



LOESS

LOWESS

$$RSS_x(A) = \sum_{i=1}^N (y_i - A\hat{x}_i)^T w_i(x) (y_i - A\hat{x}_i)$$

$$w(x_i) = \exp\left(-\frac{(x_i - x)^2}{2\sigma^2}\right)$$

$$\hat{x}_i = (1, x_i)$$

linear

$$\hat{x}_i = (1, x_i, x_i^2)$$

quadratic

$$A(x) = Y W(x) \hat{X}^T (\hat{X} W(x) \hat{X}^T)^{-1}$$

$$y_{est}(x) = A(x) \hat{x}$$