SYLLABUS OF A MODULE

Polish name of a module	Zastosowanie sztucznej inteligencji w urządzeniach mobilnych
English name of a module	Application of artificial intelligence in mobile devices
ISCED classification - Code	0619
ISCED classification - Field of study	*Information and Communication Technologies (ICTs), not elsewhere classified*
Languages of instruction	*English*
Level of qualification:	2
Number of ECTS credit points	4
Examination:	A
Available in semester:	A

Number of hours per semester:

Lecture	Tutorial	Laboratory	Seminar	Project	Others
15	0	45	0	0	0

MODULE DESCRIPTION

Module objectives

O1.   Introducing students to the issues of the application of artificial intelligence in mobile devices

O2.   Obtaining by the students the practical skills to use artificial intelligence algorithms on mobile devices.

PRELIMINARY REQUIREMENTS FOR KNOWLEDGE, SKILLS AND OTHER COMPETENCES

1. Knowledge of mathematics and basics of computer science.
2. Basic knowledge and skills in the field of computer programming.
3. Ability to use different sources of information and technical documentation.

4. Ability to work independently and in a group.

LEARNING OUTCOMES

LO 1 -   The student has a basic knowledge of artificial intelligence algorithms available for use on mobile devices.

LO 2 -   The student is able to implement in practice a mobile application using artificial intelligence..

LO 3 -   The student understands the need for continuous training - the use of innovative solutions on the mobile platform.

MODULE CONTENT

Type of classes – Lectures	Number of hours
Lect. 1 - Review of programming libraries that enable the creation of an application using artificial intelligence on a mobile device.	1
Lect. 2 - Review of mobile platforms that provide strong support for artificial intelligence algorithms.	1
Lect. 3 - Introduction to a selected machine learning library dedicated to mobile devices.	1
Lect. 4 - The use of machine learning for automatic image recognition.	2
Lect. 5 - The use of machine learning for speech recognition.	2
Lect. 6 - The use of machine learning to recognize gestures.	2
Lect. 7 - Using machine learning to generate chat response suggestions.	2
Lect. 8 - The use of machine learning for image segmentation.	2
Lect. 9 - The use of machine learning to classify text.	2
Type of classes– Laboratories	Number of hours
Lab. 1 - Introduction to the development environment.	3

Lab. 2 - Implementation of a mobile application using the sample image recognition model.	**6**
Lab. 3 - Implementation of a mobile application for automatic classification of numbers.	**6**
Lab. 4 - Implementation of a mobile application that uses speech recognition.	**6**
Lab. 5 - Implementation of a mobile application with gesture recognition.	**6**
Lab. 6 - Implementation of the mobile application with the use of response suggestions in the chat.	**6**
Lab. 7 - Implementation of a mobile application with image segmentation.	**6**
Lab. 8 - Implementation of a mobile application with automatic text classification.	**6**

TEACHING TOOLS

1. – lectures using multimedia presentations
2. – blackboard and chalk or whiteboards and pens
3. – laboratory guides and tutorials
4. – reports from laboratory activities (paper and electronic versions)
5. – computer stations with software, mobile device with hardware support

WAYS OF ASSESSMENT (F – FORMATIVE, S – SUMMATIVE)

F1. – assessment of preparation for laboratory exercises
F2. – assessment of the ability to apply acquired knowledge during laboratory exercises and projects
F3. – assessment of reports
F4. – assessment of activity during classes
S1. – assessment of the ability to solve the posed problems and the method of presentation of the obtained results - credit for the grade
S2. – assessment of mastery of the lecture material - passing the lecture (or exam)

*) warunkiem uzyskania zaliczenia jest otrzymanie pozytywnych ocen ze wszystkich ćwiczeń laboratoryjnych oraz realizacji zadania sprawdzającego

STUDENT'S WORKLOAD

L.p.	Forms of activity	Average number of hours required for realization of activity
1.	**Contact hours with teacher**	
1.1	Lectures	15
1.2	Tutorials	0
1.3	Laboratory	45
1.4	Seminar	0
1.5	Project	0
	Total number of contact hours with teacher:	60
2.	**Student's individual work**	
2.1	Preparation for tutorials and tests	10
2.2	Prreparation for laboratory exercises, writing reports on laboratories	11
2.3	Preparation of project	0
2.4	Preparation for final lecture assessment	9
2.5	Preparation for examination	0
2.6	Individual study of literature	10
	Total numer of hours of student's individual work:	40
	Overall student's workload:	100
Overall number of ECTS credits for the module		4
Number of ECTS points that student receives in classes requiring teacher's supervision:		2,4
Number of **ECTS** credits acquired during practical classes including laboratory exercises and projects :		1,8

BASIC AND SUPPLEMENTARY RESOURCE MATERIALS

1.	Library documentation: https://pytorch.org/docs/stable/index.html
2.	Library documentation: https://www.tensorflow.org/lite
3.	Jeff Tang, Intelligent Mobile Projects with TensorFlow, Pack Publishing 2018
4.	Karthikeyan NG, Arun Padmanabhan, Matt R. Cole, Mobile Artificial Intelligence, Projects, Pack Publishing 2019
5.	Bill Phillips, Chris Stewart, Kristin Marsicano, Programowanie aplikacji dla Androida. The Big Nerd Ranch Guide. Wydanie III, Helion 2017

MODULE COORDINATOR (NAME, SURNAME, INSTITUTE, E-MAIL ADDRESS)

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