Homework 6

```python
import h5py
import numpy as np
import matplotlib.pyplot as plt

def calculate_iou(rect1, rect2):
    x1, y1, w1, h1 = rect1
    x2, y2, w2, h2 = rect2
    # cordinate calculation
    xi1 = max(x1, x2)
    yi1 = max(y1, y2)
    xi2 = min(x1 + w1, x2 + w2)
    yi2 = min(y1 + h1, y2 + h2)

    inter_area = max(xi2 - xi1, 0) * max(yi2 - yi1, 0)
    box1_area = w1 * h1
    box2_area = w2 * h2
    union_area = box1_area + box2_area - inter_area
    iou = inter_area / union_area if union_area > 0 else 0
    return iou
```