

Class Exercise 1

Perform the leave-one-out cross-validation to estimate the accuracy of the two models below:

- Model 1: $y = \theta_1 x_1 + \theta_2 x_2 + \theta_{12} x_1 x_2$.
- Model 2: $y = \theta_1 x_1 + \theta_2 x_2 + \theta_{22} x_2^2$.

Use Q2 to quantify the accuracy.

Class Exercise 2

Consider a simple nonlinear model with two parameters, $y = \theta_1 x^{\theta_2}$. Using the data given below for calibration, compute the approximative covariance matrix of the parameters using the Jacobian of the model analytically.

$X = [1:3:9, 11 \ 14 \ 19 \ 21 \ 23]'$

$Y = [2.04 \ 128.01 \ 686.04 \ 2662.01 \ 5488.01 \ 13718.07 \ 18522.07 \ 24334.07]'$