Artificial Intelligence in Decision-Making - course description

General information

Course name	Artificial Intelligence in Decision-Making
Course ID	04.9-WZ-P-AIiDM- 23
Faculty	Faculty of Economics and Management
Field of study	WEiZ - oferta ERASMUS
Education profile	-
Level of studies	Erasmus programme
Beginning semester	winter term 2023/2024

Course information

Semester	1
ECTS credits to win	5
Course type	obligatory
Teaching language	english
Author of syllabus	• mgr inż. Wiesław Wasilewski

Classes forms

The class form	Hours per semester (full-time)	Hours per week (full-time)	Hours per semester (part-time)	Hours per week (part-time)	Form of assignment
Laboratory	30	2	-	-	Credit with grade

Aim of the course

Student is familiar with some methods and tools for decision making in relation to AI.

Prerequisites

None

Scope

This course is an introduction to some central issues in decision theory and their relationship to artificial intelligence (AI).

Automated systems have a wide range of applications, ranging from self-driving cars to chess computers. An autonomous vehicle is equipped with built-in processors and sensors that can detect the environment, perform sensor fusion for decision making, and have continuous control and steering.

With ChatGPT's advanced language processing capabilities, it can be used to automate these processes and provide more accurate and efficient decision-making. it would allow AI systems to better understand the context of a situation and make more informed decisions . For example, ChatGPT can be used to generate personalized product recommendations for customers based on their browsing history and purchase behavior

This course introduces traditional decision-theoretic tools and models and discusses the bearing of these to core issues in the philosophy of AI.

Teaching methods

The teaching consists of lectures and project method.

Learning outcomes and methods of theirs verification

Outcome description	Outcome symbols	Methods of verification	The class form
have a basic understanding of decision theoretic concepts.		• activity during the classes	• Laboratory
have a basic understanding of decision theoretic problems in relation to AI		• activity during the classes	• Laboratory
be able to apply decision-theoretic tools to questions concerning AI		• activity during the classes	• Laboratory
be able to discuss and evaluate approaches in normative decision theory and decision theoretic problems in a critical and independent way		• activity during the classes	• Laboratory
have demonstrated the ability to critically reflect on central issues in normative decision theory and AI		• activity during the classes	• Laboratory

Assignment conditions

The examination consists of active participation in seminars and written assignments.

Student final grade will be a combination of: written exam, individual coursework, class participation.

Recommended reading

1. Peterson M., *An introduction to decision theory*, 2. ed. : Cambridge : Cambridge University Press : 2017, ISBN: 9781107151598.

2. Russell, S., *Artificial Intelligence: A Modern Approach*, 4th edition, 2021.

3. Wang, F. et al., *Chat with ChatGPT on Industry 5.0: Learning and Decision-Making for Intelligent Industries*, IEEE/CAA JOURNAL OF AUTOMATICA SINICA, VOL. 10, NO. 4, 2023

4. Brynjolfsson E, McAfee A., *The Business of Artificial Intelligence*, Harvard Business

Review, 2017.

5. Sharda, R., Delen, D., Turban, E., *Business intelligence and analytics: systems for decision support,* Pearson Education Limited, 2014. ISBN: 9781292009261.

Further reading

1. Agrawal, A. K., Gans, J. S., Goldfarb A., *What to Expect From Artificial Intelligence*, MIT Sloan Management Review, 2017, ISBN: 53863MIT58311

2. Lantz, B., *Machine Learning with R: Expert techniques for predictive modeling*, 3rd Edition. Packt Publishing, 2019.

3. Poole, D., Mackworth, A. Artificial Intelligence - Foundations of Computational Agents. New York: Cambridge University Press. 2nd Edition, 2017.

4. Cunneen, M., Mullins, M., & Murphy, F. *Autonomous Vehicles and Embedded Artifcial Intelligence: The Challenges of Framing Machine Driving Decisions*. Applied Artifcial Intelligence, 33(8), 706–731. https://doi.org/10.1080/08839514.2019.1600301

Notes

Lecturer: w.wasilewski@wez.uz.zgora.pl

Modified by mgr inż. Wiesław Wasilewski (last modification: 01-06-2023 09:52)

Generated automatically from SylabUZ computer system