Wiener Biometrische Sektion
der Internationalen Biometrischen Gesellschaft
Region Österreich – Schweiz
http://www.meduniwien.ac.at/wbs/

Einladung zum

Biometrischen Kolloquium

am Dienstag, dem 17. Jänner 2012 um 11:00 Uhr (s.t.)

in der Informatik-Bibliothek (Ebene 3, Raum 88.03.806) des Zentrums für Medizinische Statistik, Informatik und Intelligente Systeme (CeMSIIS) der Medizinischen Universität Wien
Spitalgasse 23 (Bauteil88/Ebene 03), 1090 Wien
(Plan siehe http://www.muw.ac.at/cemsiis/allgemeines/anschrift/)

Vortragender:

Alain Hauser
ETH Zürich, (PhD Student von Peter Bühlmann)

Causal inference from interventional data

Wir freuen uns auf zahlreichen Besuch.

Georg Heinze
Präsident

Gerhard Svolba
Sekretär

Causal inference from interventional data

Alain Hauser
ETH Zürich, (PhD Student von Peter Bühlmann)

Causal relationships between random variables are commonly modeled using DAGs, directed acyclic graphs; directed graphical models can be used to predict effects of interventions, that is, perturbations of the system in which one or several random variables are forced to specific values. It is, however, well-known that DAGs encoding causal relationships can only be inferred up to the so-called Markov equivalence from observational data, that is, data produced by the undisturbed system.

The identifiability of DAGs is improved when interventional data arising from different interventions is available. We consider Gaussian causal models and address the problem of calculating maximum likelihood estimates from interventional data. We extend the notion of Markov equivalence of DAGs to the interventional case and present a graph theoretic characterization of the corresponding equivalence classes. This representation is the basis for a generalization of Chickering's Greedy Equivalence Search aimed at inferring causal relationships from interventional data using regularized maximum likelihood estimation. We demonstrate the performance of this algorithm in a simulation study.