Machine Learning

Autograd Engine Project

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Autograd Engine Project

- We learned that PyTorch Engine is doing gradients automatic
  - This helped us build very large graph and stop worrying about **gradients**
- In this project, you can write by yourself a mini-project that can do that
- This is a nice mini-project to add to **your resume**
- It is an optional one though

Class Value

- Implement a **class** value that allows the following computations

```
a = Value(-4.0)
b = Value(2.0)
c = a + b
d = a * b + b**3
c += c + 1
c += 1 + c + (-a)
d += d * 2 + (b + a).relu()
d += 3 * d + (b - a).relu()
e = c - d
f = e**2
g = f / 2.0
g += 10.0 / f

# prints 24.7041, the outcome of this forward pass
print(f'{g.data:.4f}')

g.backward()
# prints 138.8338, i.e. the numerical value of dg/da
print(f'{a.grad:.4f}')

# prints 645.5773, i.e. the numerical value of dg/db
print(f'{b.grad:.4f}')
```

For Project Details and Solution

- Refer to Andrej Karpathy video and code
- Tip: Andrej Karpathy is a very good tutor and a creative person
  - You may also check his ChatGPT video

"Acquire knowledge and impart it to the people."

"Seek knowledge from the Cradle to the Grave."