

Artificial Intelligence Exam Task

Objective

The objective of this task is to enable you to demonstrate the knowledge of artificial intelligence and machine learning acquired during the elective AI course.

Task

The task is to create a machine learning based solution to a real life problem.

To fulfill the task, you need follow the procedure below:

1. Research and select an application area and a real life problem, related to human practice of using data
It can be any brand of business or social activity, self-service or entertainment.
2. Collect and prepare appropriate data for developing a solution
The preparation includes operations ensuring that the data is
 - a. meaningful – describes relevant and correctly measured features and observations
 - b. sufficient – describes various cases and feature occurrences, decided by testing
 - c. shaped – presented in a structure, appropriate for processing by machine learning algorithms
 - d. cleaned – repaired from missing values and outliers
 - e. scaled – transform data distributions in comparable scales, when necessary
 - f. selected – features analyzed and the most informative selected for further processing
3. Train appropriate models that can solve the problem
Select two or more machine learning algorithms to train a model based on a training data set. Choose between supervised and unsupervised methods, or implement deep learning. You may apply open source libraries or create your own code, if you prefer that.
4. Test the models created by the learners
Implement the models on the test data sets to predict the output.
5. Validate the models
Calculate appropriate parameters validating the accuracy of the implementations. Iterate the operations above to improve the quality of the models, as possible.
6. Compare the results of validation and select the best performing model
7. Demonstrate the application of the final product working on new and unknown data

Report

The project documentation consists of both

- the solution and
- an explanation of the solution development process

Both parts of the contents are written in one document, structured as a research report.

Consider taking use of visual illustrations and diagramming.

Consider including some self-reflection in conclusion.

The form of delivery is a Jupyter notebook, provided in two formats:

- ipynb
- pdf

Exam

The exam is individual and oral, censored and graded. It takes up to 30 minutes per student.

During the exam you are expected to make a short presentation and demonstration of your product, and then answer questions of the examiners, regarding the project and other topics from subject curriculum.

*Wish you success,
the instructor*