$$loss = \sum_{i=1}^{n} (y_i - x^T w) = (y - xw)^T (y - xw)$$

Make loss minimum

$$\frac{loss}{\varphi w} = x^T (y - xw) = 0$$

$$\hat{w} = (x^T x)^{-1} (x^T y)$$

Locally weighted linear regression

$$w_{(i,i)} = \exp\left(\frac{|x^i - x|}{-2k^2} \right)$$

$$\hat{\mathrm{w}} = (x^T wx)^{-1} (x^T wy)$$