



**CERTIFICATE PROGRAM**

# Artificial Intelligence For Managers

Online Self Paced Course | 20+ Hours of Training



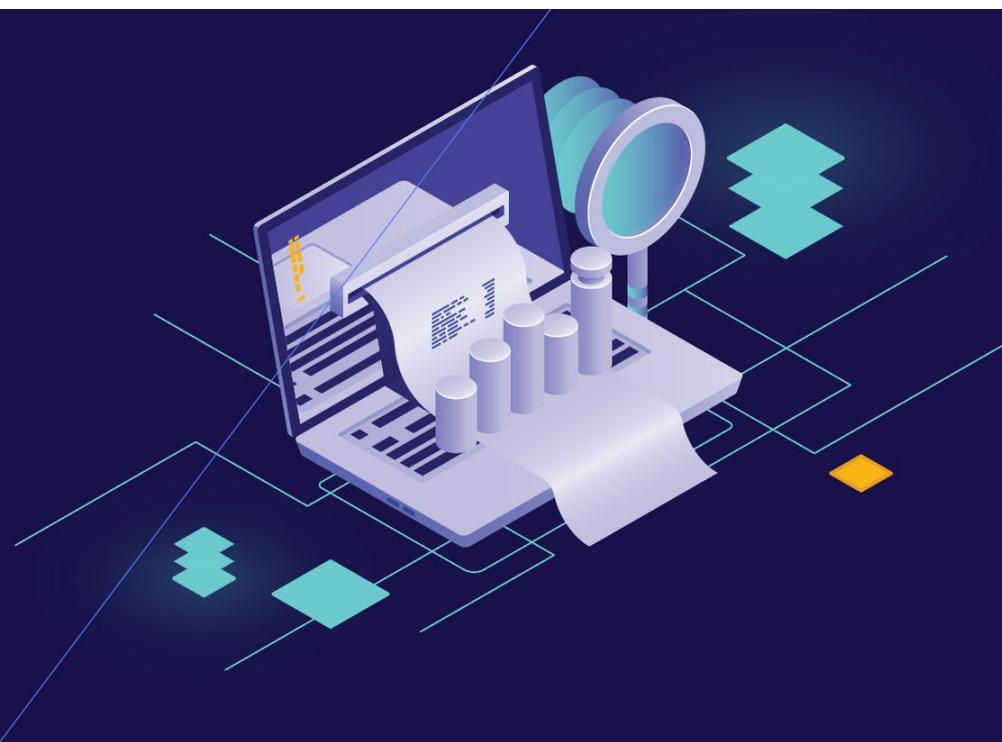
# CloudxLab & Course

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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.

This "AI for Managers" course is designed exclusively for managers (project managers, CXO's, directors, VP's, product managers, senior managers, team leads, etc.) with our unique cloud lab access. The self-paced course equips the managers with the artificial intelligence (AI) and machine learning (ML) tools needed to manage any AI/ML projects/innovations.

The general perception is that we should know a lot of mathematics to learn AI. But after training for 1,000+ hours and solving many business problems using AI, we believe that anybody can learn AI and apply that knowledge at work or, even in our day-to-day life. Furthermore, this course doesn't require any programming knowledge. It will teach you the building blocks of AI using real-world practical examples and case studies.



**Sandeep Giri**

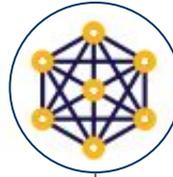
Founder at CloudxLab

# Why CloudxLab

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**Earn a Verified Certificate from CloudxLab**



**Case-study Based Learning**



**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

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## Sandeep Giri

Founder at CloudxLab

Past: Amazon, InMobi, D.E.Shaw

**Course Developer**

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## Abhinav Singh

Co-Founder at CloudxLab

Past: Byjus

**Course Developer**

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## Jatin Shah

Ex-LinkedIn, Yahoo,

Yale CS Ph.D. IIT-B

**Course Advisor**

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## Praveen Pavithran

Co-Founder at Yatis

Past: YourCabs, Cypress Semiconductor

**Course Advisor**

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# Course Curriculum

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## 1. Introduction to AI and Machine Learning

As part of the introduction, we will learn what is AI and the various Components of AI, Machine Learning and Big Data. We will also discuss a wide variety of cases with very humane examples.

- AI and Machine Learning
- Introduction to AI, ML and DL

## 2. Machine Learning Process

In this chapter, we will learn the process of Machine Learning and various important concepts using real life applications. We will start with the basics of Machine learning and by the end, we will be ready to build Machine Learning projects.

- Approach - We will understand the difference between the Machine Learning based approach and traditional approach. We will take a case study of a spam filter for email.
- Types - We will identify and understand the various types of Machine Learning problems, which in turn will help us determine the type of Machine Learning process to use. To achieve this, we will employ 4 case studies. This will be followed up with 5 exercises to ensure that you build a comfort level with these concepts.
- Basics - The next step is to learn the process of a typical Machine Learning project. This can be divided into two phases - "training" and "predicting". We will learn these details by the way of visualizations and examples.

# Course Curriculum

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- Train and Test - Further, we will learn that during the development there are two parts - training and testing. We will learn about various challenges and the common pitfalls in splitting the data, including the many biases involved. This section will include a very basic module on statistics.
- Representing your data - The main role of any manager is to know the data and be able to represent it. Learning how to represent the data for the consumption of an algorithm is the key to solving business problems with data. We will learn how to identify features, instances and labels etc based on four different projects.
- Representing your data - The main role of any manager is to know the data and be able to represent it. Learning how to represent the data for the consumption of an algorithm is the key to solving business problems with data. We will learn how to identify features, instances and labels etc based on four different projects.

## 3. Analytics and Data Sciences

We will learn about cleaning, wrangling, visualizing the data. This chapter will revolve around understanding of Analytics, Statistics and probability. We will also touch upon the important issue of statistical inference.

## 4. End to End Project - Regression

We will build an end-to-end Machine Learning project. For instance, predicting the housing prices in California. We will go through various steps such as: Framing the problem, identifying the type of problem, splitting the data, selecting the performance criteria etc.

# Course Curriculum

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We have built a very simple tool called BootML, which makes it possible to do the end-to-end projects without any know-how of programming language or frameworks. BootML takes input from you in a very user-friendly interface and then generates the entire project.

This will be followed by seven case studies, which you can build using BootML.

## **5. End to End Project - Classification**

We will learn more about classification and the various performance measures for classification like accuracy, confusion matrix, precision/recall and ROC curve. At the end of this chapter, we will build a model to detect breast cancer.

## **6. The underpinnings of ML**

This chapter will go a little deeper into Machine Learning, by focussing on how algorithms work. We will explore the important algorithms and their internal working in simple words using real-life examples without any math or coding.

We will learn Linear Regression, Decision Trees, Neural Networks, Different types of neural networks such as CNN and RNN. We will also learn a great technique called ensemble learning.

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## 7. Challenges in Machine Learning Project

In a typical Machine Learning project, there are various challenges. This chapter covers these difficulties and discusses how to overcome them.

- In a typical Machine Learning project, there are various challenges. This chapter covers these difficulties and discusses how to overcome them.
- Dimensionality Reduction - If there are too many features of every object we need to remove certain features because it would overflow the memory or could take up a long time. This is known as dimensionality reduction - we will learn about various ways of dimensionality reduction in a humane way. Do you know that when we take a photo we are actually converting a 3D object into 2D? That's exactly dimensionality reduction - taking a photo such that the most important information is still retained.
- Data Augmentation - Sometimes we have very few datasets, which poses a major constraint to learning ability of the machine. We can overcome this challenge by generating more data from the existing ones. For example, we can tweak an existing photo to create more versions of it. This is what we call Data Augmentation. We will learn the data augmentation techniques and also understand when to use them and, equally important, when not to use them.
- Transfer Learning - Machine-learning models typically require a lot of data, processing and time. What can we do if we are short on all three resources? This is where the transfer learning technique comes into play where we download an existing brain (neural network), i.e. a pre-trained machine learning process, and adapt it to fit the need. and tweak it to fit the need.

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- Distributed ML - We will also learn how to distribute a process if it is too slow or taking too much of computing resources.

## 8. Unsupervised Machine Learning

In many machine learning examples, we do not have labeled data. Instead, we try to figure out the patterns in the given data.

A typical machine learning project would involve both supervised and unsupervised approaches. We will learn the following topics as part of this chapter. We will learn about the various unsupervised machine learning problems and as well as the appropriate algorithm to use for each problem type. This will be followed up by various case studies and examples.

- Natural Language Processing (NLP) - Natural language processing or NLP is the ability to understand human language. There have been remarkable developments in NLP in the last few years. We will learn about the various forms of natural language processing such as Named Entity Extraction (NER), TFIDF and word embedding.
- Clustering - Charles Darwin created a hierarchy of species based on the features of all the species. This is exactly an example of hierarchical clustering. In this chapter, we will cover the use-cases, types, and algorithms of clustering. We will use various case studies as examples.

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- Recommendation Engine - Recommendations have been at the forefront of Machine Learning. The Netflix competition and Amazon's product recommendations are the most obvious examples of Machine Learning. In most cases, Machine Learning in an organization starts with a recommendation engine.

Recommendation generation is also known as collaborative filtering. We will learn various algorithms, strategies, and tools to create successful recommendations.

We will learn how to measure the performance of a recommendation engine, address the cold start problem and also get our hands dirty with a humongous dataset. We will also address the important issue of when not to use a recommendation engine.

## Course Details and Fees —

Please find more information about the course and fees here:

<https://cloudxlab.com/course/specialization/4/ai-for-managers>

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