Course content

This course provides a foundational understanding of AI by bridging theoretical concepts with practical applications, focusing on key algorithms and models.

The course covers three primary areas:

1. Search and problem-solving methods: Includes general graph search, heuristic search, and game tree search.
2. Machine learning foundations: Covers supervised and unsupervised learning, neural networks, deep learning, and reinforcement learning.
3. Knowledge representation and reasoning: Introduces logic-based reasoning, Bayesian networks, and knowledge graphs.

Course objectives

Knowledge

1. Understand the definition, fundamental concepts, and major branches of AI.
2. Learn essential problem-solving strategies and foundational methods in AI.
3. Gain insights into cutting-edge AI topics, such as deep learning and knowledge graphs.

Skills

1. Model and solve AI-related problems using search algorithms, machine learning, and logical reasoning.
2. Implement representative AI algorithms, including machine learning techniques and problem-solving frameworks.
3. Use programming languages and frameworks to develop AI applications in real-world scenarios.

Competences

1. Analyze the strengths and limitations of different AI approaches.
2. Apply suitable AI methodologies to practical engineering problems.
3. Develop advanced algorithmic skills for AI model implementation and optimization.