A U S H A N G

FREIE UNIVERSITÄT BERLIN
Fachbereich Mathematik und Informatik

Promotionsbüro, Arnimallee 14, 14195 Berlin

D I S P U T A T I O N

Freitag, 5. Juli 2013, 10.30 Uhr

Ort: Arnimallee 6, 14195 Berlin, Raum 108/109

Disputation über die Doktorarbeit von

Frau Dipl.-Math. Stefanie Winkelmann

Thema der Dissertation:
Markov Decision Processes with Information Costs

Thema der Disputation:
Partially observable Markov decision processes

Die Arbeit wurde unter der Betreuung von **Prof. Dr. Chr. Schütte** durchgeführt.

Abstract: The theory of Markov decision processes is a well-established tool for modelling situations of controlled stochastic dynamics. Making use of the dynamic programming concept, it allows to solve complex optimization problems that arise in a wide range of fields like operations research, epidemic control or management science. Of special interest is the situation of partial observability: How should decisions be taken if the information about the state of the process is incomplete?

In the first part of the talk, I will give an introduction to the theory of Markov decision processes and show how the situation of partial observability is handled in the literature. Focusing on discrete-time dynamics, we will see that a partially observable Markov decision process can be turned into a completely observable process by an extension of the state space.

In the second part, I will present a new approach for the situation of continuous-time dynamics which are observable only at discrete but flexible points in time. Each observation of the process produces a fixed amount of information costs, such that a careful choice of the rare observation times is required.

Die Disputation besteht aus dem o. g. Vortrag, danach der Vorstellung der Dissertation einschließlich jeweils anschließenden Aussprachen.

Interessierte werden hiermit herzlich eingeladen

Der Vorsitzende der Promotionskommission
Prof. Dr. Chr. Schütte