

Diagram illustrating the matrix multiplication $y_{m \times 1} = A_{m \times n} x_{n \times 1}$.

- $y_{m \times 1}$ (Observations): A column vector of size $m \times 1$, represented by a vertical stack of four red squares.
- $A_{m \times n}$ ($m \ll n$): A matrix of size $m \times n$, represented by a grid of blue squares with red borders. The grid has 4 rows and 6 columns, with a vertical ellipsis in the third column and a horizontal ellipsis in the fourth row.
- $x_{n \times 1}$ (K -sparse): A column vector of size $n \times 1$, represented by a vertical stack of four squares. The top and bottom squares are green, and the middle two are white, with a vertical ellipsis between them.

The equation is represented as $y = A x$.