



CERTIFICATE PROGRAM

Course on Machine Learning

Online Self Paced Course | 45+ Hours of Training



CloudxLab & Course

At Cloudxlab, we are building one of the best gamified learning environments to make technology learning fun and for life. More than 50,000 users across the world have been benefited by our signature courses on Machine Learning and Big Data. Our vision is to upskill people on high-end technologies like Deep Learning, Machine Learning, Big Data and make them employable.

Every domain of computing such as data analysis, software engineering, and artificial intelligence is going to be impacted by Machine Learning. Therefore, every engineer, researcher, manager or scientist would be expected to know Machine Learning.

So naturally, you are excited about Machine learning and would love to dive into it. This course is designed for those who want to gain hands-on experience in solving real-life problems using machine learning. After finishing this specialization, you will find creative ways to apply your learning to your work.



Sandeep Giri

Founder at CloudxLab

About E&ICT Academy, IIT Roorkee

E&ICT Academy, IIT Roorkee provides training programs with an emphasis on hands-on learning in basic/advanced topics and emerging technologies. Then project is sponsored by the Ministry of Electronics and Information Technology, Govt. of India. E&ICT courses are at par with QIP for recognition/credits.

The programs are conducted by well-known industry partners, researches and experts from leading academic and renowned R&D organizations. For this, the Academy has signed MoUs with Industry/ R&D partners in different domains, who collaborate and work with them in conducting the training programs. Academy also facilitates the interaction between beneficiaries and industry experts to enable collaboration and finding opportunities for parent institutions.



Sanjeev Manhas

Associate Professor IIT Roorkee

Why CloudxLab



Earn a certificate from E&ICT Academy, IIT Roorkee.



Learn Machine Learning from industry experts and become expert in Machine Learning domain



Online cloud lab for hands-on for real-world experience



Best-in-class support Throughout your learning journey



Lifetime course access



Work on real-world projects.



Interact with the international community of peers via the discussion forum.

Course Creators



Sandeep Giri

Founder at CloudxLab
Past: Amazon, InMobi, D.E.Shaw

Course Developer

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Sanjeev Manhas

Associate Professor,
IIT Roorkee

Course Advisor

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R. Balasubramanian

Professor,
IIT Roorkee

Course Developer

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Partha Pratim Roy

Assistant Professor,
IIT Roorkee

Course Developer

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Abhinav Singh

Co-Founder at CloudxLab
Past: Byjus

Course Developer

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Course Curriculum

1. Introduction to Statistics

Statistical Inference, Types of Variables, Probability Distribution, Normality, Measures of Central Tendencies, Normal Distribution

2. Machine Learning Applications & Landscape

Introduction to Machine Learning, Machine Learning Application, Introduction to AI, Different types of Machine Learning - Supervised, Unsupervised, Reinforcement

3. Building end-to-end Machine Learning Project

Machine Learning Projects Checklist, Frame the problem and look at the big picture, Get the data, Explore the data to gain insights, Prepare the data for Machine Learning algorithms, Explore many different models and short-list the best ones, Fine-tune model, Present the solution, Launch, monitor, and maintain the system

4. Classifications

Training a Binary classification, Performance Measures, Confusion Matrix, Precision and Recall, Precision/Recall Tradeoff, The ROC Curve, Multiclass Classification, Multilabel Classification, Multioutput Classification

5. Training Models

Linear Regression, Gradient Descent, Polynomial Regression, Learning Curves, Regularized Linear Models, Logistic Regression

6. Support Vector Machines

Linear SVM Classification, Nonlinear SVM Classification, SVM Regression

Course Curriculum

7. Decision Trees

Training and Visualizing a Decision Tree, Making Predictions, Estimating Class Probabilities, The CART Training Algorithm, Gini Impurity or Entropy, Regularization Hyperparameters, Regression, Instability

8. Ensemble Learning and Random Forests

Voting Classifiers, Bagging and Pasting, Random Patches and Random Subspaces, Random Forests, Boosting, Stacking

9. Dimensionality Reduction

The Curse of Dimensionality, Main Approaches for Dimensionality Reduction, PCA, Kernel PCA, LLE, Other Dimensionality Reduction Techniques

10. Quizzes, gamified assessments & projects

Projects

1. Predict the median housing prices in California

We start Machine Learning course with this end-to-end project. Learn various data manipulation, visualization and cleaning techniques using various libraries of Python like Pandas, Scikit-Learn and Matplotlib.

2. Classify handwritten digits in MNIST dataset

The MNIST dataset is considered as "Hello World!" of Machine Learning. Write your first classification logic. Starting with Binary Classification learn Multiclass, Multilabel, Multi-output classification and different error analysis techniques.

3. Noise removal from the images

Build a model that takes a noisy image as an input and outputs the clean image.

4. Predict the class of flower in IRIS dataset

IRIS dataset contains 3 classes of 50 instances each, where each class refers to a type of iris plant. The three classes in this dataset are Setosa, Versicolor, and Verginica. Learn Decision Trees, CART algorithm and Ensemble method. Then use Random Forest classifier to make predictions.

5. Predict which passengers survived in the Titanic shipwreck

The sinking of the RMS Titanic is one of the most infamous shipwrecks in history. In this project, you build a model to predict which passengers survived the tragedy.

Projects

6. Predict bikes rental demand

Build a model to predict the bikes demand given the past data.

7. Build a spam classifier

Build a model to classify email as spam or ham. First, download examples of spam and ham from Apache SpamAssassin's public datasets and then train a model to classify email.

Course Details and Fees —

Please find more information about the course and fees here:

<https://cloudxlab.com/course/76/machine-learning-eict-iit-roorkee>

Mode of Learning —

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For Further Details —

Contact us at [+080-4920-2224](tel:+080-4920-2224) or [+1 412-568-3901](tel:+1412-568-3901) or contact:



Aswath Madhu
Program Director

programs@cloudxlab.com



Prakhar Katiyar
Chief Admissions Counsellor

admissions@cloudxlab.com

For Business —

For corporate training and bulk enrollments, write to us at reachus@cloudxlab.com

Headquarters - United States

2035, Sunset Lake Road Suite B-2, 19702
Newark, New Castle
Delaware, United States

R&D Center - India

Issimo Technology Private Limited
#215, Arcade, Brigade Metropolis,
Mahadevpura, Bangalore, India - 560 048