Startup Uttarakhand

TECHNO HUB LABORATORIES

#startupindia

Techno Hub
Machine Learning

About Course

Machine Learning

Machine learning is a subfield of artificial intelligence that involves the development of algorithms and statistical models that enable computers to improve their performance in tasks through experience. These algorithms and models are designed to learn from data and make predictions or decisions without explicit instructions. There are several types of machine learning, including supervised learning, unsupervised learning, and reinforcement learning. Supervised learning involves training a model on labeled data, while unsupervised learning involves training a model on unlabeled data. Reinforcement learning involves training a model through trial and error. Machine learning is used in a wide variety of applications, including image and speech recognition, natural language processing, and recommender systems.

Machine learning is programming computers to optimize a performance criterion using example data or past experience. We have a model defined up to some parameters, and learning is the execution of a computer program to optimize the parameters of the model using the training data or past experience. The model may be predictive to make predictions in the future, or descriptive to gain knowledge from data.
The field of study known as machine learning is concerned with the question of how to construct computer programs that automatically improve with experience.

In supervised learning, the algorithm is trained on labeled data, meaning that the correct output is already provided for each example in the training data. The algorithm then makes predictions on new, unseen data based on the patterns it learned from the training data. In unsupervised learning, the algorithm is given unlabeled data and must find patterns and relationships within the data on its own. Another categorization of ML algorithms is based on the type of output they produce, such as regression (predicts a continuous value) and classification (predicts a discrete label).
Machine learning is used in a variety of applications, including image and speech recognition, natural language processing, recommendation systems, and self-driving cars.

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COURSE CONTENT

Module 1: Introduction

- ✓ Machine Learning-Overview
- ✓ Python and ML Frameworks
- ✓ Linear Algebra
- ✓ Example: Curve Fitting
- ✓ Probability Theory
- ✓ Numerical Computation
- ✓ Decision-Theory
- ✓ Information Theory

Module 2: Probability Distribution

- ✓ Discrete Distributions
- ✓ Gaussian Distribution
- ✓ Gaussian Bayesian Networks

Module 3: Linear Models for Regression

- ✓ Regression with Basis Functions
- ✓ Gradient Descent
- ✓ Bias-Variance
- ✓ Bayesian Regression
- ✓ Bayesian Model Comparison
- ✓ Evidence Approximation
- ✓ Example: Computer Science Ranking

Module 4: Linear Models for Classification

- ✓ Overview
- ✓ Discriminant Functions
- ✓ Probabilistic Generative Models
- ✓ Probabilistic Discriminative Models
- ✓ Fixed Basis Functions
- ✓ Logistic Regression
- ✓ Iterative Reweighted Least Squares
- ✓ Multiclass Logistic Regression
- ✓ Probit Regression
- ✓ Canonical Link Functions
- ✓ Laplace Approximation
- ✓ Bayesian Logistic Regression
- ✓ Variational Bayesian Logistic Regression

Module 5: Neural Networks

- ✓ Biology
- ✓ Feed-forward Network Functions
- ✓ Network Training
- ✓ Backpropagation
- ✓ The Hessian Matrix
- ✓ Regularization in Neural Networks
  - ✓ Norm Penalty: Bayesian Interpretation
  - ✓ Convolutional Networks
  - ✓ Soft Weight Sharing
- ✓ Mixture Density Networks
- ✓ Bayesian Neural Networks
- ✓ Deep Learning Overview
- ✓ Deep Learning

Module 6: Kernel Methods

- ✓ Kernel Methods
- ✓ Radial Basis Function Networks
- ✓ Gaussian Processes

Module 7: Sparse Kernel Machines

- ✓ Support Vector Machines
- ✓ SVM for Overlapping Distributions
- ✓ Multiclass SVMs
- ✓ Relation to Logistic Regression

Module 8: Probabilistic Graphical Methods

- ✓ Probabilistic Graphical Methods

Module 9: Mixture Models and EM

- ✓ Unsupervised Learning
- ✓ K-means Clustering
- ✓ Gaussian Mixture Models
  Latent Variable View of EM
- ✓ Bernoulli Mixture Models
- ✓ Theoretical Basis of EM

Module 10: Approximate inference

- ✓ Approximate Inference
- ✓ Variational Inference
- ✓ Variational Mixture of Gaussians

Module 11: Sampling Methods

- ✓ Need for Sampling
- ✓ Basic Sampling Methods
- ✓ Markov Chain Monte Carlo Sampling
- ✓ Gibbs Sampling

The written course content is only a highlight we provide much more than mentioned .

COURSE CONTENT

Module 12: Continous Latent Variables

- ✓ Principal Components Analysis
- ✓ Nonlinear Latent Variable Models

Module 13: Sequential Data

- ✓ Markov Models
- ✓ Hidden Markov Models
  - ✓ Maximum Likelihood for the HMM
  - ✓ The forward-backward algorithm
  - ✓ Extensions to HMMs
- ✓ Linear Dynamical Systems
- ✓ Conditional Random Fields

Module 14: Combining Modules

- ✓ Combining Models
- ✓ Bagging
- ✓ Boosting
- ✓ Tree Models
  - ✓ Decision Trees
  - ✓ Learning Trees
- ✓ Random Forests

Module 15: Reinforcement Learning

- ✓ Reinforcement Learning Overview
- ✓ The Learning Task
- ✓ Q-Learning
- ✓ Nondeterministic Q-Learning
- ✓ Temporal Difference-Learning
- ✓ RL-General Formulation
- ✓ Multi-armed Bandits
- ✓ Markov Decision Process
- ✓ Deep Reinforcement Learning

The written course content is only a highlight we provide much more than mentioned .

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COURSE DETAILS

3 Months

Fees - 30,999 RS

- ✓ Kit will be provided but you can not take it home after completetion of course.
- ✓ Live field internship
- ✓ Major project development
- ✓ Write & Publish Research Paper in International Journal
- ✓ Paper presentation in National/International conference.

6 Months

Fees - 41,000 RS (with Kit)

- ✓ You can take your kit home
- ✓ Live field internship
- ✓ Major project development
- ✓ Write & Publish Research Paper in International Journal
- ✓ Paper presentation in National/International conference.
- ✓ 1 month revision course anytime in 2 years

No extra charges will taken for the mentioned services apart from the course fees. We are here to help students, not to eat their money, we want to promote technology education .

COURSE DETAILS

Scheme for students with financial issues:

There are some students who are unable to do courses like these due to financial issues, so for them we have a scheme that will help them to pursue these courses and make their career.

• Course Loan

We will offer a course loan with 0 interest which the student can repay after the completion of the course , this loan scheme is applicable for both 3 months as well as 6 months courses . No interest will be charged when the student comes to repay the loan .
For more information please call or whats app on our helpline +91 9997030409 .

• Equal Monthly Installments

Apart from the loan scheme we also have a system of equal monthly installments (EMI) .
In this the student with a very minimum down payment can pay an equal amount per month for a duration of 3 months or 6 months . No interest will be charged on the EMIs .
This scheme is applicable for both the 3 months and 6 months course .
For more information please call or whats app on our helpline +919997030409 .

• Course Group Mutual Funds

In this scheme, if a students come in a group , like in a group of 3 students or 5 students or 10 students, then based on the size of the group there will be exclusive discount per student. This scheme is applicable for 3 months and 6 months course.
For more information please call or whatsapp on our helpline +919997030409 .

Note : We are always there to help students and build a better future .

COURSE DETAILS

Delivery of the Course :

- **Online Mode**

If the student is unable to reach our location , we will deliver the course in an online mode. The student will get his / her kit by courier and the rest of things will remain the same.

- **Offline Mode**

Techno Hub Laboratories will not deliver the course by displaying slides on a power point presentation. Techno Hub Laboratories has a state of the art Laboratory which is equipped with latest equipments, so the student will do the entire course hands on which will make a student unstoppable in the industry.

Why learn from us?

Techno-hub laboratories is a recognized woman led start-up based in Uttarakhand. Education, Environment and Technology are our focus areas. We have a core team of young professionals who are committed to quality and excellence. We have been engaged in conducting a lot of online professional courses around our core areas of expertise. We have a large number of technology experts from Industry as well as academia associated with us to make these workshops really effective.

:3 July 2022

Techno Hub wins SDG - 9 Award by CM Pushka Singh Dhami Ji

Centre for Public Policy and Good Governance (CPPGG), Department of Planning, Govt. of Uttarakhand in collaboration with UNDP Organised Uttarakhand's First SDG Goalkeeper Awards. The intend of this initiative is to recog...

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23 July 2022

Drone Developed by Techno Hub to transport medicines payload 2 kg

Techno Hub has developed a drone that can carry medical assets of a maximum payload 2 kg .

Continue Reading

Our founder director Dr. Reema Pant brings about 30 years of experience in the field of teaching, learning and research. The core group and advisers of Techno-hub are distinguished academicians, industry experts, and nationally and internationally renowned people of repute.

Techno Hub Laboratories is recognized by Startup India , Startup Uttarakhand . Techno Hub Laboratories has won the SDG – 9 Goalkeeper by Government of Uttarakhand for Industry and Innovation excellence .

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TECHNO HUB LABORATORIES

Features

- Professional Mentor
- High Quality Courses
- Teams and Training Room
- Modern Learn Methods

Interested to Joining Register Now !

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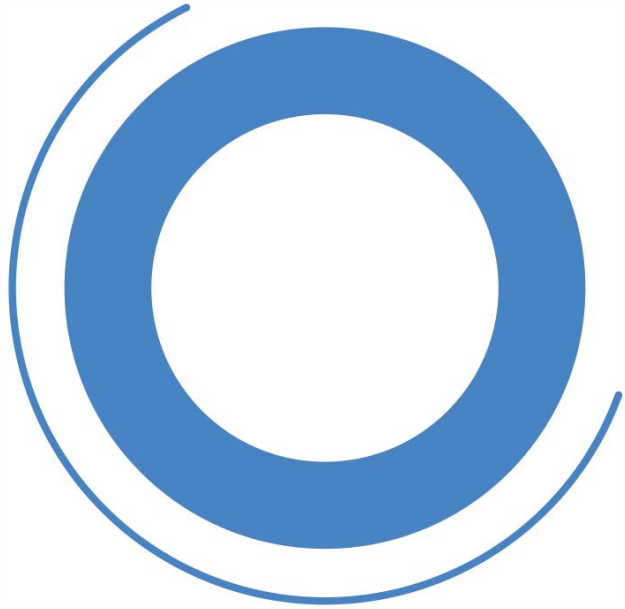
Techno Hub
Training & Internships



CONTACT US !

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