

## 02\_Perceptron\_v1

October 11, 2020

```
[1]: import numpy as np
```

```
[2]: def AND(x1, x2):  
    x = np.array([x1, x2])  
    w = np.array([0.5, 0.5])  
    b = -0.7  
    #tmp = np.sum(w*x) + b  
    tmp = x[0]*w[0] + x[1]*w[1] + b  
  
    if tmp <= 0:  
        return 0  
    else:  
        return 1
```

```
[3]: AND(1,1), AND(0,0), AND(1,0), AND(0,1)
```

```
[3]: (1, 0, 0, 0)
```

```
[4]: def NAND(x1, x2):  
    x = np.array([x1, x2])  
    w = np.array([-0.5, -0.5])  
    b = 0.7  
    #tmp = np.sum(w*x) + b  
    tmp = x[0]*w[0] + x[1]*w[1] + b  
  
    if tmp <= 0:  
        return 0  
    else:  
        return 1
```

```
[5]: NAND(1,1), NAND(0,0), NAND(1,0), NAND(0,1)
```

```
[5]: (0, 1, 1, 1)
```

```
[6]: def OR(x1, x2):  
    x = np.array([x1, x2])  
    w = np.array([0.5, 0.5])  
    b = -0.2  
    #tmp = np.sum(w*x) + b  
    tmp = x[0]*w[0] + x[1]*w[1] + b
```