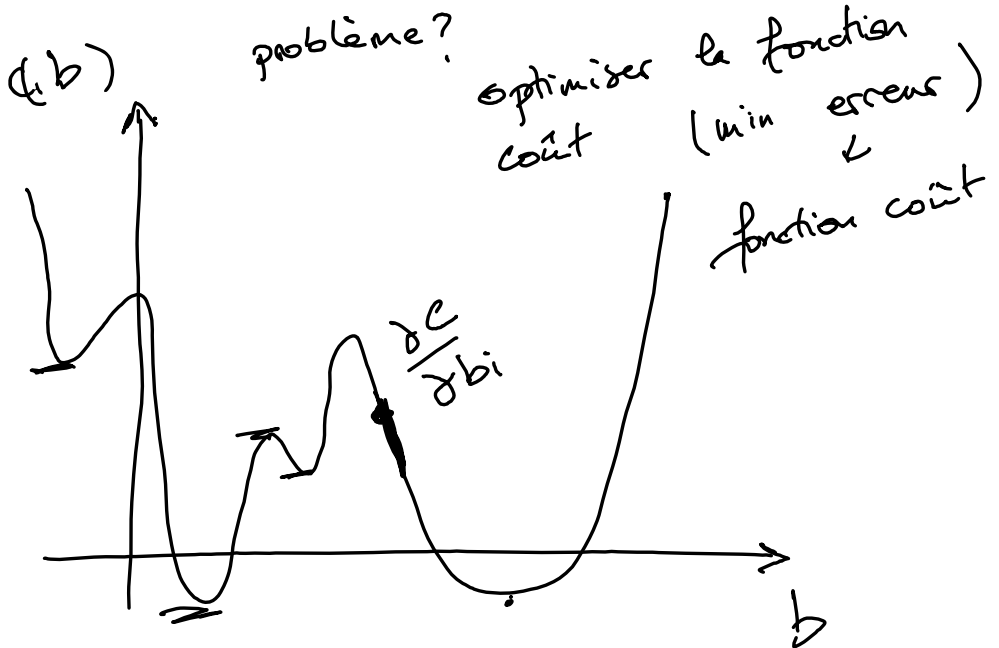
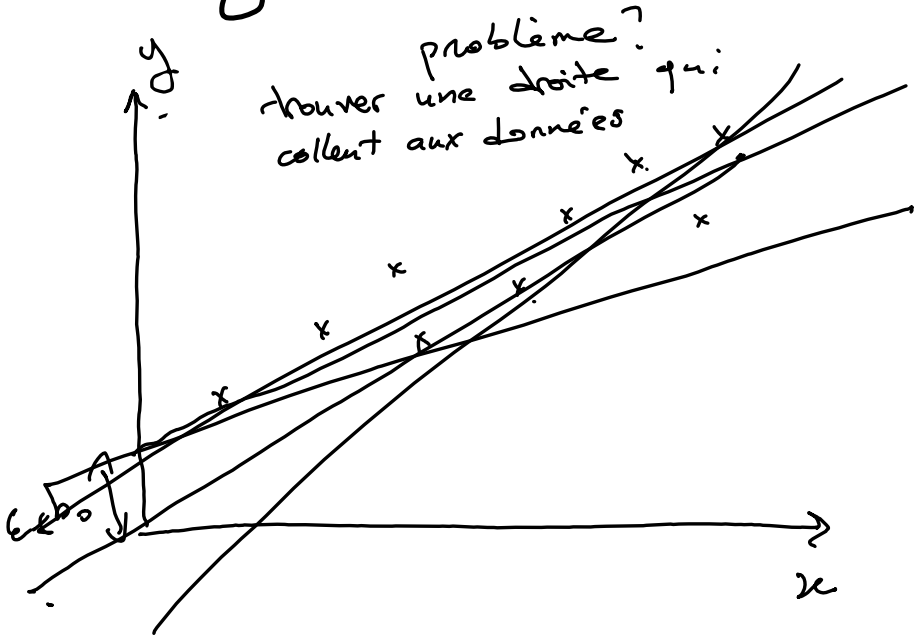


Régression linéaire



Paramètres

- coefficients \rightarrow
- biais - ordonnée à l'origine
- erreur

$$\begin{aligned} y_i &= f(x_i)_{\text{loo}} \\ &= b_0 + \underbrace{(b_1)}_{\beta} x_1 + b_2 x_2 \dots b_n x_n + \varepsilon_i \\ &= \sum_{i=1}^n \beta_i x_i \end{aligned}$$

$x_1 \nearrow \text{unité} \Rightarrow y \nearrow \text{loo unité}$

ε : erreur aléatoire

Fonction coût

$$\sum_{i=1}^n (h(x_i) - y_i)^2 / 2n$$

optimisation

- Descente du gradient

van

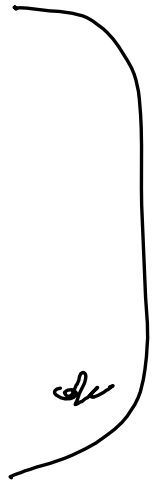
$$b_1 = 0 \quad b_2 = 0 \quad b_3 = 0$$

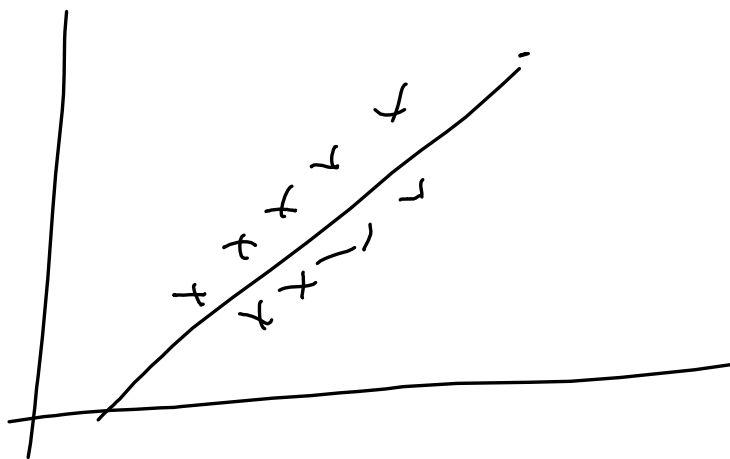
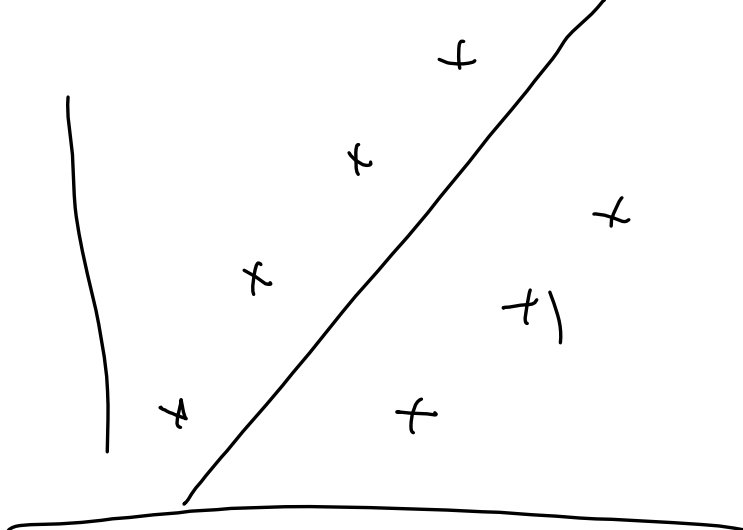
$$\frac{\partial h}{\partial b_1} \quad \frac{\partial h}{\partial b_2} \quad \frac{\partial h}{\partial b_3}$$

↑ ↑ ↓

$$b_1 = 10 \quad b_2 = 20 \quad b_3 = -10$$

$C(b)$ ↓ \nearrow uok





$$f(x_1, x_2) = x_1^2 + 2x_2$$

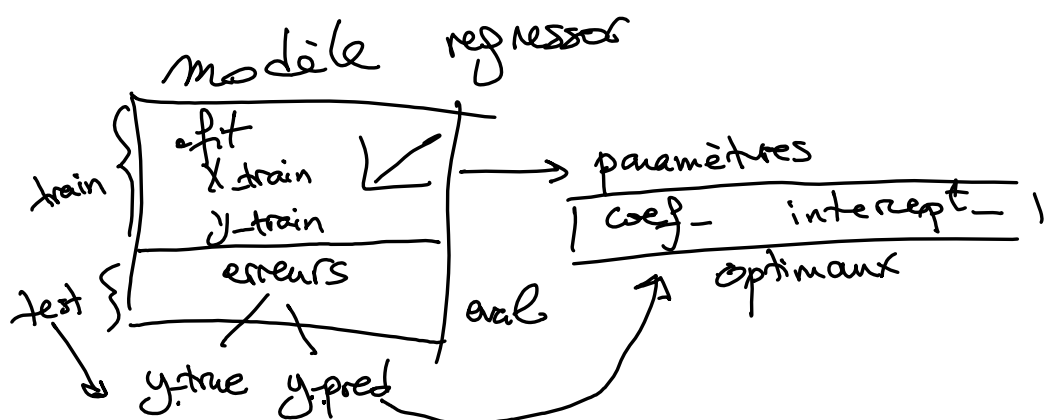
$$\frac{\partial f}{\partial x_1} = 2x_1 + 2x_2$$

$$\frac{\partial f}{\partial x_2} = 2 + x_1^2$$

$$y = w_0 x_0 + b$$

$$\sum (h(x_i) - y_i)^2 \rightarrow \text{erreur}$$

data cvs → pd



1-entraînement

$$y_{pred} = regressor.predict(X_{test})$$

metrics

$$mae = \frac{|y_{true} - y_{pred}|}{len(y_{test})}$$

