Essential Maths & Statistics for Machine Learning with MATLAB

Course Duration: 02 Days (16 hours)

Course Objectives

Learn the basics of Linear Algebra and statistical methods in MATLAB. Use matrix methods to analyze and solve linear systems. You can also extract information from data using descriptive statistics and data fitting.

Course Modules

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Module 01: Introduction to Linear Algebra

Familiarize yourself with linear algebra and the course.

Lessons:

- Linear Algebra Overview

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Module 02: Solving Systems of Linear Equations

Reorganize systems of linear equations into matrix form and solve.

Lessons:

- Linear Equations and Systems
- Preparing Systems
- The Backslash Operator
- Limitations
- Review - Solving Systems of Linear Equations

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Module 03: Eigenvalue Decomposition

Calculate the eigenvalues and eigenvectors of a matrix.

Lessons:

- Eigenvalues and Eigenvectors of a Matrix
- Calculating Eigenvalues and Eigenvectors

- Review - Eigenvalue Decomposition

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Module 04: Singular Value Decomposition

Calculate the singular value decomposition of a matrix.

Lessons:
- Calculating the Singular Value Decomposition
- Matrix Approximation
- Review - The Singular Value Decomposition

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Module 05: Introduction to Statistics

Familiarize yourself with statistical analysis and the course.

Lessons:
- Statistics Overview

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Module 06: Exploring Data

Introduction to descriptive statistics and data distributions.

Lessons:
- Visualizing Data Sets
- Measures of Centrality and Spread
- Distributions
- Review - Exploring Data

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Module 07: Fitting a Curve to Data

Fit linear and nonlinear models to data.

Lessons:
- Linear Regression
- Evaluating Goodness of Fit
- Nonlinear Regression
- Review - Fitting a Curve to Data

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Module 08: Interpolating Data

Interpolate values from a data set.

Lessons:
- Linear Interpolation
- Nonlinear Interpolation
- Review – Interpolation

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