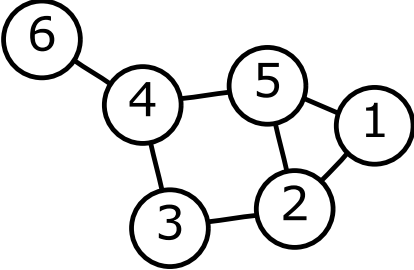


Open Thesis (master's thesis)

Performance of sequential MPC schemes

<p>Description:</p> <p>Model predictive control (MPC) is a control method that has its roots in optimal control. In MPC, usually a dynamic model is used to forecast some time into the future and optimise over a system's behaviour. Then, the first part of the thereby computed optimal input sequence is applied and the procedure is repeated. For large-scale systems, a central solution to this optimisation problem may be hard to compute and therefore it is necessary to break up the problem into smaller parts using distributed MPC. One possible distributed scheme is called sequential MPC where the agents optimise one after the other. Although sequential MPC schemes are well-developed, a performance analysis is still an open issue. A first step is to look at the relation between the optimisation sequence of the subsystems and the structure of the problem, e.g. the centrality of an agent in the communication graph with respect to the performance. For this, established sequential MPC schemes should be taken from the literature, implemented and benchmarked.</p>  <p>Prerequisites:</p> <ul style="list-style-type: none"> • Background and interest in systems and control, preferably the lectures <i>MPC</i> or <i>Optimal Control</i>, experience with MATLAB or python 	<p>Supervisor:</p> <p style="color: blue;">Matthias Hirche Room 3.240</p> <hr/> <p>Area:</p> <p style="color: blue;">Distributed Graph theory MPC,</p> <hr/> <p>Properties:</p> <p>Type: <b style="color: blue;">master's thesis</p> <p>30% literature 40% implementation 30% simulation 0% experiments</p> <hr/> <p>Beginning:</p> <p>Any time</p>
--	--

Weitere Informationen: www.ist.uni-stuttgart.de/lehre/bama

Aushang vom 17. August 2020