

MATHEMATIKKOLLOQUIUM

Das Institut für Mathematik und der AB Technische Mathematik laden zu folgendem Vortrag ein:

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Imprecise Markov chains and their limit behaviour

When the parameters of a finite Markov chain in discrete time, i.e., its initial and transition probabilities, are not well known, we can and should perform a sensitivity analysis. This is done by considering as basic uncertainty models the so-called credal sets that these probabilities are known or believed to belong to, and by allowing the probabilities to vary over such sets. This leads to the definition of an imprecise Markov chain. I will show that the time evolution of such a system can be studied very efficiently using so-called lower and upper expectations, which are equivalent mathematical representations of credal sets. I will also indicate how the inferred credal set about the state at time n evolves as n goes to infinity, and show that under quite unrestrictive conditions, this credal set converges to a uniquely invariant credal set, regardless of the credal set given for the initial state of the system. This effectively leads to a Perron-Frobenius Theorem for a special class of non-linear dynamical systems in discrete time.

Zeit: Dienstag, den 11. März 2008 um 17:15 Uhr

Ort: Viktor-Franz-Hess-Haus, Technikerstraße 25, HS F

Michael Oberguggenberger

Gäste sind herzlich willkommen!