

Welcome to ineuron.ai



Mathematics for Machine Learning

Description:

This course suits for students who want to know the application of mathematics in Machine Learning and also for the working professionals who want to know the mathematical framework behind the machine learning algorithms.

Start Date:

Doubt Clear Time:

Course Time:

Features:

Assignment

Quiz

Downloadable Resources

Completion Certificate

What we learn:

- # Vectors Operations
- # Matrix Operations
- # Eigen Decomposition
- # Applications of Eigen Decomposition
- # Differentiation
- # Partial Differentiation
- # Regression Project
- # Integration
- # Practical Implementations

Requirements:

- # Prior knowledge in Maths
- # System with Internet Connection
- # Interest to learn
- # Dedication
- # Basics of Python

Instructor:

Name:

Bharath J P V

Description:

Enthusiast Data Scientist with a strong background in Mathematics and Statistics. Completed My Master in Statistics. Have experience teaching Mathematics and Statistics for more than a year. I taught for more than 1000 students and helped them make their careers in their respective fields. I believe in

"we rise by lifting others". Following this principle, I hope to make your life easier.

>Introduction:

- >>Course introduction

- >>Who is this course for?

- >>Course overview

- >>Course outcome

>Linear Algebra:

- >>Introduction to Linear Algebra

- >>Vectors, Matrices & Tensors

>Vector Operations:

- >>Transposition and Norm of a Vector

- >>Dot Product

- >>Dot Product with Itself

- >>Orthogonal Vectors

- >>Projection of Vectors

- >>Line, Plane and Hyperplane

>Matrix:

- >>Transposition of Matrix

- >>Arithmetic Operation

>>Hadamard Operations and Reduction of Matrix

>>Hands-on Code demo with Python

>>Solving system of Linear Equations

>>Types of Solutions

>>Plotting Equation

>>Hands-on Plotting equations

>>Matrix Norms and Properties

>>Linear Transformation

>>Matrix Multiplication

>>Matrix Inversion

>>Identity Matrix

>>Diagonal Matrix

>>Symmetric Matrix

>>Determinant of a Matrix

**>Eigen Vectors and Eigen
Values:**

>>Eigen Vectors and Eigen Values

>>Properties of Eigen Values

>>Eigen Decomposition

**>Matrix Operations in Machine
Learning:**

>>Affine Transformations

>>Singular Vector Decomposition

>>Image Compression

>>Moore-Penrose Pseudoinverse

>>Application of Pseudoinverse

>>Principle Component Analysis

>Limits:

>>Introduction, tangent and Slope

>>Infinitesimals and Area under Curve

>>Limits

>Differential Calculus:

>>Rate of change and Slope as a Variable

>>Differential Calculus

>>Differentiation using Delta Method

>>Standard Differentiation rules

>>Sum, Product and Quotient rule

>>Chain rule

>>Higher order Derivatives

>>Application of Derivatives

>>AutoDiff using PyTorch and Tensorflow

>>Partial Derivatives

>>Partial Derivatives using Pytorch and TensorFlow

>>Application of Partial Derivatives

>>Chain rule for Partial derivatives

>>Regression Project Theory

>>Hands-on Regression Project

>>Gradient of Point Regression

>>Gradient of Group Regression

>Integral Calculus:

>>Introduction to Integral Calculus

>>Standard Integrals and Integration Rules

>>Indefinite and Definite Integrals

>>Area under Curve(AUC) Using scikit-learn

>>Receiver Operating Characteristic(ROC) curve

>>Hands-on ROC AUC