

Eigenvalues and Eigenvectors

In linear algebra, eigenvalues and eigenvectors are fundamental concepts used in various applications, including systems of differential equations, stability analysis, and data analysis.

Definitions:

- **Eigenvalue:** A scalar λ such that there exists a non-zero vector v (called an eigenvector) which satisfies the equation $A \cdot v = \lambda \cdot v$, where A is a square matrix.
- **Eigenvector:** A non-zero vector v that, when multiplied by the matrix A , results in a scalar multiple of itself. The scalar multiple is the eigenvalue.

Docker

Docker is a software platform that allows you to build, test, and deploy applications quickly. Docker packages software into standardized units called [containers](#) that have everything the software needs to run including libraries, system tools, code, and runtime. Using Docker, you can quickly deploy and scale applications into any environment and know your code will run.

Running Docker on AWS provides developers and admins a highly reliable, low-cost way to build, ship, and run distributed applications at any scale.

Recent announcements: Docker collaborates with AWS to help developers speed delivery of modern apps to the cloud. This collaboration helps developers use Docker Compose and Docker Desktop to leverage the same local workflow they use today to seamlessly deploy apps on Amazon ECS and AWS Fargate. Read the [blog](#) for more information.



How Docker works

Docker works by providing a standard way to run your code. Docker is an operating system for containers. Similar to how a [virtual machine](#) virtualizes (removes the need to directly manage) server hardware, containers virtualize the operating system of a server. Docker is installed on each server and provides simple commands you can use to build, start, or stop containers.

AWS services such as [AWS Fargate](#), [Amazon ECS](#), [Amazon EKS](#), and [AWS Batch](#) make it easy to run and manage Docker containers at scale.

What is containerization?

Containerization is a software deployment process that bundles an application's code with all the files and libraries it needs to run on any infrastructure. Traditionally, to run any application on your computer, you had to install the version that matched your machine's operating system. For example, you needed to install the Windows version of a software package on a Windows machine. However, with containerization, you can create a single software package, or [container](#), that runs on all types of devices and operating systems.