2: Linear Regression in Pytorch, the Dumb Way

Aniruddh K Budhgavi

Enigma, IIIT-B

June 1, 2020

1 Introduction

Constructing machine learning models using Numpy is a fantastic way of understanding the nitty-gritties of a particular method, but it is not an ideal way for more complex models or in production environments. Instead, we use libraries like Pytorch, Tensorflow and Keras. These libraries ensure that you spend less time reinventing the wheel, leaving you free to fine-tune the model without getting bogged down by details. They also make your training process faster by utilizing the GPU (if you have one).
My personal preference is towards Pytorch (anyone who has used Tensorflow 1.X will understand why). Pytorch has enough utilities to make the process painless but is flexible when it comes to customizations.

2 Installation

It is worth putting a separate section for this because of a few details. The primary complication is due to **CUDA**, a GPU computing API provided by NVIDIA. The GPU implementation of Pytorch uses CUDA, so **you can only use Pytorch with a CUDA- capable NVIDIA GPU**. You can check if your GPU is supported at `https://developer.nvidia.com/cuda-gpus`.
You can install Pytorch from `https://pytorch.org/get-started/locally/`. There are various package managers and builds which are available.

1. On Windows, I recommend that you use the Anaconda package manager. Use the latest stable version of Pytorch, and be sure to check the CUDA version (later the better).

2. On Ubuntu, you can install using Pip without any troubles. **You may have to install CUDA manually**.To do so, visit `https://developer.nvidia.com/cuda-downloads`.

3. In case your PC is underpowered, you can always run your models in Kaggle. In fact, that is what I do for Deep Learning models, even though I have a GTX 1050. Kaggle provides (as of writing) 30 hrs per week of an NVIDIA Tesla P100 GPU. You can even natively import Kaggle datasets without any trouble.

To check if the installation was successful, open a Jupyter notebook and run:

```python
import torch
```