

inconnus: $a_i \leftrightarrow$ surface
 \downarrow
 g inconnus.

sysr - g inconnus
 \downarrow
 g eq \leftrightarrow g pts X_i

Sysr:

$$\forall X_i \rightarrow \begin{cases} \vdots \\ a_1 x_i^2 + a_2 y_i^2 + a_3 z_i^2 + a_4 x_i y_i + a_5 x_i z_i + a_6 y_i z_i + a_7 x_i + a_8 y_i + a_9 z_i = 1 \leftarrow i \\ \vdots \\ g \text{ eq} \end{cases}$$

g inconnus
 \downarrow
 $w = \begin{pmatrix} a_1 \\ \vdots \\ a_9 \end{pmatrix}$

sysr. linéaire
 \downarrow
 $Xw = y$

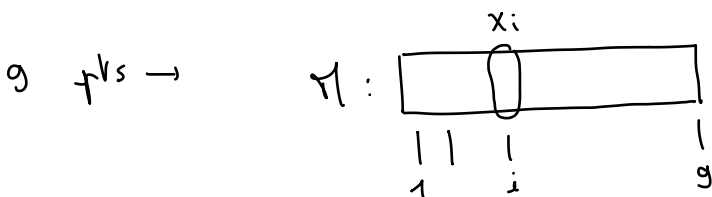
$Xw = y$

$$X = \begin{pmatrix} \vdots & \vdots & \vdots & \vdots & \vdots & \vdots & \vdots & \vdots & \vdots \\ x_i^2 & y_i^2 & z_i^2 & x_i y_i & x_i z_i & y_i z_i & x_i & y_i & z_i \\ \vdots & \vdots & \vdots & \vdots & \vdots & \vdots & \vdots & \vdots & \vdots \end{pmatrix} \quad g \times g$$

$$y = \begin{pmatrix} 1 \\ \vdots \\ 1 \end{pmatrix} \quad g \times 1$$

Résoudre en Matlab: $w = X \backslash y$

Pts \rightsquigarrow matrice \mathcal{M} par col



$\leftarrow \mathcal{M} = \text{rand}(3, g)$

plotImplicit3D (f , min BB , max BB , step BB)

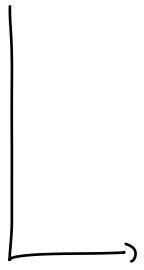
↙
prenant
en arg
 x, y, z
vechs de
coords
et calculant
f en //
(. *)

plot3D

↘
limites
de la
boite
englobante
de representation

plot-entier-3D

↘
nbr de
seg. selon x, y, z



plotImplicit3D (f , [-1, -1, -1] , [1, 1, 1] , [20, 20, 20])

