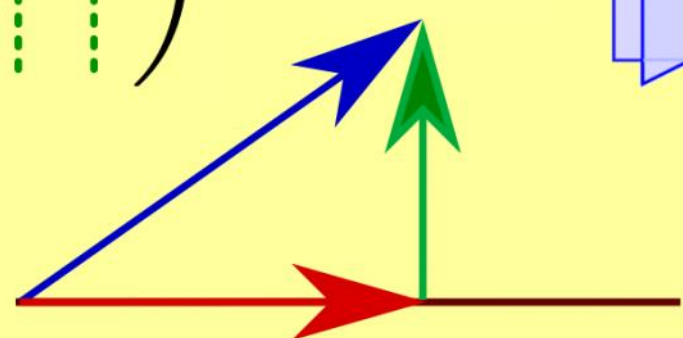
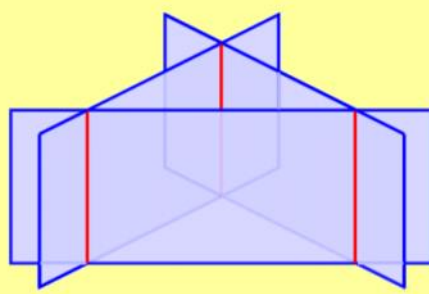
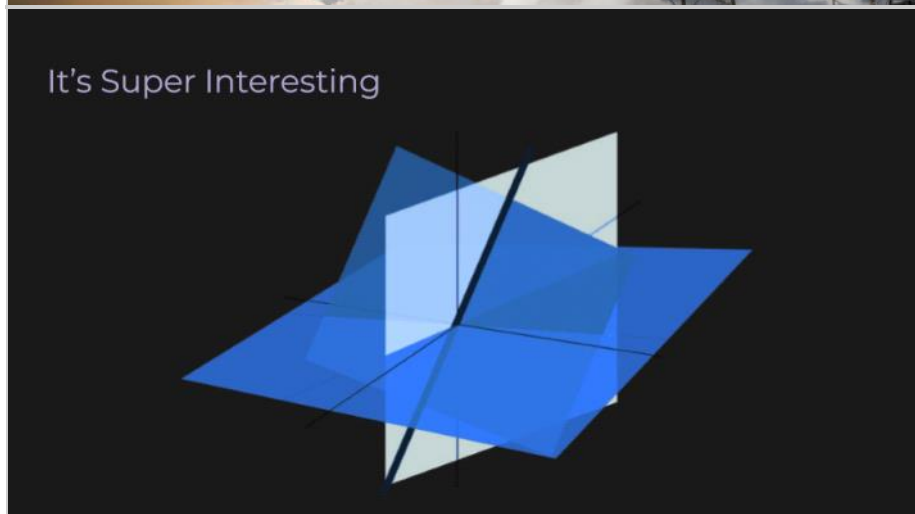
 Linear Algebra $\rightarrow 1$

$\left(\begin{array}{c} \vdots \\ \vdots \\ \vdots \end{array} \right) \mathbb{R}^n$





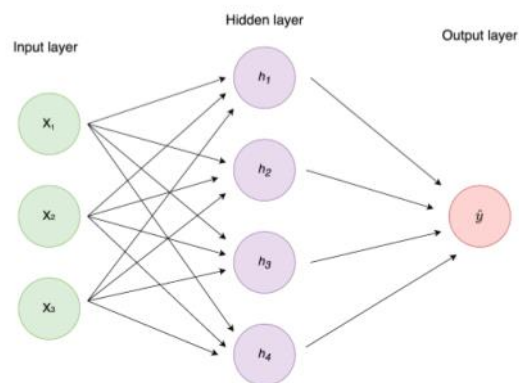
vectors?
matrices?
eigenvalues?...



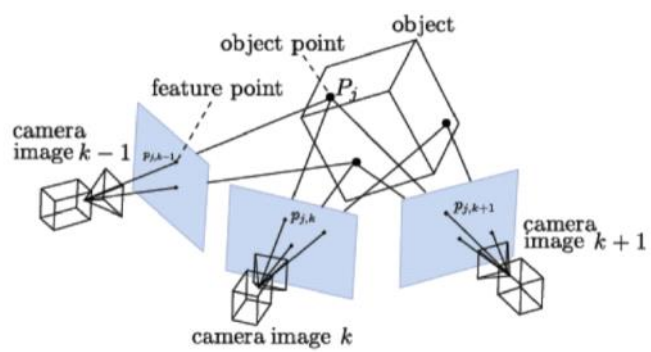
It's Everywhere



Artificial Intelligence

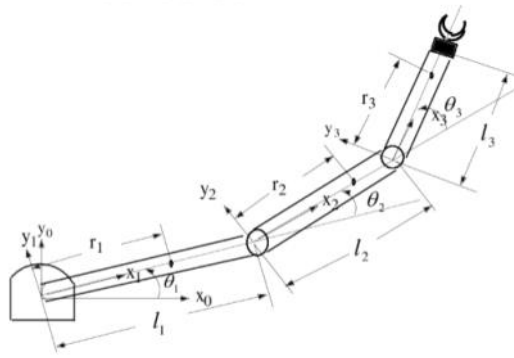


Computer Vision



Robotics

$$M(q)\ddot{q} + h(\dot{q}, q) + g(q) = F(t)$$



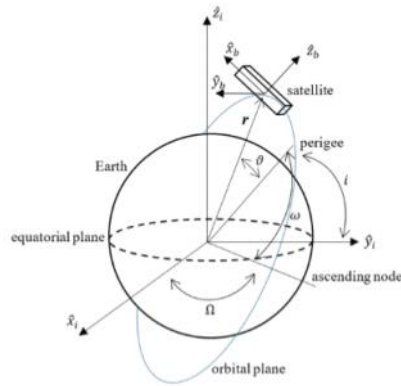
Computer Graphics and Game Dev



Finance



Aircraft and Spacecraft Control



Linear Algebra in Computer Science

Last Updated : 5 Aug, 2025



Linear algebra is a core mathematics discipline that has a fundamental role in many areas of computer science. It forms the mathematical foundation for numerous algorithms and methods used in fields such as computer graphics, machine learning, data analysis, and more. Linear algebra deals with vectors, matrices, and linear transformations - all essential tools for expressing and manipulating data, solving equations, and calculating geometric transformations.

Applications of Linear Algebra for CS

Computer Graphics



Cryptography



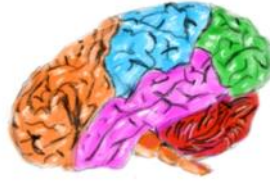
Machine Learning



Computer Vision



Differential Equations



Applications Definition Examples

Differential equations are mathematical equations that describe how a variable changes over time. They can be used to model a wide range of phenomena in the real world, such as the spread of diseases, the movement of celestial bodies, and the flow of fluids.

