

# Convolutional Neural Networks and Image Processing II

Course code: MLC\_CNIPA

This course is a follow-up of Convolutional Networks and Image Processing in which we will focus on image data preprocessing and advanced techniques of deep learning for image processing. Apart from image classification, well known from the previous course, we will study image segmentation, object detection, and especially advanced applications of generative adversarial networks (GANs) such as superresolution, noise reduction and generating deep fakes

Affiliate	Duration	Course price	ITB
Praha	1	4 990 Kč	0
Bratislava	1	200 €	0

The prices are without VAT.

## Course terms

Date	Duration	Course price	Type	Course language	Location
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The prices are without VAT.

## Required skills

- basic knowledge of programming in Python
- high school level of mathematics
- Basics of machine learning on the level of our course Introduction to machine Learning
- Knowledge on the level of our basic Convolutional Networks and Image Processing

## Course outline

- Architectures of neural networks for image processing (convolution, deconvolution, pooling, residual)
- Big neural networks for image processing (VGG 16 and ResNet)
- Image Segmentation (U-net, Object detection)
- Practical example of image segmentation
- Generative Adversarial Networks
- Practical example of image generation
- Superresolution (Upsampling, practical example of using GANs for superresolution)
- Practical project on housing price prediction using the combination of tabular and image data

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