time trajectory planning for nonlinear dynamic systems and the use of (deep)neural networks. Secondly, the problem of robust control of a robotic system with a human in the loop will be presented and analysed from a stability and robustness point of view. Finally, and if time will allow, the talk will open a discussion on physically informed modelling and Neural Network based Model Free Control.