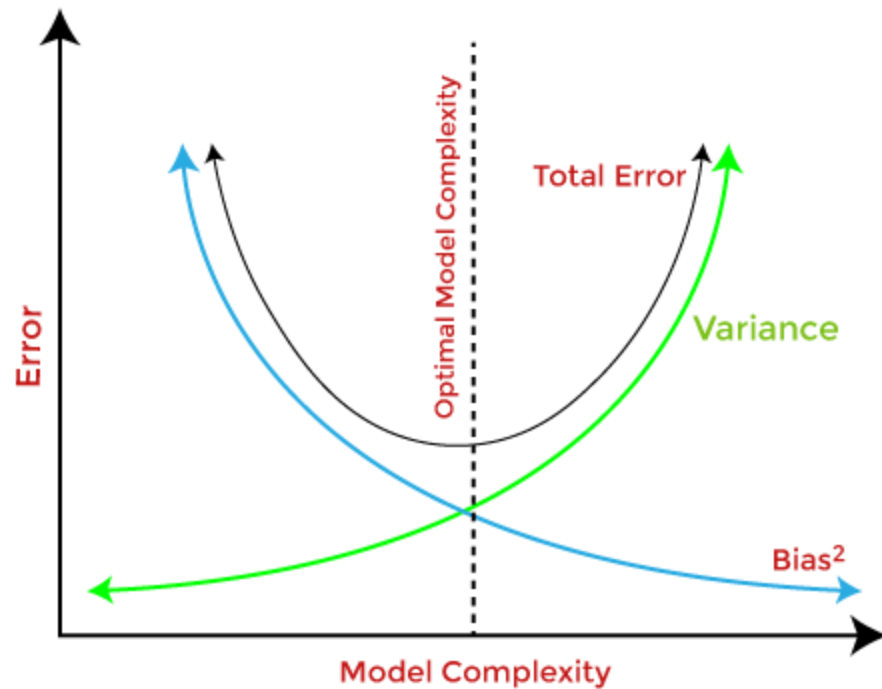


Regularisation

UTKARSH GAIKWAD

Bias Variance Tradeoff



Underfitting :
High Training Error
High Testing Error

Overfitting :
Low Training Error
High Testing Error

Ridge (L2 Regularisation)

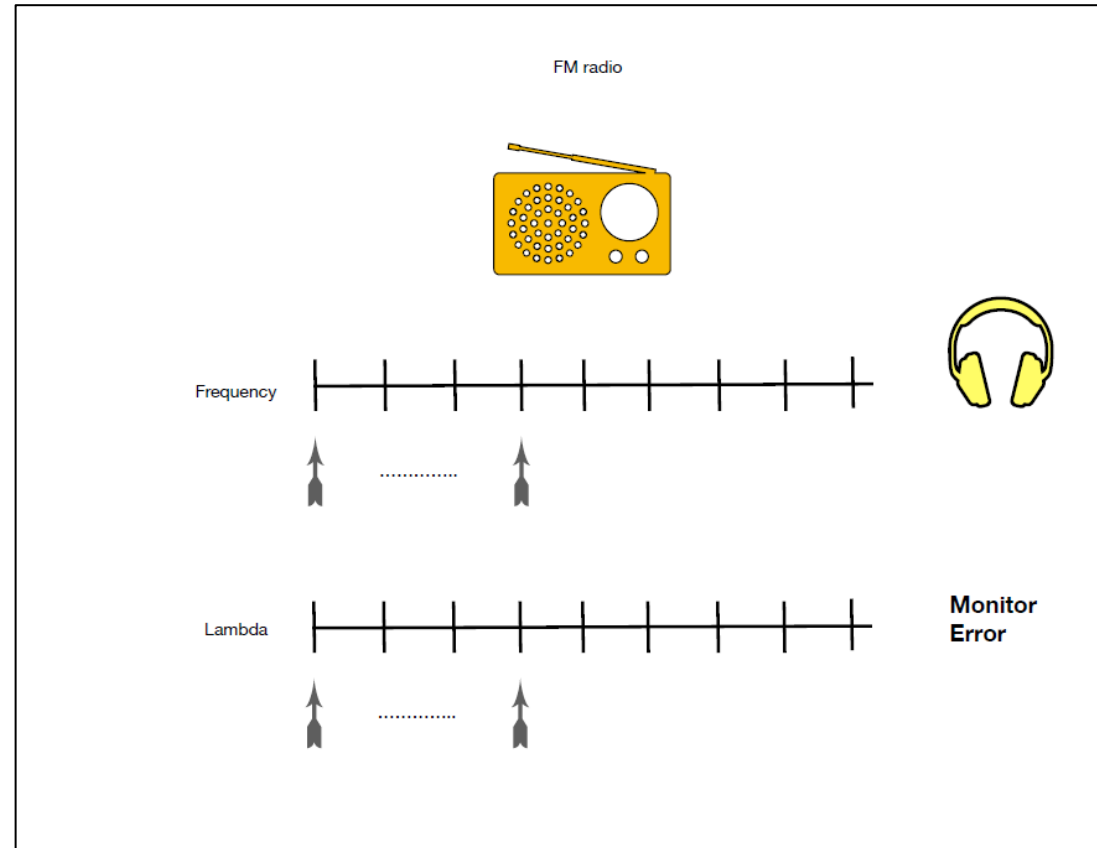
$$RSS_{ridge}(w, b) = \underbrace{\sum_{i=1}^n (y_i - (w_i x_i + b))^2}_{\text{Fit training data well}} + \underbrace{\alpha \sum_{j=1}^p w_j^2}_{\substack{\text{L2 penalty / Penalty Term /} \\ \text{Regularisation Term}}} \quad \text{Keep parameters small}$$

A trade-off between fitting the training data well and keeping parameters small

$$\text{Purchase}(Y_{cap}) = B_0 + B_1 * \text{Age} + B_2 * \text{Income}$$

$$(Y - Y_{cap})^2 + \text{lambda} * (B_0^2 + B_1^2 + B_2^2)$$

Lambda Is parameter which we need to find



Thank you

FOR ANY QUERIES PING ME ON SKYPE