Labs
Optimization for Machine Learning
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github.com/epfml/OptML_course

Problem Set 6, March 31, 2023 (Non-Convex Optimization)

Theoretical Exercises

Solve Exercises 38 and 39 from the lecture notes.

Practical Exercises

The theory of non-convex optimization is unfortunately not very illuminative. However, their practical performance is usually unmatched by convex methods. In this exercise, we will use the PyTorch framework to train a small neural network on some simple datasets.

Problem 1 (PyTorch Refresher):

If you run notebooks from your own computer, install PyTorch following the instructions on

pytorch.org

We recommend using the following online tutorial:

pytorch.org/tutorials/beginner/pytorch_with_examples.html

You can optionally also look at the following exercise of the EPFL Machine Learning course:

https://github.com/epfml/ML_course/blob/master/labs/ex12/

Problem 2 (Simple Neural Network):

Follow the notebook provided here:

colab.research.google.com/github/epfml/OptML_course/blob/master/labs/ex06/template/Lab_6.ipynb