

Homework 7

1. Apply the method of least squares to solve the system

$$x_1 + x_2 = 2$$

$$x_1 + x_2 = 3$$

$$x_1 + 3x_2 = 4$$

$$x_1 - x_2 = 0.$$

2. Apply the least squares method to the system whose matrix is

$$A = \begin{pmatrix} 1 & 0 & 1 \\ 1 & 1 & 1 \\ 0 & 1 & 1 \\ 1 & 1 & 0 \end{pmatrix}, \quad \mathbf{b} = \begin{pmatrix} 4 \\ -1 \\ 0 \\ 1 \end{pmatrix}$$

3. Find the equation of the line that fits best the points $(1, 3)$, $(2, 6)$, $(3, 4)$, $(-1, 0)$.
4. Fit a circle through the points $(1, 1)$, $(0, 2)$, $(-1, 0)$, $(-1, -1)$.