

# Computer Vision

The Programming Assignment #4-5 | Autumn, 2021



## Instructor



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## Info



English



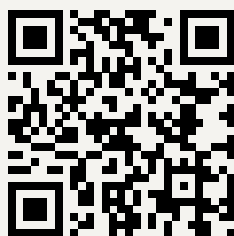
Tuesday 02:15 PM - 3:50 PM



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.

# Getting Started with Deep Learning

*“Education is what remains after one has forgotten what one has learned in school.”*

– Albert Einstein (1879 - 1955)

## Prerequisites:

1. An understanding of fundamental programming concepts in [Python 3](#) such as functions, loops, dictionaries, and arrays.
2. A familiarity of [Pandas datastructures](#).
3. An understanding of how to compute a [regression line](#).

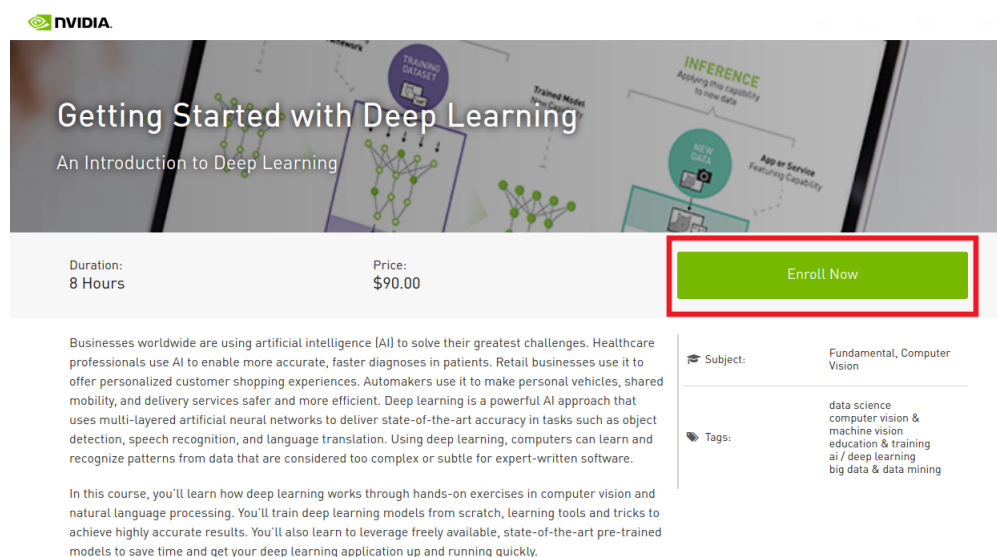
## NVIDIA account

Create an account with your work email address in order to obtain access to the NVIDIA Deep Learning Institute online course for FREE. To do this, follow this link : [courses.nvidia.com/join](https://courses.nvidia.com/join).

## Assignment

Follow the link below and push **Enroll Now** button:

### [Getting Started with Deep Learning](#)



**Getting Started with Deep Learning**  
An Introduction to Deep Learning

Duration: 8 Hours | Price: \$90.00

**Enroll Now**

Businesses worldwide are using artificial intelligence (AI) to solve their greatest challenges. Healthcare professionals use AI to enable more accurate, faster diagnoses in patients. Retail businesses use it to offer personalized customer shopping experiences. Automakers use it to make personal vehicles, shared mobility, and delivery services safer and more efficient. Deep learning is a powerful AI approach that uses multi-layered artificial neural networks to deliver state-of-the-art accuracy in tasks such as object detection, speech recognition, and language translation. Using deep learning, computers can learn and recognize patterns from data that are considered too complex or subtle for expert-written software.

In this course, you'll learn how deep learning works through hands-on exercises in computer vision and natural language processing. You'll train deep learning models from scratch, learning tools and tricks to achieve highly accurate results. You'll also learn to leverage freely available, state-of-the-art pre-trained models to save time and get your deep learning application up and running quickly.

Subject: Fundamental, Computer Vision

Tags: data science, computer vision & machine vision, education & training, ai / deep learning, big data & data mining


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Upon successful completion of the assessment, you'll receive an NVIDIA DLI certificate to recognize your subject matter competency and support your professional career growth.

### By participating in this course, you will:

1. Learn the fundamental techniques and tools required to train a deep learning model.
2. Gain experience with common deep learning data types and model architectures.
3. Enhance datasets through data augmentation to improve model accuracy.
4. Leverage transfer learning between models to achieve efficient results with less data and computation.
5. Build confidence to take on your own project with a modern deep learning framework.

## Evaluation

The programming assignment is worth a total of 10 points.

## Submission

The assignment is considered successfully completed and credited to the maximum score (10 points), if you finished it before the deadline and received a certificate. To confirm the successful completion of the assessment, please, upload your certificate in the .pdf<sup>1</sup> format at <https://cloud.comsys.kpi.ua/s/ApSDpZKbBpya94c>

Please, name the certificate file in this format: `First name Last Name_Group.pdf`

**Deadline:** due at 11:59 PM, Thursday, November 16

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

<sup>1</sup>To do that, please, hit in your browser: **Ctrl + P**