COURSE SYLLABUS

Probabilistic Models For Decision Making

2122-1-F1801Q127

Aims

The course will provide the main concepts and operative tools, based on computational methods, for representing the learning process and the reasoning techniques in uncertain domains. Students will gain the ability of using the concepts and methods learned for solving practical operational decision problems. In particular, they will acquire the following abilities: to identify relations between parameters by using probabilistic models, to build models for decision making, to evaluate and find the problem solutions.

Contents

Representing uncertainty in decision problems

Bayesian Networks

Pseudo-number generation for sampling

Inference on BN

Probabilistic Reasoning over time

Markov Chains

Hidden Markov Models

Inference in dynamic models

Detailed program

1. "Representing uncertainty in decision problems Basic notions of probability theory Bayes rule and its application". Chapter 13.

Prerequisites

Basic notions of: probability, statistics, linear algebra

The course is in Italian.

Teaching form

Textbook and teaching resource

S. Russel, P. Norvig. "Artificial Intelligence: A Modern Approach", Prentice Hall, III Edizione

papers & slides

Semester

Second Semester

Assessment method

1) Recommended modality for those students attending the course:

Assignments + Written exam + optional oral (4 questions, each with a rating -1 or +1)

Assignments must be delivered no later than the deadline given during the course and will be valid until July 2022.

For more details refer to the document in the introductory section of the course.

Office hours

By appointment