SVM_pytorch

April 20, 2021

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%matplotlib inline
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import matplotlib.pyplot as plt
import numpy as np
import torch
import torch.nn as nn
import torch.optim as optim
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def train(X, Y, model, args):
    X = torch.FloatTensor(X)
    Y = torch.FloatTensor(Y)
    N = len(Y)

    optimizer = optim.SGD(model.parameters(), lr=args.lr)

    model.train()
    for epoch in range(args.epoch):
        perm = torch.randperm(N)
        sum_loss = 0

        for i in range(0, N, args.batchsize):
            x = X[perm[i : i + args.batchsize]].to(args.device)
            y = Y[perm[i : i + args.batchsize]].to(args.device)

            optimizer.zero_grad()
            output = model(x).squeeze()
            weight = model.weight.squeeze()

            loss = torch.mean(torch.clamp(1 - y * output, min=0))
            loss += args.c * (weight.t() @ weight) / 2.0

            loss.backward()
            optimizer.step()

            sum_loss += float(loss)
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        print("Epoch: {:4d}\tloss: {}".format(epoch, sum_loss / N))
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!pip install pandoc
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Collecting pandoc
  Using cached pandoc-1.0.2.tar.gz (488 kB)
Requirement already satisfied: ply in
/Users/zed/.pyenv/versions/anaconda3-2020.11/lib/python3.8/site-packages (from
pandoc) (3.11)
Building wheels for collected packages: pandoc
  Building wheel for pandoc (setup.py) … done
  Created wheel for pandoc: filename=pandoc-1.0.2-py3-none-any.whl
size=19992
sha256=72a3f3d056ee75b9aff158968f8a6993c35f7c19bfa128255a5f699a90c35f29
  Stored in directory: /Users/zed/Library/Caches/pip/wheels/a4/b9/34/3e82b944440
1c2199d721240a388499a262d2e2ad37f6f3fa7
Successfully built pandoc
Installing collected packages: pandoc
Successfully installed pandoc-1.0.2
```

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