

INTELLIGENT DECISION SUPPORT SYSTEMS

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Program

The course aims at introducing Artificial Intelligence (AI) methodologies for the development of Intelligent Decision Support Systems (IDSS).

A general introduction to the topic of intelligent decision support will be provided, followed by the presentation and discussion of two main methodologies: Case-Based Reasoning (CBR) and Probabilistic Graphical Models (PGM) like Bayesian Networks and Influence Diagrams.

Examples in the areas of Business Intelligence, Planning under Uncertainty and Reliability of Systems will be provided.

Outline:

- Introduction to intelligent decision support (S. Montani)
- Case-Based Reasoning: (S. Montani)
 - Fundamentals,
 - Case Representation,
 - Case Retrieval,
 - Classification,
 - Advanced Techniques (CBR for time-series management, fuzzy-CBR)
- Bayesian Networks: (L. Portinale)
 - Fundamentals,
 - Modeling Issues,
 - Inference Algorithms,
 - Sensitivity Analysis
- Decision Theory (outline) (L. Portinale)
- Influence Diagrams: (L. Portinale)
 - Modeling issues,
 - Inference Techniques