Neural Networks Hello World + Assignments 2, 3

(Neural Networks Implementation and Application Tutorial)

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Overview

- Assignment 2
- Gradient
- PyTorch's Autograd
- NN Hello World
- Assignment 3

Assignment 2

TODO

Optimization

Gradient 🤔

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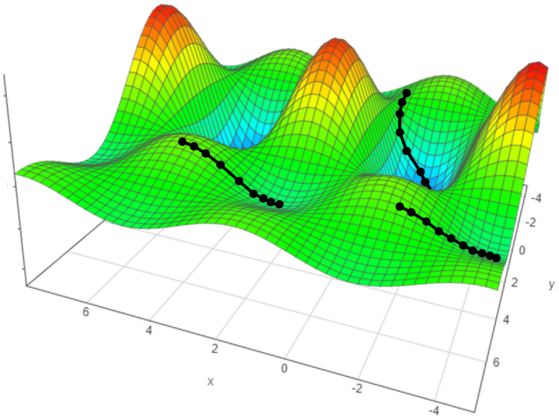

Figure 1: Function parameter landscape from [1]

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Figure 2: Function parameter landscape from [2]

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Autograd

```
import torch
import numpy as np
x = torch.tensor(2.0, requires_grad=True)
y = torch.tensor(3.0, requires_grad=True)
out = x*y + torch.sin(np.pi*x)
out.backward() # trigger gradient computation
assert np.isclose(x.grad, 3+np.pi)
assert np.isclose(y.grad, 2)
```

Assignment 3

- Any questions?

Resources

- [1] Optimization & landscapes offconvex.org/2018/11/07/optimization-beyond-landscape/
- [2] Optimization Introduction by Scipy scipy-lectures.org/advanced/mathematical_optimization/