Bayesian Networks

Prof. Dr. Rudolf Kruse, Pascal Held

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About me: Rudolf Kruse

In 1979 diploma in mathematics (minor computer science) at TU Braunschweig
There dissertation in 1980, habilitation in 1984
2 years full-time employee at Fraunhofer Institute
In 1986 offer of professorship for computer science at TU Braunschweig
Since 1996 professor at the University of Magdeburg

Research: data mining, explorative data analysis, fuzzy systems, neuronal networks, evolutionary algorithms, Bayesian networks

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Office: G29-008, telephone: 0391 67-58706
Consultation: Wednesdays, 10 a.m. – 11 noon
About the working group Computational Intelligence

Teaching:
- Intelligent Systems Bachelor (2 V + 2 Ü, 5 CP)
- Neuronal Networks Bachelor (2 V + 2 Ü, 5 CP)
- Fuzzy Systems Master (2 V + 2 Ü, 6 CP)
- Bayesian Network Master (2 V + 2 Ü, 6 CP)
- Intelligent Data Analysis Master (2 V + 2 Ü, 6 CP)

(pro-)seminars: Classification Algorithms, Clustering Algorithms

Research examples:
- Validation of Density-based Clustering (C. Braune)
- EEG Analysis with Deep Neural Networks (C. Doell)
- Analysis of Social Networks (P. Held)
About the lecture

Lecture dates: Wednesday, 11:15 –12:45, G29-307

Information about the course:
  ◦ Weekly lecture slides as PDF
  ◦ Also assignment sheets for the exercise
  ◦ Online registration for exercises
  ◦ Important announcements and date!
Content of the lecture

Introduction
Rule-based Systems
Elements of Graph Theory
Decomposition
Probability Foundations
Applied Probability Theory
Probabilistic Causal Networks
Propagation in Belief Networks
Learning Graphical Models
Decision Graphs / Influence Diagrams
Frameworks of Imprecision and Uncertainty
About the exercise

Active participation and explanations of your solutions
Assistant will call attention to mistakes and answer questions
Pure ‘calculations’ of sample solution is not the purpose
Assistant:
  ○ Pascal Held pheld@ovgu.de
  ○ William Beluch william.beluch@ovgu.de
First assignment due October 22, 2015
  ○ Monday, 9:15 – 10:45 (G29-K059), Beluch (english)
  ○ Friday, 9:15 – 10:45 (G29-E037), Held (german)
Exam or Certificate will get who...

Contribute well in exercises every week,

Present $\geq 2$ solutions to written assignment during exercises.

Tick off $\geq 66\%$ of all written assignments,

Pass written exam (120 min)
Books about the course

http://www.computational-intelligence.eu/