

Deep Learning

ANN (Artificial Neural Network)

RNN (Recurrent Neural Network)

CNN (Convolutional Neural Network)

Deep Learning

ANN (Artificial Neural Network)

ANN - Descubrir, clasificar y ajustar (base)

RNN (Recurrent Neural Network)

RNN - Procesamiento de Texto y Lenguaje Natural

CNN (Convolutional Neural Network)

CNN - Procesamiento de Imágenes y Visión Computacional

Traductor de Señas y Símbolos

Clasificación de textos (similitud)

Procesamiento de imágenes satelitales

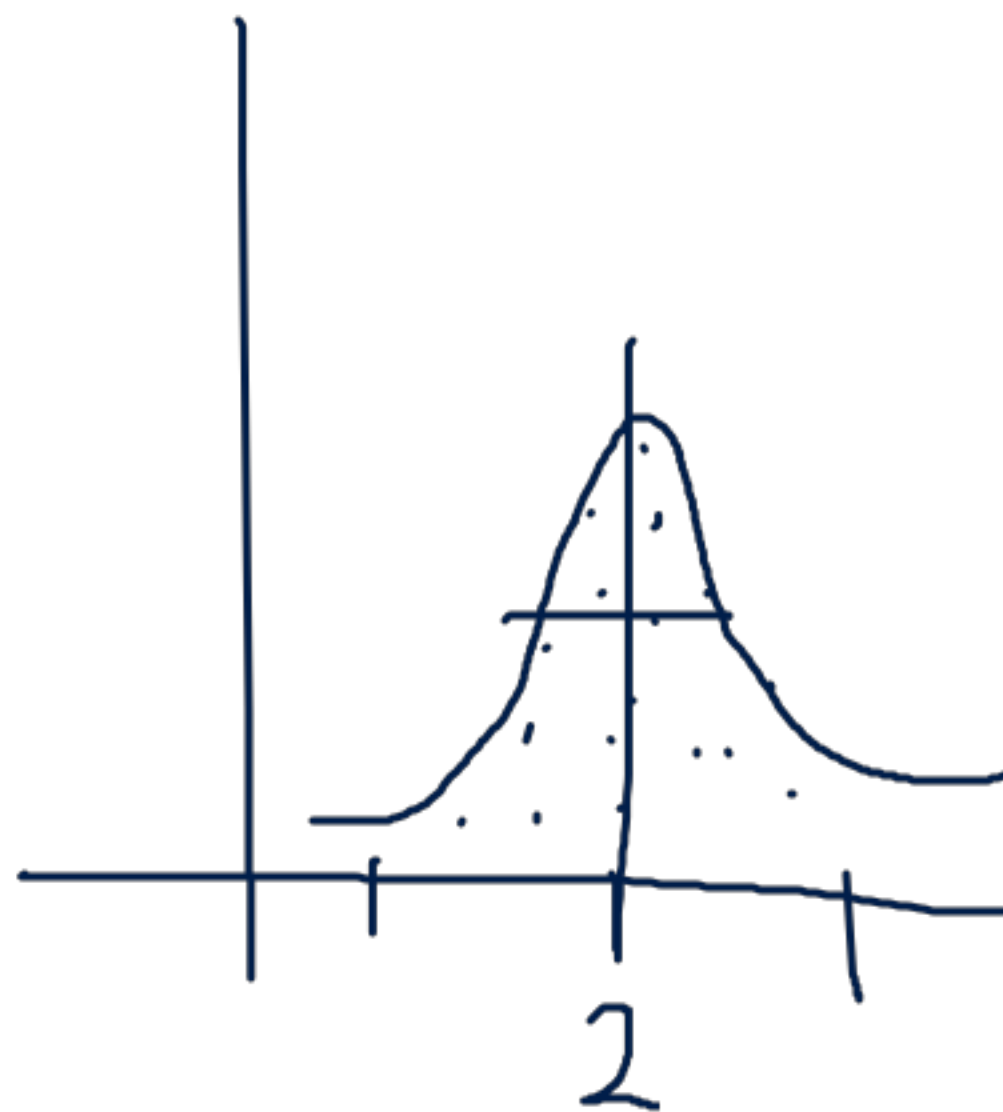
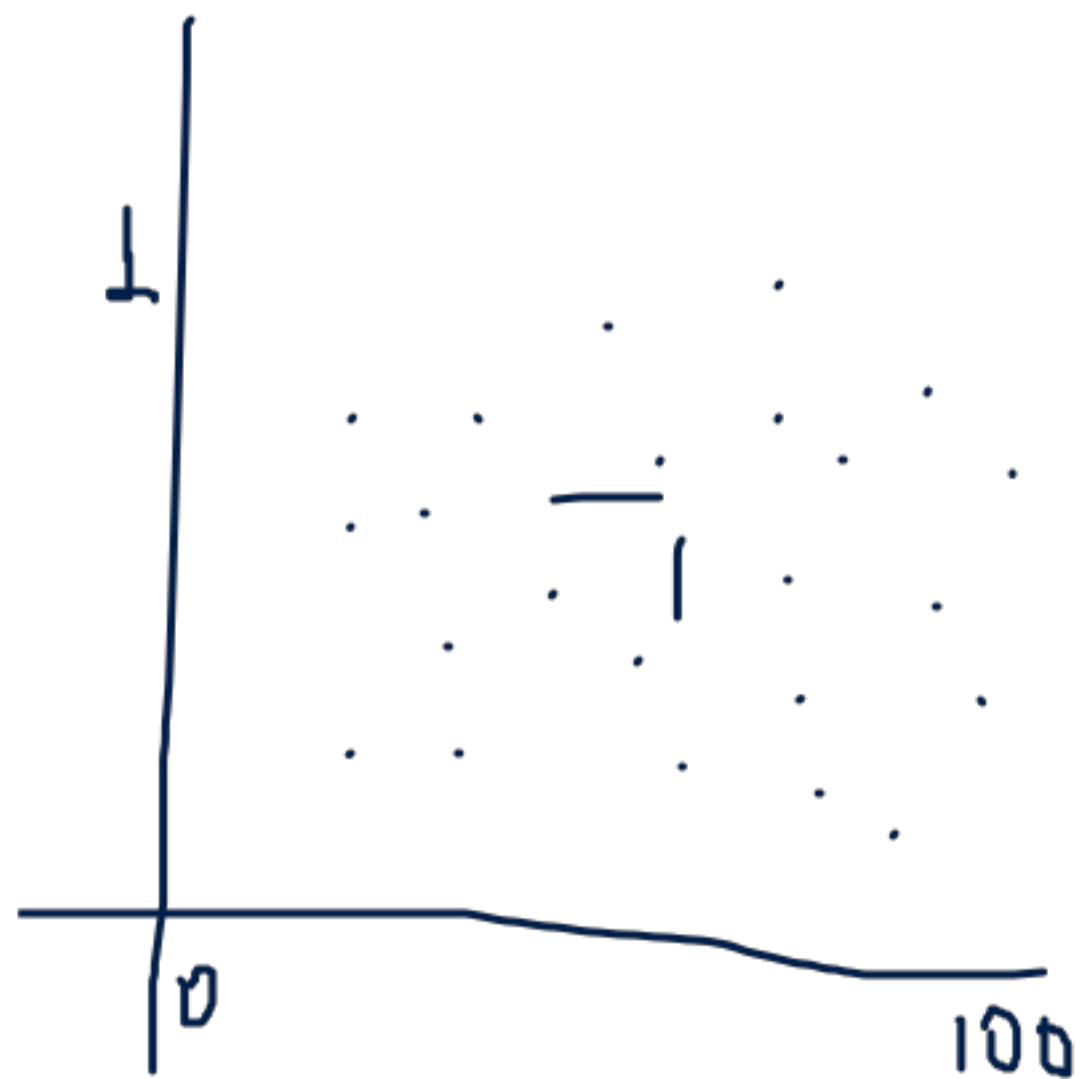
Detección de enfermedades

Conducción autónoma de carros

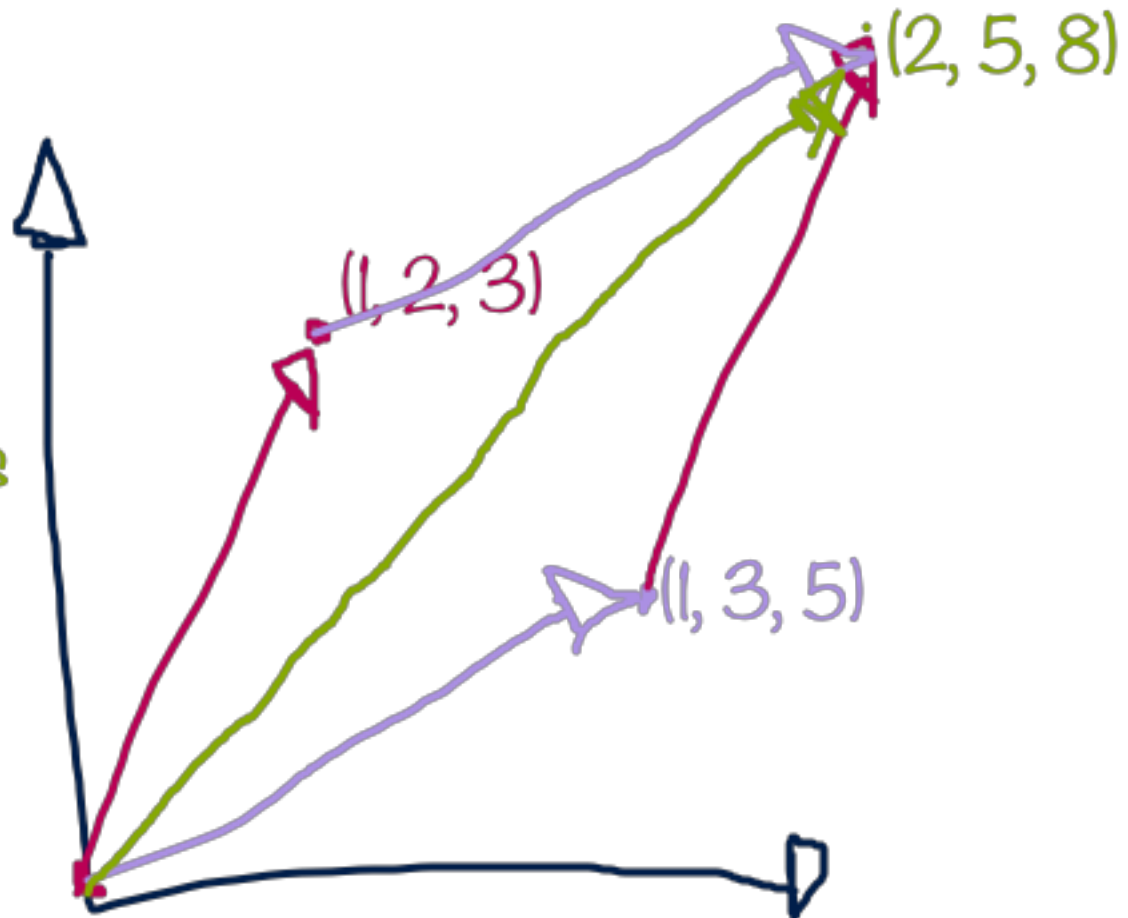
Navegación entre drones

Análisis musical

Predicción en juegos



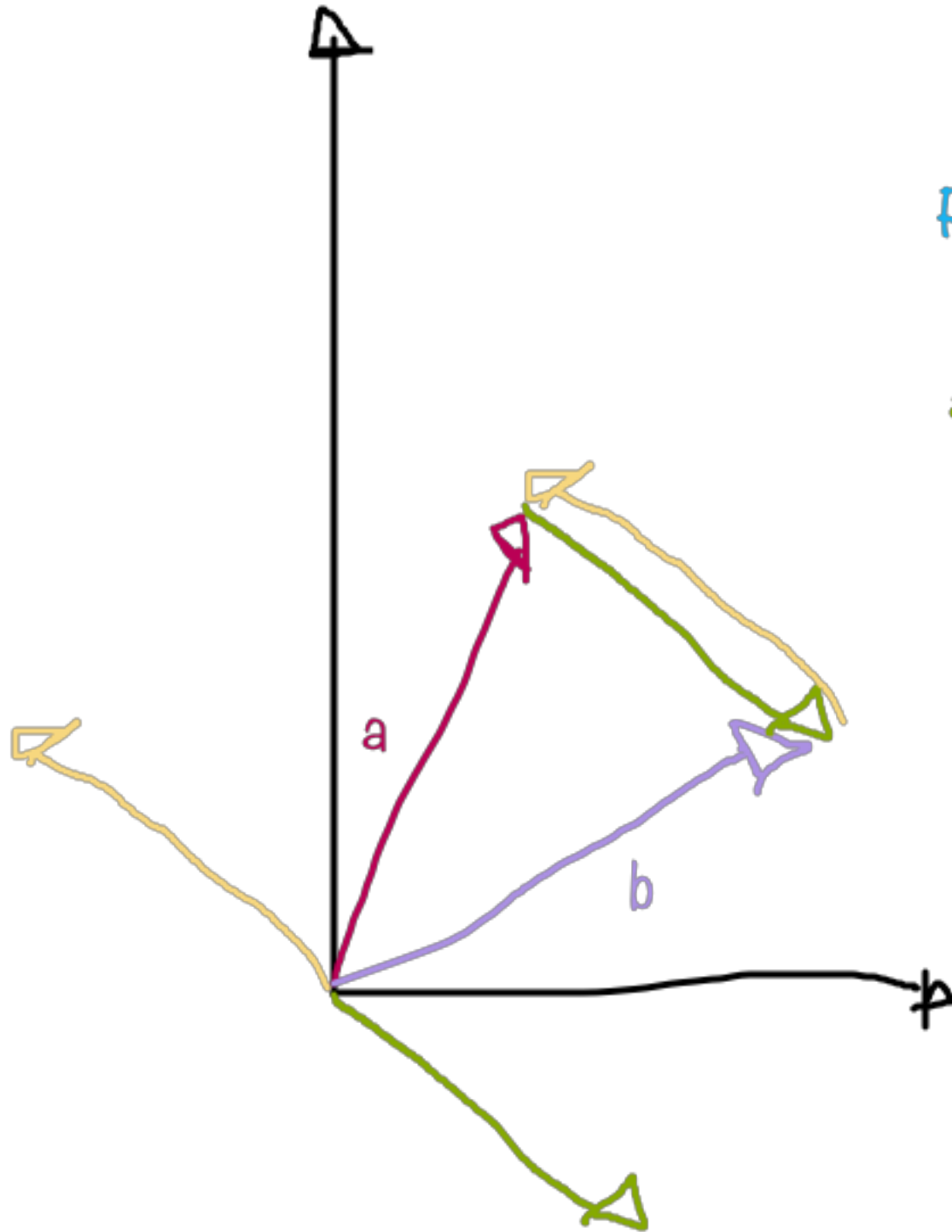
Suma de dos vectores

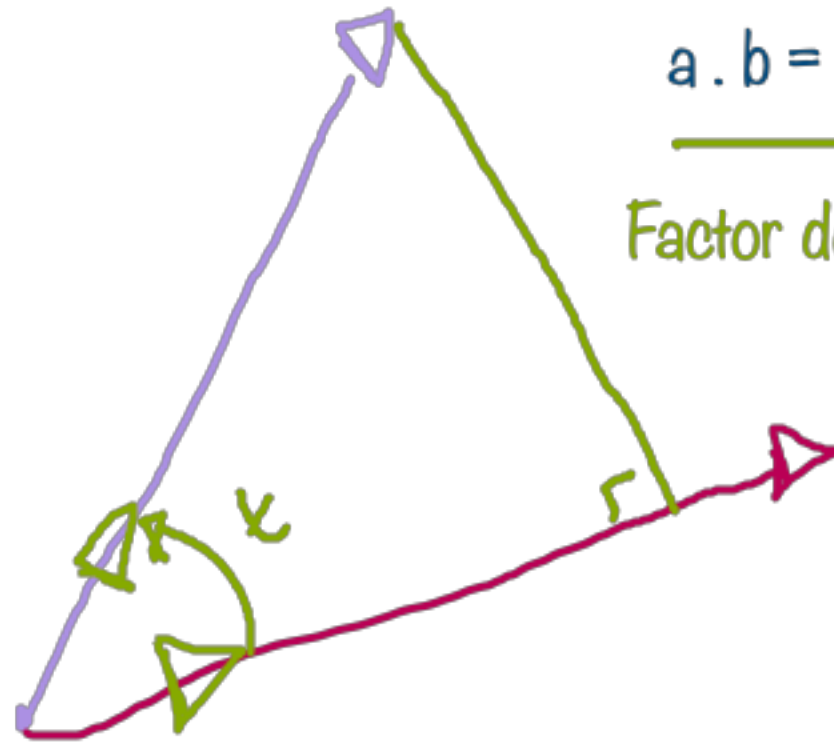


Resta de Vectores

$$a - b = (0, -1, -2)$$

$$b - a = (0, 1, 2)$$





$$a \cdot b = \cos(\theta) |a| |b|$$

Factor de ortogonalidad

Vector Fila (1, 2, 3)

Vector Columna $\begin{pmatrix} 1 \\ 2 \\ 3 \end{pmatrix}$

$$2x + 3y + 12z = 31$$

$$x + y + 2z = 9 \checkmark$$

$$2x + 3z = 7 \checkmark$$

Depe va a la tienda y compra 2 paletas 3 chocolates y 12 chicles gastando 31 pesos,

luego vuelve a ir y compra una paleta un chocolate y dos chicles y gasta 9 pesos. Si al final va Luis a la misma tienda y compra dos paletas y tres chicles y gasta 7 pesos. ¿Cuánto cuesta cada cosa?

$$\begin{pmatrix} 2 & 3 & 12 \\ 1 & 1 & 2 \\ 2 & 0 & 3 \end{pmatrix} \begin{pmatrix} x \\ y \\ z \end{pmatrix} = \begin{pmatrix} 31 \\ 9 \\ 7 \end{pmatrix}$$

$$Ax = b$$

$$x = A^{-1} b$$

$$\text{VF} \quad \text{VC} \quad \begin{pmatrix} 1 & 2 \\ 2 & 1 \end{pmatrix} \begin{pmatrix} x \\ y \end{pmatrix} = 1 \quad \begin{pmatrix} x \\ y \end{pmatrix}$$

$$\begin{pmatrix} x & y \end{pmatrix} \begin{pmatrix} x+2y \\ 2x+y \end{pmatrix} = x^2 + 2xy + 2xy + y^2$$

$$1 = x^2 + 4xy + y^2$$

$$\left[\begin{array}{c} (1 \ 2 \ 3) \\ \underbrace{\hspace{1.5cm}}_{X^c} \\ X^T \end{array} \right] \left[\begin{array}{c} \downarrow \\ \left(\begin{array}{ccc} 1 & 3 & 5 \\ 4 & 5 & 6 \\ 7 & 9 & 11 \end{array} \right) \underbrace{\hspace{1.5cm}}_{\Delta} \\ X \end{array} \right] \left[\begin{array}{c} \left(\begin{array}{c} 1 \\ 2 \\ 3 \end{array} \right) \\ \underbrace{\hspace{1.5cm}}_{X^F} \end{array} \right] = \begin{array}{c} \boxed{1} \\ \Delta \\ y \end{array} ?$$

$$\begin{pmatrix} \boxed{a \ b \ c} \\ \boxed{d \ e \ f} \end{pmatrix} \begin{pmatrix} \boxed{x} \\ \boxed{y} \\ \boxed{z} \end{pmatrix} = \begin{pmatrix} 0 \\ 0 \end{pmatrix}$$

$\textcircled{2} \times \textcircled{3} \quad \textcircled{3} \times \textcircled{1} \quad \textcircled{2} \times \textcircled{1}$

The diagram illustrates the compatibility of dimensions for matrix multiplication. The first matrix is 2 rows by 3 columns (2x3), the second is 3 rows by 1 column (3x1), and the result is 2 rows by 1 column (2x1). Blue lines connect the inner dimensions: the 3 from the first matrix's columns to the 3 from the second matrix's rows, the 2 from the first matrix's rows to the 2 from the result's rows, and the 1 from the second matrix's columns to the 1 from the result's columns.