ML Study Plan: Math + Practical Coding

This 6-week plan combines theory from the 'Mathematics for Machine Learning' book with hands-on coding using the YouTube playlist 'Machine Learning: Teach by Doing'.

Week 1: Introduction & Linear Algebra Basics

Math Topics:

- Mathematics for Machine Learning - Chapter 1: Introduction
- Chapter 2: Linear Algebra Basics (Vectors, Matrices, Operations)

Practice Videos:

- Video #1: Introduction to Machine Learning
- Video #2-3: Basic Python for ML & Matrix Operations

Week 2: More Linear Algebra & Intro to Calculus

Math Topics:

- Chapter 3: Matrix Multiplication and Properties
- Chapter 4: Calculus - Functions and Derivatives

Practice Videos:

- Video #4-5: Implementing Matrix Multiplication & Vector Operations
- Video #6: Introduction to Gradients & Derivatives

Week 3: Probability & Statistics Foundations

Math Topics:

- Chapter 5: Probability Theory Basics

Practice Videos:

- Video #7-8: Probability Concepts in ML
- Video #9: Exploratory Data Analysis (EDA) with Python

Week 4: Gradient Descent & Simple Models

Math Topics:

- Chapter 6: Optimization and Gradient Descent

Practice Videos:

- Video #10-12: Implementing Gradient Descent & Linear Regression

Week 5: Multivariate Calculus & More Complex Models

Math Topics:

- Chapter 7: Multivariate Calculus

Practice Videos:

- Video #13-15: Logistic Regression & Classification

Week 6: Model Evaluation & Tuning

Math Topics:

- Chapter 8: Probability Distributions & Model Evaluation Metrics

Practice Videos:

- Video #16-18: Model Evaluation, Accuracy, Precision, Recall

Additional Resources

- Mathematics for Machine Learning Book

- Machine Learning: Teach by Doing Playlist