

UNIVERSITÄT PASSAU
Fakultät für Informatik und Mathematik

EINLADUNG

Herr Prof. Dr. Fabian Wirth
lädt herzlich
zu folgendem Gastvortrag ein:

Am Dienstag, den 24.05.2016
um 18.00 Uhr
im Hörsaal 13, Innstr. 33

spricht

Prof. Dr. Serdar Yüksel
(Department of Mathematics and Statistics, Queen's University,
Kingston, Ontario / Kanada)

über das Thema:

Decentralized Stochastic Control: A Tutorial

Siehe Abstract

Decentralized Stochastic Control: A Tutorial

Prof. Dr. Serdar Yüksel (Kanada)

Abstract: This talk is concerned with decentralized control problems and their optimal solutions. Such problems are increasingly important, especially in the context of networked control systems. In this talk, we first provide a brief review on information structures in decentralized control, and their characterization and comparison. We establish the connections with classical stochastic control problems and highlight the difficulties that arise due to decentralization. We then present solution concepts and present results on the existence of optimal policies and their structure. We will discuss convex team problems and review Radner's theorem and further generalizations to dynamic problems. To further facilitate a convex analytical approach, we will introduce strategic measures for team problems; these are probability measures induced by admissible control policies. Properties such as convexity and compactness will be studied, leading to the existence of and structural results for optimal policies. Finally, asymptotic optimality of finite model representations for a large class of dynamic team problems will be established. These lead to asymptotic optimality of quantized control policies, so that one can construct a sequence of finite models obtained through the quantization of measurement and action spaces whose solutions converge to the optimal cost. Witsenhausen's counterexample, and its variations, will be discussed as a case study exhibiting the intricacy and solution methods for decentralized stochastic control problems.