

Rules of the course „Neural networks for classification and identification” (Rob/EMARO)

2023/2024

Basic information

- The course encompasses 15 two-hour lectures and 15 hours tutorial exercise (stationary mode).
- Course allocation: Rob and EMARO
- Consultation hours: <https://ztmir.meil.pw.edu.pl/web/eng/Pracownicy/Contact-hours>
- The students can participate in consultations in other hours, subject to making an appointment by e-mail: andrzej.kordecki@pw.edu.pl.
- Subject webpage: <https://ztmir.meil.pw.edu.pl/web/eng/Dydaktyka/Zajecia-dydaktyczne/Neural-Networks>
-

Characteristic of the undertaken topics - lectures:

- General characteristics of the neural networks,
- Neuron, neural networks, discrete systems,
- Feedforward (mainly) and recurrent networks,
- Neural network training and generalization methods.
- Designing and modification of the neural network.
- Neural networks in classification and clustering,
- Neural networks in image processing,
- Familiarization with tools for modeling of the ANN in Python.

Characteristic of the undertaken topics - exercise:

- Introduction to Python. Basic Python libraries,
- Neural Networks in Python. Implementation of basic neural network functions,
- Tensorflow library in Neural networks libraries.

Evaluation

The evaluation is based on:

- Examination test,
- Three assignments,

Additionally, you can increase the grade for activity during classes.

Examination test consists of two parts:

- Theoretical – single choice test,
- Task-based – calculate solution of problem.

The notes, formulas, cell phones and other aids other than the calculator cannot be used during test. The students are not allowed to share information during the examination. The students must have an identification document with their photo.

The classes have been prepared and will be conducted with the use of Python software.

Assignments:

- Write a Python program to solve given problems. The link to task will be available on website.
- The time to write a program is 2 week.

Time schedule

- Examination test: The test will be at the last lecture classes.
- Assignments: The assignments will be given at the beginning of: October, December and January

The test results will be uploaded on the Neural Network web page within next few days.

Grades

Final grade:

$$G = [0.7*(Gt + Ga)/25 + 0.3*(\sum Gassig)/9] * 100$$

where: Gt – test points in range 0-25, Ga – activity points, Gassig - assignments points in range 0-3.

Grading scheme: Robotics

<i>Grade</i>	<i>5</i>	<i>4,5</i>	<i>4</i>	<i>3,5</i>	<i>3</i>	<i>3</i>
<i>Points</i>	<i>100-90</i>	<i>89-80</i>	<i>79-70</i>	<i>69-60</i>	<i>59-50</i>	<i>50 or less</i>

Grading scheme: EMARO

<i>ECTS grade</i>	<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>	<i>E</i>	<i>F/FX</i>
<i>Points</i>	<i>100-90</i>	<i>89-80</i>	<i>79-70</i>	<i>69-65</i>	<i>64-60</i>	<i>59 or less</i>
<i>Local grade</i>	<i>5.0</i>	<i>4.5</i>	<i>4.0</i>	<i>3.5</i>	<i>3.0</i>	<i>2.0</i>

Robotics students have the right to improve the test result once.

Attendance

- Attendance at lectures is strongly encouraged, but is not considered compulsory,
- Attendance at exercises is compulsory.

The classes have been prepared and will be conducted with the use of Python software.