



Open Thesis (MA)

Information-based control

<p>Description:</p> <p>Communication plays a central role in system theory and makes control only possible. In information-based control, we investigate this fundamental requirement by combining control theory and information theory. More precisely, we aim to develop mathematically rigorous methods which can be used to determine the amount of communication needed to achieve desired control tasks. Such results provide deep insights into classical control problems and pave the way for a more fundamental understanding of control theory.</p> <p>The results are not only of the highest theoretical interest but are also crucial for network control systems and cyber-physical systems as they naturally appear in Industry 4.0.</p> <p>Possible thesis projects in this area include, but are not limited to, the data-optimal controller design for networked systems with packet loss, required bit-rates for controlling switched systems and optimal quantizer design. In the case of interest, please contact Simon Lang (lang@ist.uni-stuttgart.de) to discuss open thesis projects and the possibility of individual thesis projects.</p> <p>Prerequisites:</p> <ul style="list-style-type: none">• Strong background in control theory• Interest in theoretical problems• Interest in working on fundamental questions of control theory	<p>Supervisor: Simon Lang Room 3.244</p>
	<p>Area:</p> <p>System and Control theory Information theory Networked Control Systems</p>
	<p>Properties:</p> <p>Type: MA</p>
	<p>Beginning:</p> <p>anytime</p>

Further information on www.ist.uni-stuttgart.de/lehre/bama

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