Research - An Introduction to Image Analysis with CNNs in Python

> Convolutional Neural Networks (CNNs) are used in a wide variety of applications such as image classification, image segmentation, object detection, and image generation (with GAN). In this course, you will learn how a CNN works and how it can be applied in practice in image classification and image segmentation by using Python programming.

Objectives

Acquire the key competencies needed to use CNNs for image classification and image segmentation

Target audience

Any PhD students, post-docs, researchers of UNIL who would like to use CNNs in their research

Content

At the end of the course, the participants are expected to:

- Understand how CNNs work
- Be able to use CNNs for image classification and image segmentation in Python

Length

1 day

Organization

Once per year

Location

In-person only (no online option)

Practicals

The practicals can be done on the UNIL JupyterLab (available exclusively during this course and for one week following its completion), on your laptop (but you will need to install the required libraries), or on the UNIL cluster called Curnagl. See the installation page for more information.

Prerequisites

- Basic knowledge of deep learning: we assume that you know how simple feedforward neural networks work, including how to interpret accuracy and loss curves (for example by attending the course "A Gentle Introduction to Deep Learning with Python and R").
- Be comfortable with Python programming

> IMPORTANT: To do the practicals
> - On UNIL JupyterLab: Access requires that you connect either via the eduroam Wi-Fi with your UNIL account or through the UNIL VPN. This point is especially crucial for researchers from the CHUV.
> - On your laptop: No account requirement
> - On Curnagl: Please register using your UNIL email address
> - Note that in all cases you need to bring your own laptop

Course dates and registration

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