

SHUG'ULLANTIRISH

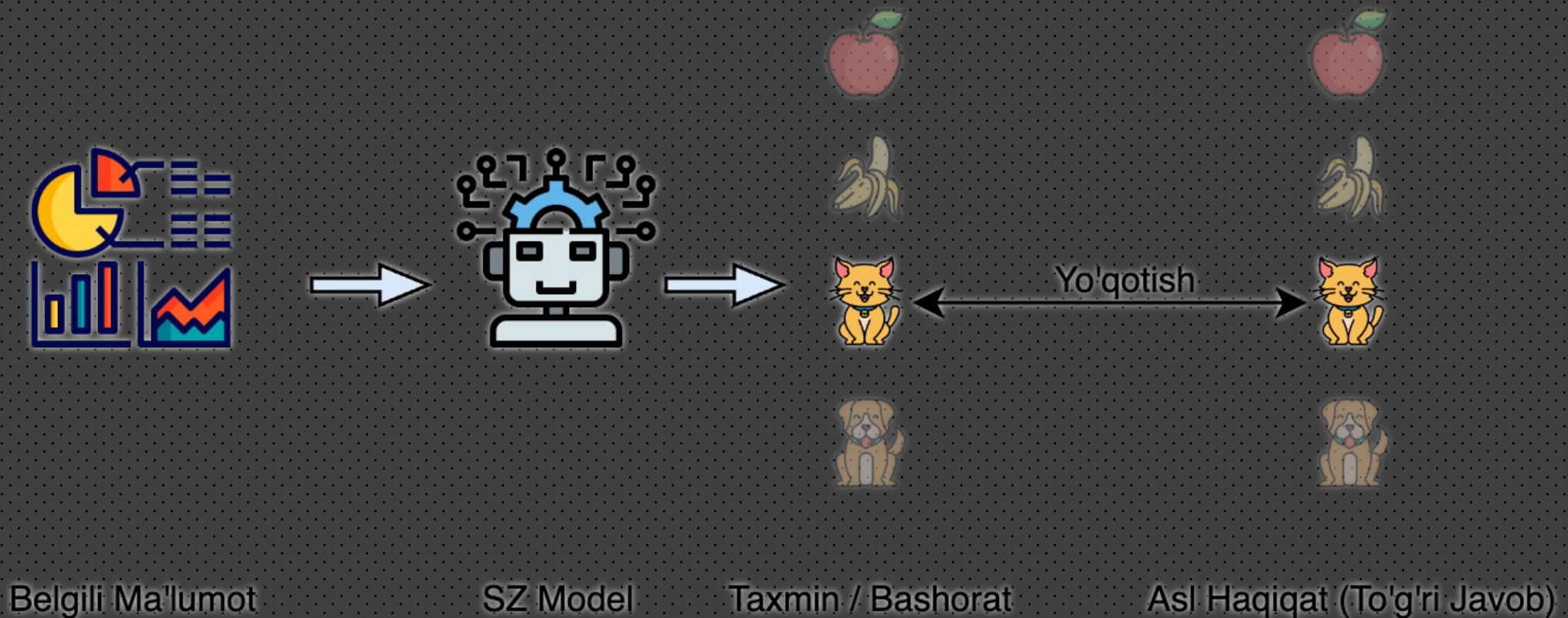


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AGENDA

- Shug'ullantirish loop'i
- Tasqidlash loop'i
- Loss (Yo'qotish) funksiyasi
- Optimizer (Optimallashtiruvchi)
- Metric (Metrika)

SHUG'ULLANTIRISH LOOP'I



SHUG'ULLANTIRISH LOOP'I

Har bir epizod uchun:

modelni train holatiga o'tkazamiz

Har bir qadam uchun:

data'ni gpu'ga o'tkazamiz

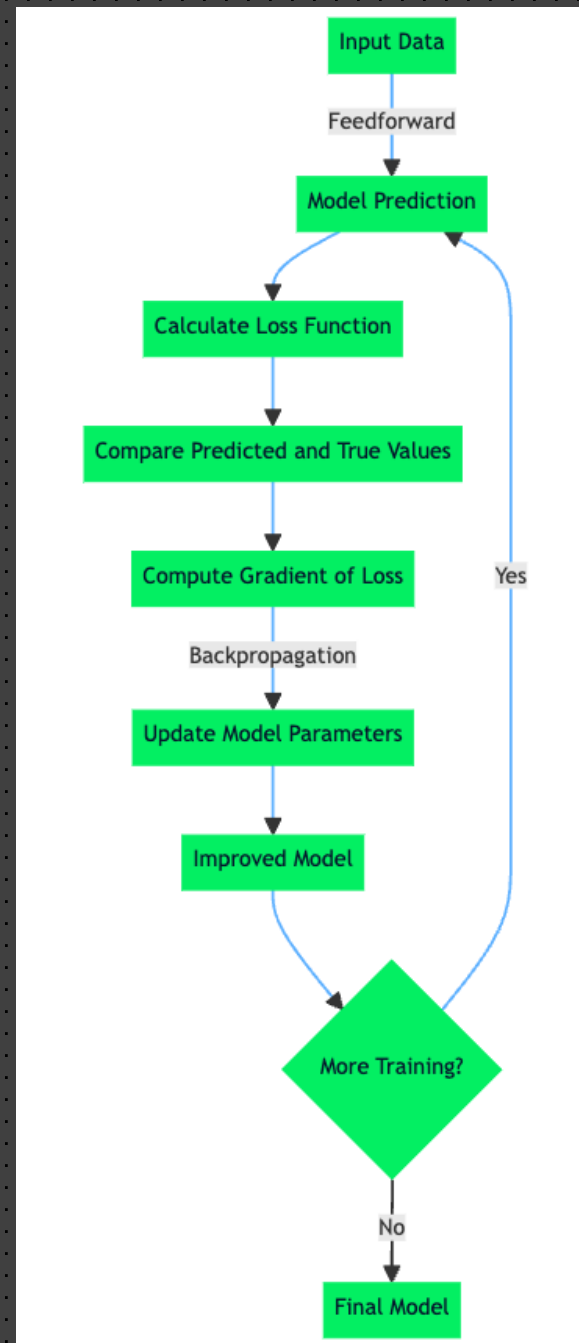
forward

yo'qotishni hisoblaymiz

backward (gradient+backprop)

metrikalarni log qilamiz

modelni saqlaymiz



TASQIDLASH LOOP'I

Har bir epizod uchun:

- modelni eval holatiga o'tkazamiz

Har bir qadam uchun:

- data'ni gpu'ga o'tkazamiz

- forward

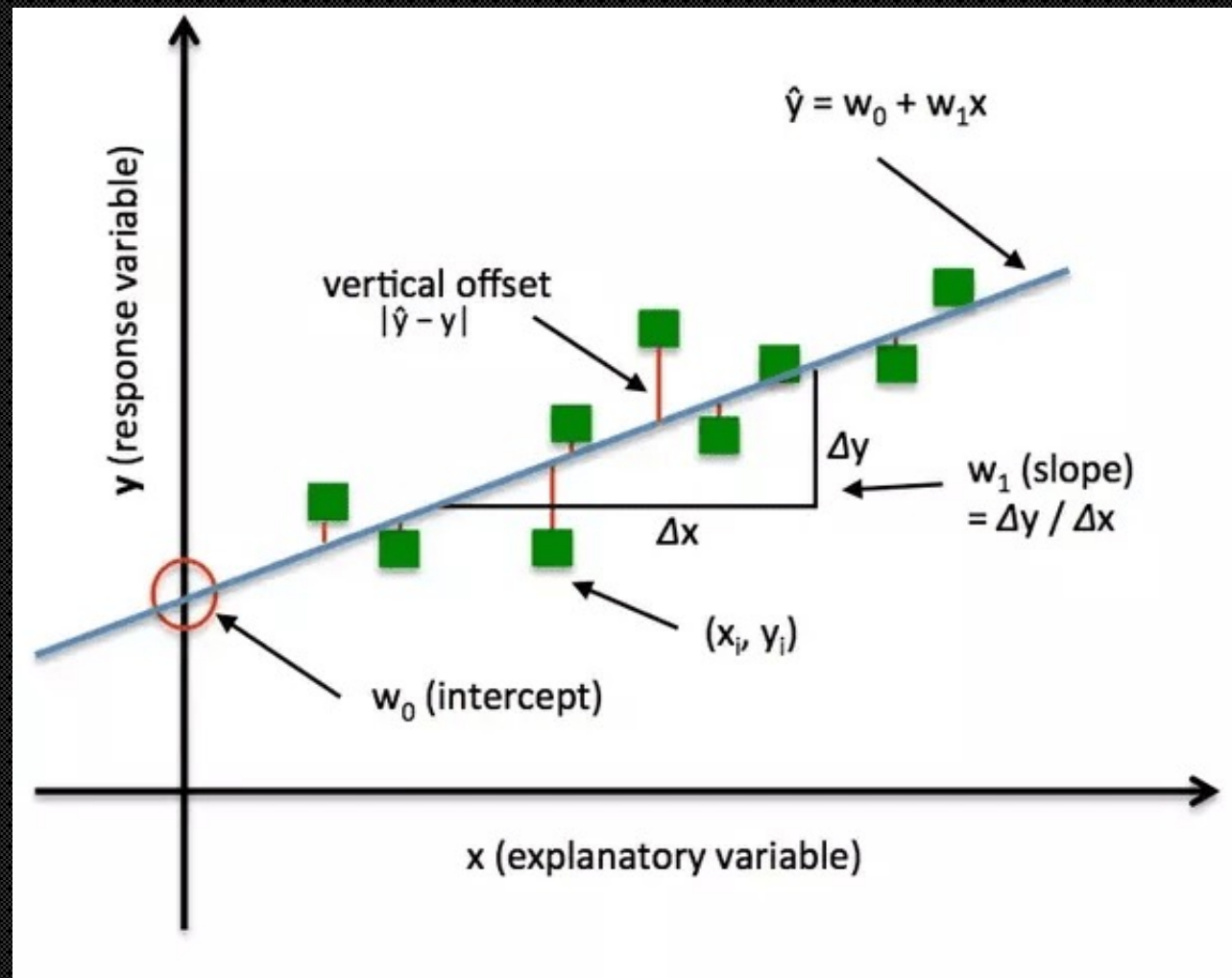
- yo'qotishni hisoblaymiz

- backward (gradient+backprop)

- metrikalarni log qilamiz

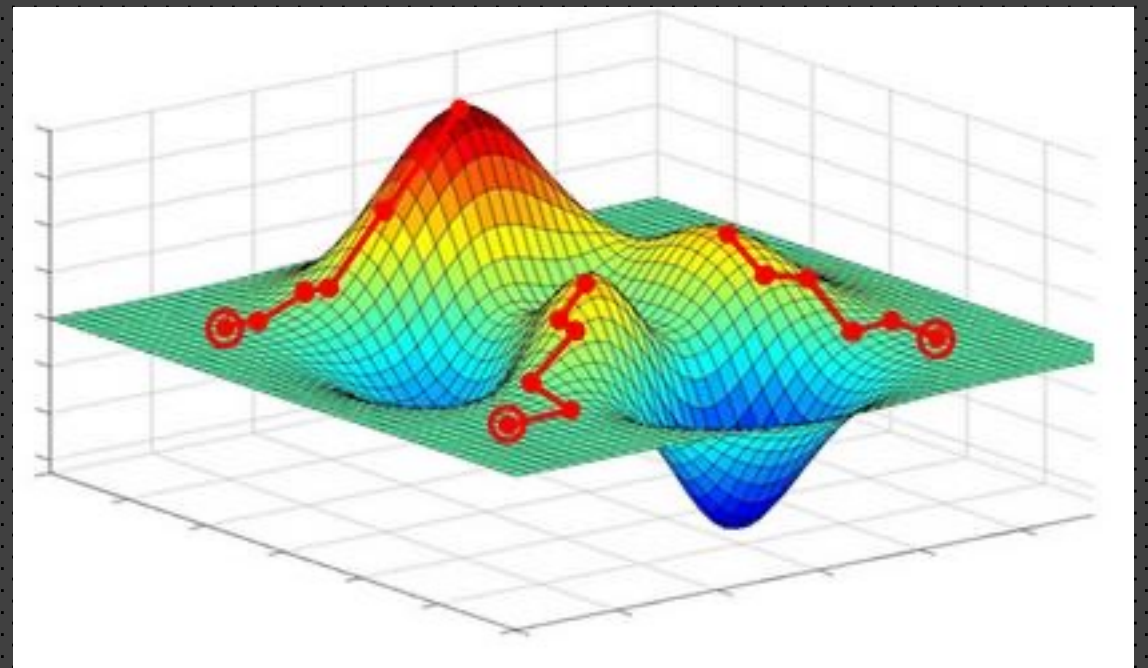
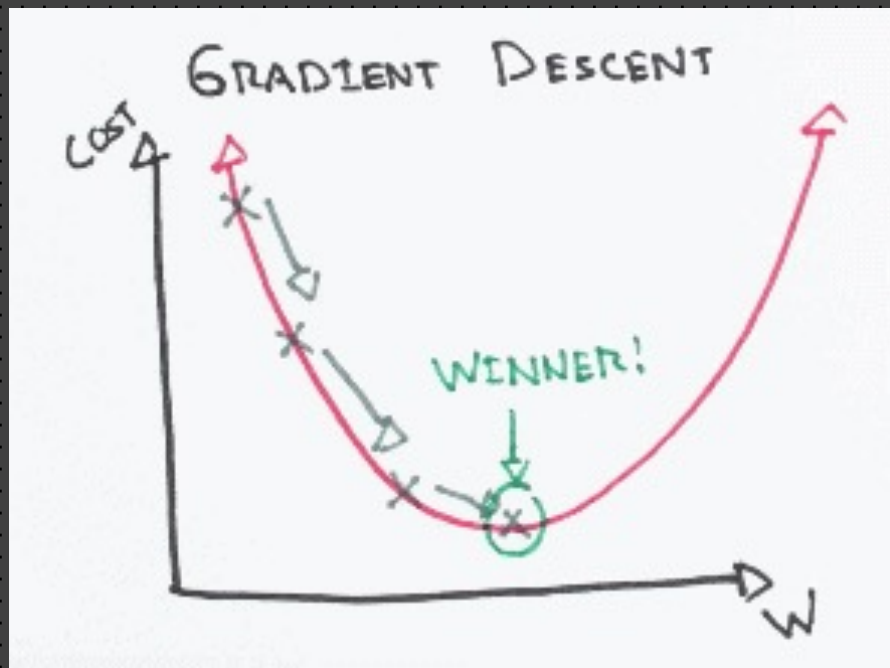
YO'QOTISH FUNKSIYASI

- Mean absolute error (MAE)
- Mean squared error (MSE)
- RMSE



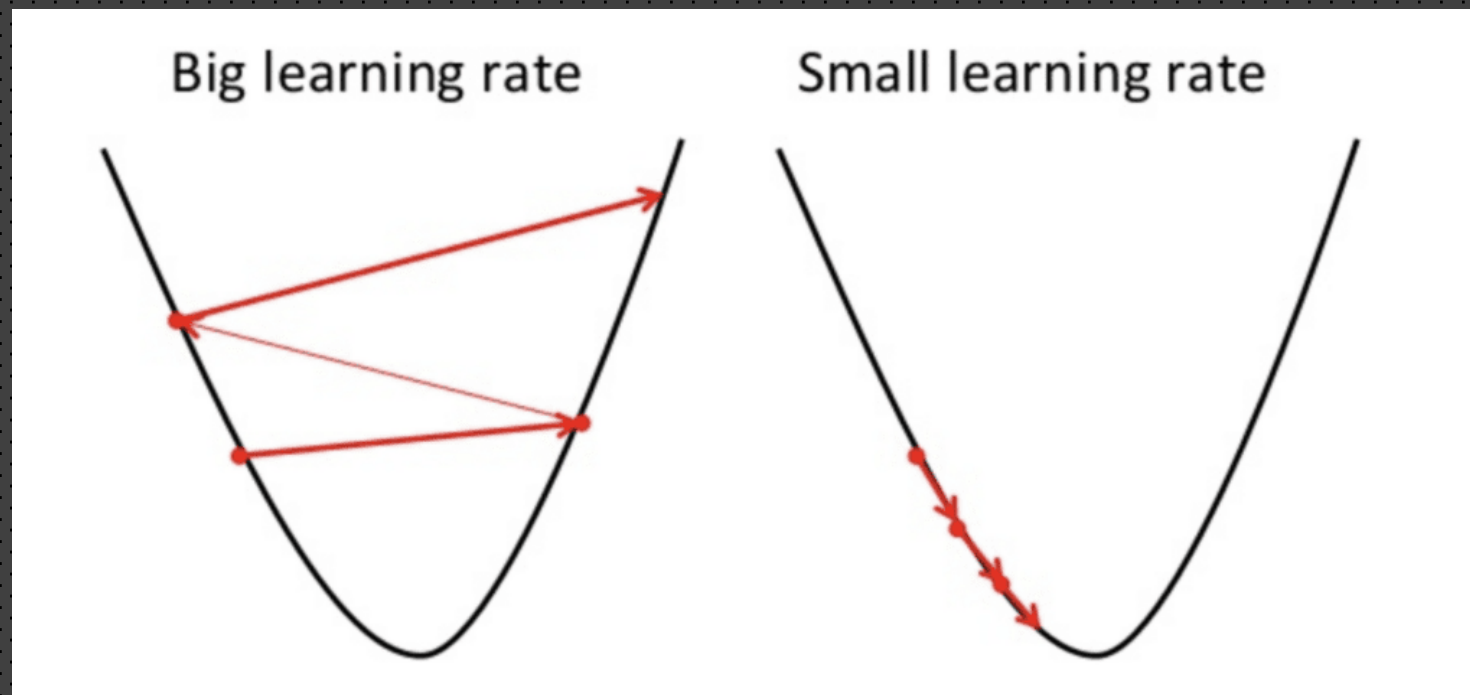
OPTIMIZER

- Chuqur O'rganish yuragi



OPTIMIZER

- Chuqur O'rganish yuragi



GRADIENT TUSHISHI

- GD
- SGD

```
# Vanilla Gradient Descent
```

```
while True:
```

```
    weights_grad = evaluate_gradient(loss_fun, data, weights)
```

```
    weights += - step_size * weights_grad # perform parameter update
```

```
# Vanilla Minibatch Gradient Descent
```

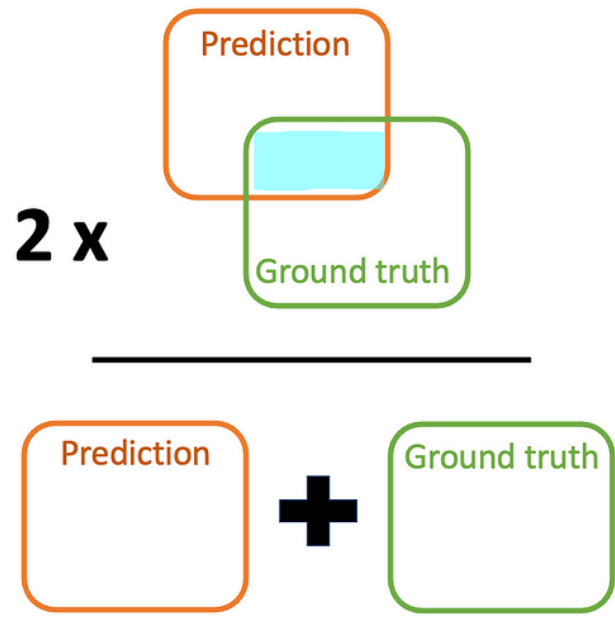
```
while True:
```

```
    data_batch = sample_training_data(data, 256) # sample 256 examples
```

```
    weights_grad = evaluate_gradient(loss_fun, data_batch, weights)
```

```
    weights += - step_size * weights_grad # perform parameter update
```

METRIKALAR – DICE SIMILARITY COEFFICIENT

$$\text{Dice} = \frac{2 \times \text{Area of overlap}}{\text{Total area}} =$$


The diagram illustrates the components of the Dice Similarity Coefficient formula. The numerator, $2 \times \text{Area of overlap}$, is represented by two overlapping rounded rectangles: an orange one labeled "Prediction" and a green one labeled "Ground truth". The intersection of these two rectangles is shaded in light blue. The denominator, Total area , is represented by the same orange "Prediction" rectangle and green "Ground truth" rectangle placed side-by-side, separated by a plus sign. A large $2 \times$ is positioned above the fraction line.



RAHMAT

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