

Machine Learning Techniques

Introduction

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IIT Madras

- 1 Introduction
- 2 ML Applications
- 3 Teaching Philosophy

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Introduction

In this course:

- Machine learning algorithms from a theoretical perspective.
- Implement them from scratch.

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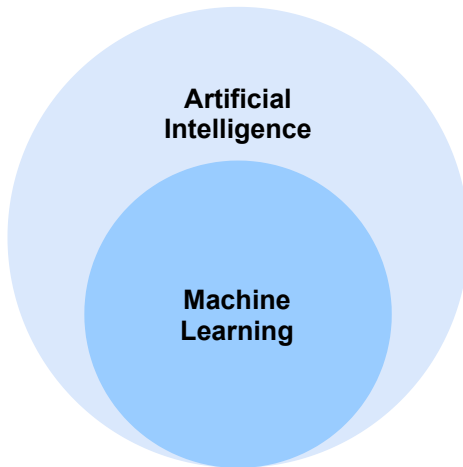
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ML and AI



Topics of the course

In this course, we will study many popular ML algorithms like

- Linear Regression
- Logistic Regression
- Decision Trees
- Support Vector Machines
- Neural Networks
- K-means clustering

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Application domains of ML

ML is widely used in different domains like:

- Communication and search technologies.
- E-Commerce
- Finance
- Fashion
- Manufacturing
- Health Science
- Wildlife conservation.
- Agriculture

ML in daily life

- Search Engines



DuckDuckGo



Image Source: <https://wildstonesolution.com/top-search-engines/>

ML in daily life

- Product recommendation

Frequently Bought Together



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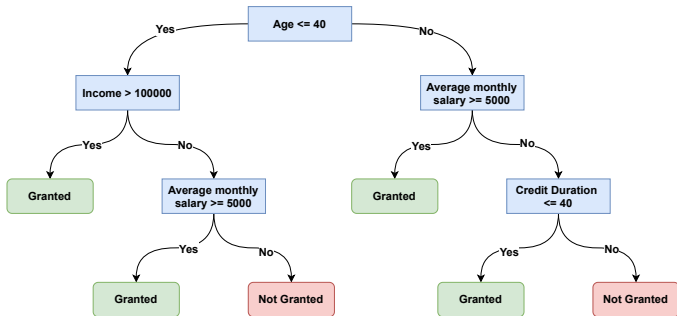
ML in daily life

- Social networks



Image Source:Whatmobile.net

- Loan approval



- Stock market prediction



Image Source: KDNuggets

- Fashion



Image Source: Tryon Jewellery



Image Source: [Mirrar.com](https://www.mirrars.com)

- Manufacturing



Image Source: Forbes

- Protein folding

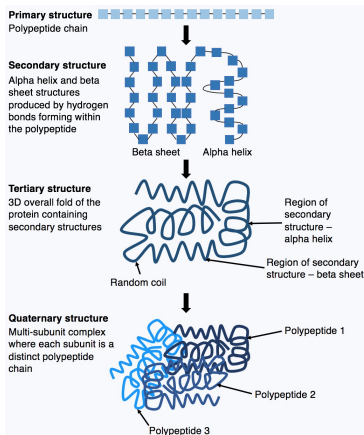


Image Source: Wikipedia Commons

- Detecting poachers and wild animals



Image Source: WildLabs

- Detecting illegal wood cutting from sound recording

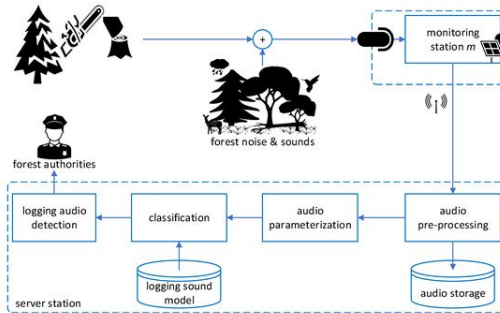


Image Source: MDPI

- Agriculture



Image Source: TheGeoSpatial.in

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ML Modular Approach

- ① Training Data
- ② Model
- ③ Loss Function
- ④ Optimization Technique
- ⑤ Evaluation

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- ② Mathematical aspect
- ③ Implementation

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- Practice questions and programming exercises after each video or module.
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