LUNDS UNIVERSITET
Lunds Tekniska Högskola

Course syllabus

Artificiell intelligens
Artificial Intelligence

EDAP01, 7,5 credits, A (Second Cycle)

Valid for: 2023/24
Faculty: Faculty of Engineering, LTH
Decided by: PLED C/D
Date of Decision: 2023-04-18

General Information

Main field: Machine Learning, Systems and Control.
Elective for: BME4, C4-pv, D4-pv, D4-mai, E4-bg, F4, F4-mai, I4, IDA3, MSOC2, Pi4-bam, MMSR1
Language of instruction: The course will be given in English

Aim

To give an introduction to several subdomains of artificial intelligence and to give an orientation about fundamental methods within these domains. To convey knowledge about breath and depth of the domain. To provide insight about the ethical consequences of AI-based technology.

Learning outcomes

Knowledge and understanding
For a passing grade the student must

- display basic knowledge concerning theories and methods related to the following subdomains: intelligent agents, heuristic search, game programming, knowledge representation, knowledge-based systems, probabilistic reasoning, machine learning, natural language processing.

Competences and skills
For a passing grade the student must

- complete a number of assignments based on problems related to some of the following subdomains: heuristic search, knowledge-based systems, probabilistic reasoning, machine learning, natural language processing.

- demonstrate ability to critically, autonomously and creatively identify, formulate and handle problems requiring algorithms belonging to AI..

Judgement and approach
For a passing grade the student must

- demonstrate ability to identify needs for additional knowledge and to continuously develop new skills.
- demonstrate ability to critically judge the ethical and societal consequences of using AI in particular context.

Contents

Intelligent agents. Heuristic search. Game programming. Knowledge based systems. Machine learning. Natural language. Semantic Web. Autonomous robots. Planning. Ethics of AI.

Examination details

Grading scale: TH - (U,3,4,5) - (Fail, Three, Four, Five)
Assessment: To qualify for a passing mark, the students must have completed the obligatory programming assignments. To qualify for a higher mark a written examination is required.

The examiner, in consultation with Disability Support Services, may deviate from the regular form of examination in order to provide a permanently disabled student with a form of examination equivalent to that of a student without a disability.

Admission

Admission requirements:

- EDAA01 Programming - Second Course or EDAA30 Programming in Java - Second Course or FRTF25 Introduction to Machine Learning, Systems and Control

Assumed prior knowledge: FMAB65 Calculus in One Variable B1, FMAB70 Calculus in One Variable B2, FMAB20 Linear Algebra and FMAB30 Calculus in Several Variables.
The number of participants is limited to: No
The course overlaps following course/s: EDA132, EDAF70

Reading list

- David L. Poole, Alan K. Mackworth: Artificial Intelligence, Foundations of Computational Agents. Cambridge University Press, 2017, ISBN: 9781107195394. 2nd edition, recommended alternative textbook.
- Stuart Russell, Peter Norvig: Artificial Intelligence , A Modern Approach. Pearson Education, 2021, ISBN: 13 978-1-292-40113-3 / 101-292-40113-3. 4th edition, recommended textbook.

Contact and other information

Course coordinator: Professor Jacek Malec, Jacek.Malec@cs.lth.se
Teacher: Professor Pierre Nugues, Pierre.Nugues@cs.lth.se
Course coordinator: Elin Anna Topp, Elin_Anna.Topp@cs.lth.se

Teacher: Stefan Larsson, Stefan.Larsson@lth.lu.se
Course homepage: http://cs.lth.se/edap01
Further information: Detailed rules concerning the assignments will be found in the course web site.