

Weakly hard-control

Professor Martina Maggio

Lund University/Saarland University

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Via Teams

Abstract:

In the last twenty years, processors have evolved and their computing power has fostered the desire to run more demanding computation routines. Control systems are no exception, with a vast variety of tasks that have been added to the system workload. This additional load creates sometimes situations in which a control job does not complete before a new instance is released. From the task perspective, these situations have been captured by the so called *weakly-hard models*. These are models in which the task experiences constraints on the number of deadlines that it can miss or hit within certain time windows. In this talk, we will look at these models from the control perspective, determining what these constraints mean for the physical systems that is being controlled. In particular we will focus on two of the weakly-hard models: at most n consecutive deadline misses and at most m misses in a window of k activations. We will discuss theoretical results on how to analyse the behaviour of these models and practical results obtained with a Furuta pendulum.