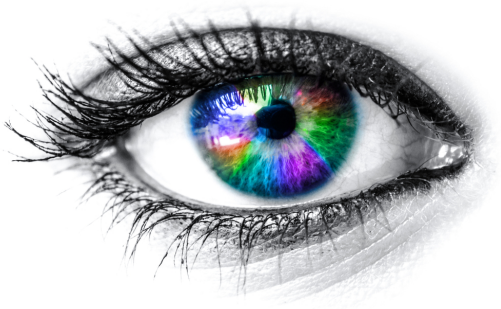
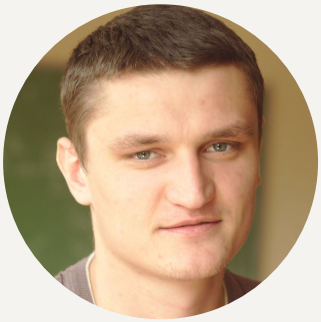
NATIONAL TECHNICAL UNIVERSITY OF UKRAINE
“IGOR SIKORSKY KYIV POLYTECHNIC INSTITUTE”

Computer Vision

The Programming Assignment #1-2 | Autumn, 2022



Instructor



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Info

English

Thursday at 04:10 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

$$\text{Programming assignments} + \text{Project} \geq 42\%$$

The Igor Sikorsky Kyiv Polytechnic Institute rating scale:

A = 95–100	Excellent
B = 85–94 C = 75–84	Good
D = 65–74 E = 60–64	Satisfactory
F < 60 Fx < 42	Fail
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.

Logistic Regression

"The search for truth is more precious than its possession."

– Albert Einstein (1879 - 1955)

Programming Assignment

Complete the programming assignments 1 and 2 provided by the link:
https://nbviewer.org/github/YKochura/cv-kpi/blob/main/homeworks/lab1-2/Logistic_regression.ipynb.

You need to implement several functions for forward and backward propagation of a single training example of logistic regression. Functions that need to be implemented are marked in the task as follows:

```
# TODO
```

Your implementation of functions, please, put in between

```
# BEGIN_YOUR_CODE

# END_YOUR_CODE
```

Evaluation

Programming assignments are worth a total of 10 points.

Submission

Submit your solutions at: https://cloud.comsys.kpi.ua/s/RADG2K7ZpeXnnQ3

Please, upload your solutions as Jupyter Notebook (.ipynb). Before sending, please, rename the Jupyter Notebook as follows (First name, Last name and Group info, please, replace on relevant):

`First name_Last name_Group_Logistic_regression.ipynb`

Deadline: due at 11:59 PM, October 20

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