

## **Problem Set 12, Dec. 2, 2024 (GPT)**

**Goals.** The goal of this exercise is to

- Familiarize yourself with the GPT models.
- Have time to discuss Project 2 with the assistants and teammates.

### **1 Train GPT to perform multiplications**

The goal of this exercise is for you to get more familiar with transformers and GPT. We will focus on a much simpler task than language modelling that can be trained in a few minutes. Specifically we will train a small GPT model from scratch to perform multiplications. We will use individual characters as tokens. Doing multiplications directly for example in the form: "12\*34=408" can be challenging. Even large language models are often not able to do this accurately for moderately large numbers, say 5 digits (although it is possible using special tricks). Use the following Jupyter notebook [gpt-multiplication.ipynb](#)

Open in Colab: [colab.research.google.com/github/epfml/ML\\_course/blob/master/labs/ex13/template/gpt-multiplication.ipynb](https://colab.research.google.com/github/epfml/ML_course/blob/master/labs/ex13/template/gpt-multiplication.ipynb)  
This gives you access to a free GPU.