

$$\| \cdot \|_{\infty} = \text{"row max"} \quad \left(\max_i \left(\sum_j |a_{ij}| \right) \right)$$

$$\| \cdot \|_1 = \text{"column max"} \quad \left(\max_j \left(\sum_i |a_{ij}| \right) \right)$$

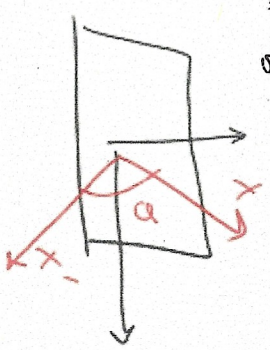
$$\text{cond} \approx \lim_{x \rightarrow x^*} x \frac{f'(x)}{f(x)}$$

$$\epsilon_x \approx \text{cond} \cdot \epsilon_b$$

$$\epsilon_x = \frac{\|x - x^*\|}{\|x^*\|}$$

$$\epsilon_x \leq \|A\| \|A^{-1}\| \epsilon_b$$

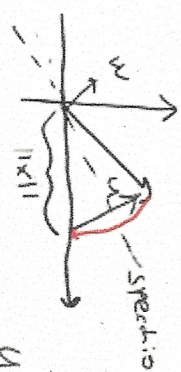
Givens: "Ho applicato in sequenza 2 rotazioni sul piano <e2, e4> e <e1, e2>"



$$\begin{pmatrix} \|x\| \\ 0 \\ 0 \end{pmatrix} : \begin{matrix} C \\ S \\ C \end{matrix}$$

$$\begin{pmatrix} \|x\| \\ 0 \\ -\|x\| \end{pmatrix} : \begin{matrix} C \\ S \\ C \end{matrix}$$

Housholder: "Ho azzerato e2 ed e3 su e1 applicando P"



$$P = I - 2xx^T$$

$$u = x - \|x\|e_1 = x - Px$$

$$w = u / \|u\|$$

RETTA: f(x) minimizza la somma dei quadrati degli scarti tra i suoi valori e i dati y (+ fai il disegno della retta)

$$\min_{c \in \mathbb{R}^2} \left(\sum_{i=1}^n (y_i - (ax_i + b))^2 \right)$$

$$\begin{pmatrix} a \\ b \end{pmatrix} \propto f(x) + B(f) + \dots$$

SPLINE: cubica q=3 / continua e derivab. due volte (S(xi) = yi : condiz. d'interpolaz.)

Naturale: S''(X0) = S''(Xn) = 0

Completa: S'(X0) e S'(Xn) noti

Periodica: y0 = S1(X0) = Sn(Xn) = yn ; S'(X0) = S'(Xn) ; S''(X0) = S''(Xn)

$$\text{SVD: } X^+ = \sum_{i=1}^r \frac{u_i^T b}{\delta_i} (V_i) / A^+ b = X^+ / A^+ = V \Sigma^+ U^T \quad (\text{dim trasposte})$$

$$s \in \mathbb{R}^n : \text{cond. prod. min quadr} \quad \sum_{i=1}^n \frac{u_i^T b}{\delta_i} \quad A = 8 \times 5 \Rightarrow 5 \times 5 \quad 5 \times 8 \quad 8 \times 8$$

$$A = \begin{pmatrix} m \times n \\ m \times n \end{pmatrix} \begin{pmatrix} n \\ n \end{pmatrix} \begin{pmatrix} n \\ n \end{pmatrix} \begin{pmatrix} n \\ n \end{pmatrix} \begin{pmatrix} n \\ n \end{pmatrix} \begin{pmatrix} n \\ n \end{pmatrix}$$

$$A : \mathbb{R}^n \xrightarrow{\text{ker-V}} \mathbb{R}^m \xrightarrow{\text{viceversa per } A^T} \mathbb{R}^n$$