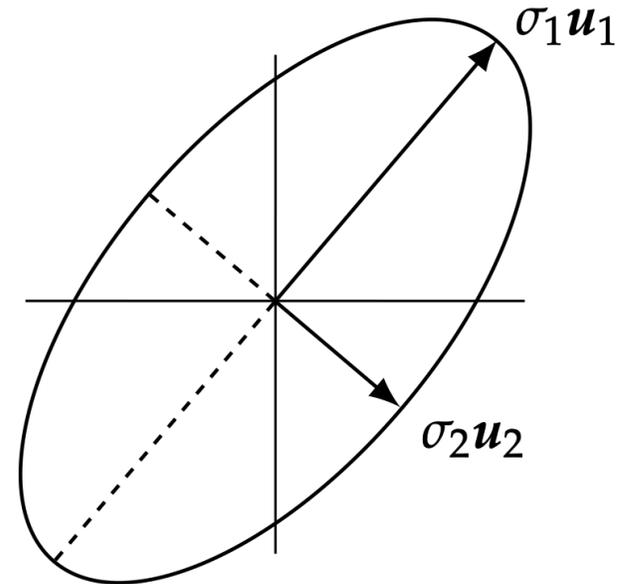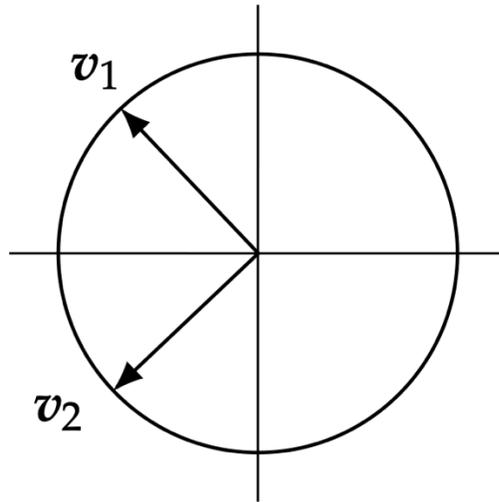# Math Recap

Jonas Hübotter
20.02.2026

Matrix Algebra and Geometric Constructs

Inner and Outer Products

Singular Value Decomposition

Singular Value Decomposition: Geometric Interpretation

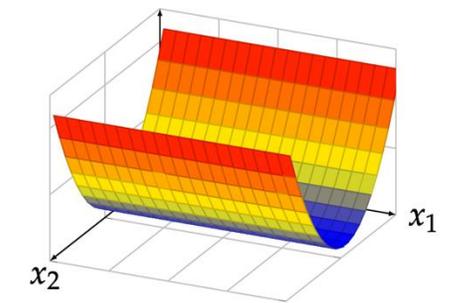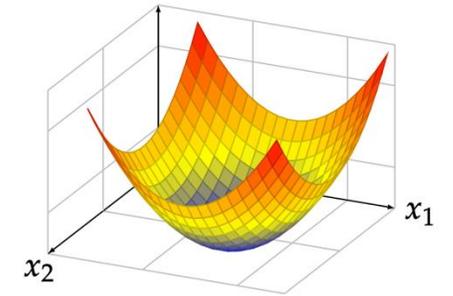# Singular Value Decomposition: Illustration

Orthogonal Projections

Orthogonal Projections: Continued

Eigenvalues, Eigenvectors

Quadratic Forms

Multivariate Derivatives

Chain Rule

Taylor Expansion and Second-order Derivatives

Random Variables, Distributions and Densities

Joint Distributions

Marginal Distributions

Conditional Distributions and Independence

Expected Value