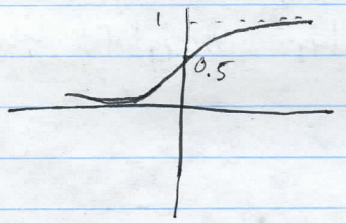
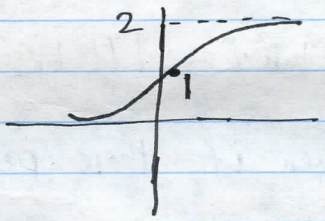
The sigmoid function:



Standard sigmoid function, $\frac{1}{1+e^{-x}}$.

The curve's intercept is 0.5. As the ~~line~~ curve goes for $y=1$ and $y=0$, $\frac{dy}{dx}$ decreases and the curve ~~do~~ never touches $y=1$ or $y=0$.

My modified sigmoid function, $\frac{2}{1+e^{-x}}$



The intercept is 1. I made ~~my~~ distance between query ~~point~~ box and neighbour box negative. So, if original box is 4, I made it -4 and then fed into my modified sigmoid function to get a weight Φ in $(0,1)$, upper lim $\Phi 1$ and lower lim $\Phi 0$.

Hilroy

What do we get from this ?

* Closer points get higher weights than distant points
* Difference in weights between points decreases as distance increases. Say we input -3, we get 0.45 and we input -6, we get 0.3, we input -9, we get 0.23. As you see, difference in weights decrease. So within a close range points will always be given ~~so~~ good importance and very less importance will be given to the far points far away, even if those points are far apart from each other and so difference in importance between those points is really of low significance.

I used this sigmoid function for my weighted KNN and the choice of this function seems really logical.