

Computer Vision

The Programming Assignment #6 | Autumn, 2021



Instructor



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Info



English



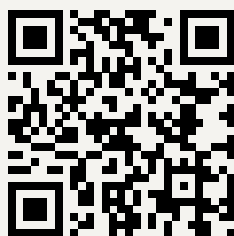
Tuesday 02:15 PM - 3:50 PM



6 prog. assignments + project



Final exam



Course Materials

Description

This course will introduce you to deep learning approaches that are used in cutting-edge research in computer vision and provide practical experience:

- Using of neural networks (fully connected and convolutional layers, forward and backward propagation, activation functions, ...)
- Training of neural networks (initialization, optimization, regularization, model choice, ...)

Prerequisites

- Basic familiarity with Python 3.
- An understanding of fundamental concepts in linear algebra and probability.

Grading

30% Programming assignments (5% each)
40% Project
30% Final exam

Note! The requisition of admission to semester control (final exam) is

Programming assignments + Project $\geq 42\%$

The [Igor Sikorsky Kyiv Polytechnic Institute](#) rating scale:

A = 95–100	Excellent
B = 85–94	Good
C = 75–84	
D = 65–74	Satisfactory
E = 60–64	
F < 60	Fail
Fx < 42	
Violation of the Honor Code	Removed

Honor Code

You may discuss the programming assignments in groups. However, each student must write down their own solutions independently.

You are obligated to follow the Igor Sikorsky Kyiv Polytechnic Institute [Honor Code](#) and all of the following rules in this course:

1. You must submit solutions, reports or program code that are your own. The usage of solutions or program code that are not your own and presenting them for one's own work is plagiarism and a serious violation of the basic academic standards.
2. You must not share your solution code with other students, nor ask others to share their solutions with you.
3. You must indicate on your submission any assistance you received.

MNIST: Handwritten Digit Recognition

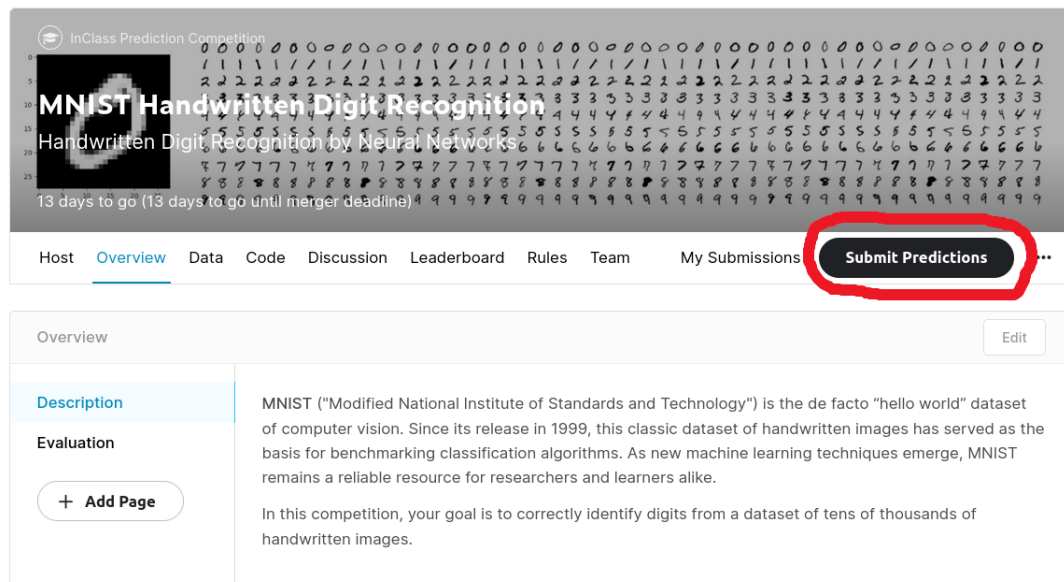
"Small daily improvements over time create stunning results."

– Robin S. Sharma

Task description

Recognize handwritten digits from **MNIST in CSV** dataset by neural networks.

1. You will need an account [kaggle](#) to complete this task (create or use an existing one).
2. Follow the link, read and accept the terms of the competition:
<https://www.kaggle.com/t/ce4ad30d278d480a96d8c8efec791b63>
3. Your task is to train the model so that it recognizes handwritten digits from the test dataset of the competition as well as possible. (`test.csv`).
4. The prediction of your model should be submitted on a competition site: a tab "Submit Predictions".



5. Some examples of how to do this can be found [\[here\]](#), [\[here\]](#) or [\[here\]](#).

Evaluation

The programming assignment is worth a total of 5 points.

Your grade for the task will depend on:

- 50% - performance on Kaggle. Maximum score if the prediction accuracy on the test set is > 0.98
- 50% - the script with your model is commented in details: `First name Last name_Group.ipynb`

Submission

Submit the script with your model at: <https://cloud.comsys.kpi.ua/s/GjNSfWit5y7MKRC>

Deadline: due at 11:59 PM, December 5

Note! Assignments that will be completed after the deadline will be evaluated no more than 50% of the maximum point.