

Social networks and multi-agent systems - course description

General information	
Course name	Social networks and multi-agent systems
Course ID	11.3-WE-INF-D-SNandM-AS-Er
Faculty	Faculty of Computer Science, Electrical Engineering and Automatics
Field of study	Computer Science
Education profile	academic
Level of studies	Second-cycle Erasmus programme
Beginning semester	winter term 2021/2022

Course information	
Semester	2
ECTS credits to win	5
Course type	obligatory
Teaching language	english
Author of syllabus	dr inż. Jacek Bieganski

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
Lecture	30	2	-	-	Exam
Laboratory	30	2	-	-	Credit with grade

Aim of the course

To familiarize students with the genesis, architecture and properties of social networks. Big Data and the role that social networks play in the context of large-scale data generation. Developing basic skills in the analysis of media and social networks using Big Data technology. Introduction to multi-agent systems used for modeling social networks.

Prerequisites

Databases, Basic knowledge of statistics, Ability to program in Java, Knowledge of Big Data technology

Scope

Multi-agent systems as modern tools for distributed intelligence systems engineering. The use of multi-agent systems to build autonomous control mechanisms in the context of cloud computing. Definition of media and social networks. Types of social networks and characteristics of their functioning. Social media and Big Data as new trends setting the direction of IT development. Acquiring data from social media and their analysis using Big Data technology. Application of machine learning algorithms for advanced analysis of data obtained from social media.

Teaching methods

lecture: Conventional lecture, discussion, problem lecture,

laboratory exercises: teamwork, group work,

project: project method, group work, brainstorming

Learning outcomes and methods of their verification

Outcome description	Outcome symbols	Methods of verification	The class form
The student is able to define the concept of media and social networks and explain their role in the modern Internet.		an exam - oral, descriptive, test and other	Lecture
The student understands how Big Data technologies and machine learning algorithms can be used when analyzing data contained in social media		- an exam - oral, descriptive, test and other - an examination test with score scale	Lecture
Student is able to define the concept of intelligent agent and multi-agent system		- an exam - oral, descriptive, test and other - an examination test with score scale	Lecture
The student is able to use multi-agent applications in a practical way		- a project - an ongoing monitoring during classes	Laboratory

Outcome description	Outcome symbols	Methods of verification	The class form
The student is able to characterize the purposes for which information contained in social media can be used		- an exam - oral, descriptive, test and other - an examination test with score scale	Lecture

Assignment conditions

Students are assessed on the basis of:

Own project (50% of the grade) - the project verifies the achievement of learning outcomes in terms of practical skills. The project should include the implementation of the selected design task with documentation.

An exam (50% of the grade) of a written or oral nature. Students are admitted to the exam on condition that they receive credit for laboratory exercises during which their practical ability to perform tasks useful during the implementation of group projects will be assessed.

Recommended reading

Michael Wooldridge, An Introduction to MultiAgent Systems - Second Edition, 2009

Duncan J. Watts, Six degrees: the science of a connected age, 2003

Morzy T.: Eksploracja danych. Metody i algorytmy, PWN, Warszawa, 2013

Markov Z., Larose D.T.: Eksploracja zasobów internetowych, PWN, Warszawa, 2009

White T., Hadoop: The Definitive Guide, 3rd Edition, O'Reilly Media / Yahoo Press, 2012

George L., HBase: The Definitive Guide, O'Reilly Media, 2011

Further reading

Stanton J.M.: Introduction to Data Science, E-book, 2013

Notes

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Modified by dr inż. Jacek Bieganski (last modification: 09-09-2021 15:58)

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