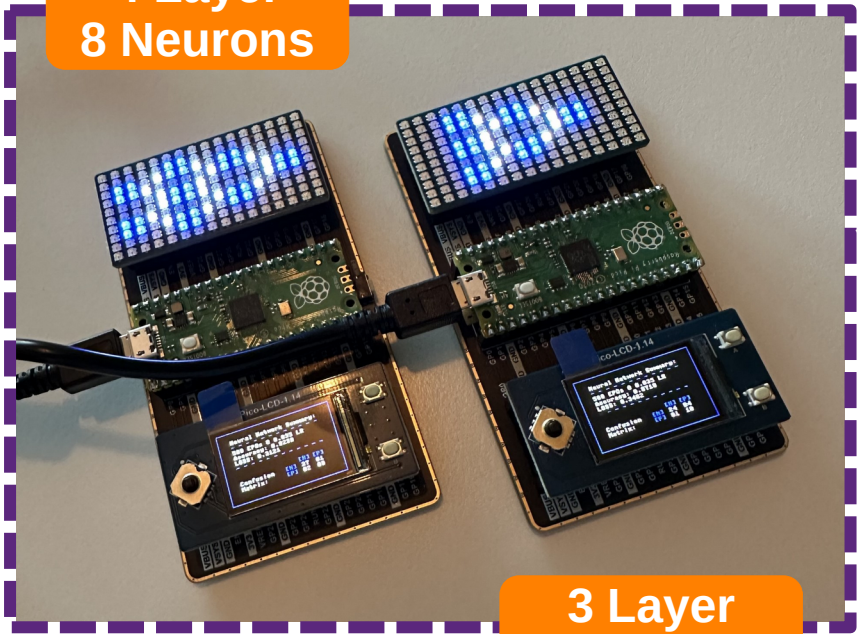
Instead of

artificial intelligence,

let's talk about math and statistics!

4 Layer 8 Neurons



3 Layer 6 Neurons

Define Neurons

```
def neuron(x, w, b, activation):

    tmp = zeros1d(x[0])

    for i in range(len(x)):
        tmp = add1d(tmp, [(float(w[i]) * float(x[i][j])) for j in range(len(x[0]))])

    if activation == "sigmoid":
        yp = sigmoid([tmp[i] + b for i in range(len(tmp))])
    elif activation == "relu":
        yp = relu([tmp[i] + b for i in range(len(tmp))])
    else:
        print("Invalid activation function--->")
```

Activation Function

```
# Sigmoid function
def sigmoid(x):
    import math
    z = [1 / (1 + math.exp(-x[kk])) for kk in range(len(x))]
    return z
```

Simply compare the performance of different neural network architectures...

```
# ReLU function
def relu(x):
    y = []
    for i in range(len(x)):
        if x[i] >= 0:
            y.append(x[i])
        else:
            y.append(0)
```

Activation Function