# Scientific Support

## Need help with Machine Learning in your research?

Contact us at helpdesk@unil.ch with subject: DCSR ML support

Scientific support for Machine Learning projects, as outlined below, is provided free of charge to all UNIL members.

## Introduction

Machine Learning provides a powerful framework for predictive modeling in scientific research:

- Infer outcomes from complex datasets using classification and regression models
- Evaluate and improve models based on predictive performance
- Use exploratory techniques to better understand and prepare your data

At DCSR, we support researchers in several key areas of Machine Learning:

## Training

We help you understand how specific Machine Learning methods work and how to apply them in your research. We also offers short introductory courses on Machine Learning; see ML courses.

## Methodology

We assist you in selecting and applying appropriate Machine Learning methods for your research.

This may include:

- A pilot phase, where we collaboratively develop and test code on your laptop or UNIL clusters
- A production phase, where we help scale and refine your workflow

More specifically, we can:

- Identify existing tools suited to your analysis
- Help install and run them on your laptop or UNIL clusters
- Explain key parameters and settings
- Help develop custom algorithms and code if no suitable tools exist

# Infrastructure

We help you efficiently run your Machine Learning workflows on UNIL clusters.

This includes:

- Installing and configuring your code
- Profiling performance to optimize resource usage (RAM, CPUs/GPUs, number of nodes)

# Collaboration at UNIL

We can connect you with relevant experts at UNIL to discuss specific Machine Learning challenges.

# Example Use Cases:

1. Experimental scientist
   Wants to analyze data using Machine Learning on a laptop or UNIL clusters.
   → We help identify suitable tools, explain how they work, and support their use.

2. Data scientist (setup phase)
   Wants to implement a Machine Learning pipeline but is unsure how to proceed.
   → We help select and apply appropriate methods.

3. Data scientist (review phase)
   Has implemented a pipeline and wants feedback.
   → We review the methodology and suggest improvements or alternatives.

4. Scaling from laptop to cluster
   Wants to move a pipeline from a local computer to UNIL clusters.
   → We assist with deployment, software setup, and performance optimization.

# Contact

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