

N 17

$$\begin{array}{l} x_1 \quad 4 \quad 0 \quad -1 \quad 3 \quad 4 \\ x_2 \quad 2 \quad -3 \quad -2 \quad 1 \quad 2 \\ x_3 \quad 3 \quad 2 \quad 2 \quad 1 \quad -3 \end{array}$$

$$\bar{X} = (2, 0, 1)$$

$$X = \begin{pmatrix} 4 & 2 & 3 \\ 0 & -3 & 2 \\ -1 & -2 & 2 \\ 4 & 1 & 1 \\ 4 & 2 & 3 \end{pmatrix}$$

$$X_c = \begin{pmatrix} 2 & 2 & 2 \\ -2 & -3 & 1 \\ -3 & -2 & 1 \\ 1 & 1 & 0 \\ 2 & 2 & -4 \end{pmatrix} \quad \text{XDA}$$

$$X_c^T = \begin{pmatrix} 2 & -2 & -3 & 1 & 2 \\ 2 & -3 & -2 & 1 & 2 \\ 2 & 1 & 1 & 1 & -4 \end{pmatrix}$$

~~$$C = X_C^T X_C = \begin{pmatrix} 22 & 21 & -9 \\ 21 & 22 & -9 \\ -9 & -9 & 22 \end{pmatrix}$$~~

$$\det(C - dI) = \begin{vmatrix} 22-d & 21 & -9 \\ 21 & 22-d & -9 \\ -9 & -9 & 22-d \end{vmatrix}$$

$$= d^3 + 66d^2 - 849d + 784 = -(d - 1)(d^2 - 65d + 784)$$

$$(d^2 - 65d + 784) = -(d - 1)(d - 16)(d - 49)$$

$= 0$

$$d_1 = 1 \quad v_1 = \begin{pmatrix} -1 \\ 1 \\ 0 \end{pmatrix}$$

$$d_2 = 16 \quad v_2 = \begin{pmatrix} 1/3 \\ 1/3 \\ 1 \end{pmatrix}$$

$$d_3 = 49 \quad v_3 = \begin{pmatrix} -3/2 \\ -3/2 \\ 1 \end{pmatrix}$$

v_1, v_2, v_3 - mod. von

$$\frac{1}{N-1} d_1 = \frac{1}{4} = 0,25$$

$$\frac{1}{N-1} d_2 = 4$$

$$\frac{1}{N-1} d_3 = 12,25$$

$$\frac{d_1}{\sum_{i=1}^3 d_i} = 0,015$$

$$\frac{d_2}{\sum_{i=1}^3 d_i} = 0,242$$

$$\frac{d_3}{\sum_{i=1}^3 d_i} = 0,742$$