Advanced Certification in

Applied Data Science, Machine Learning and AI

Electronics & ICT Academy
Indian Institute of Technology Guwahati
An Initiative of Ministry of Electronics & Information Technology(Meity),

इलेक्ट्रॉनिकी एवं
सूचना प्रौद्योगिकी मंत्रालय
MINISTRY OF
**ELECTRONICS AND
INFORMATION TECHNOLOGY**

Brochure

Duration: **9 Months (240Hrs)**

DS l ML l DL l AI l Generative AI

**Advanced Generative AI & LLMs Are Covered**

In Collaboration With

The IoT Academy
Connecting The Unconnected

About The IIT Guwahati

Indian Institute of Technology Guwahati (IIT Guwahati), the sixth member of the IIT fraternity, was established in 1994. The institute began its academic programmes in 1995. Currently, it comprises eleven departments and three interdisciplinary academic centres, covering major disciplines in engineering, science, and humanities. IIT Guwahati offers BTech, BDes, MA, MDes, MTech, MSc, and PhD programmes.

Within a short span of time, IIT Guwahati has established world-class infrastructure and earned a strong academic reputation.
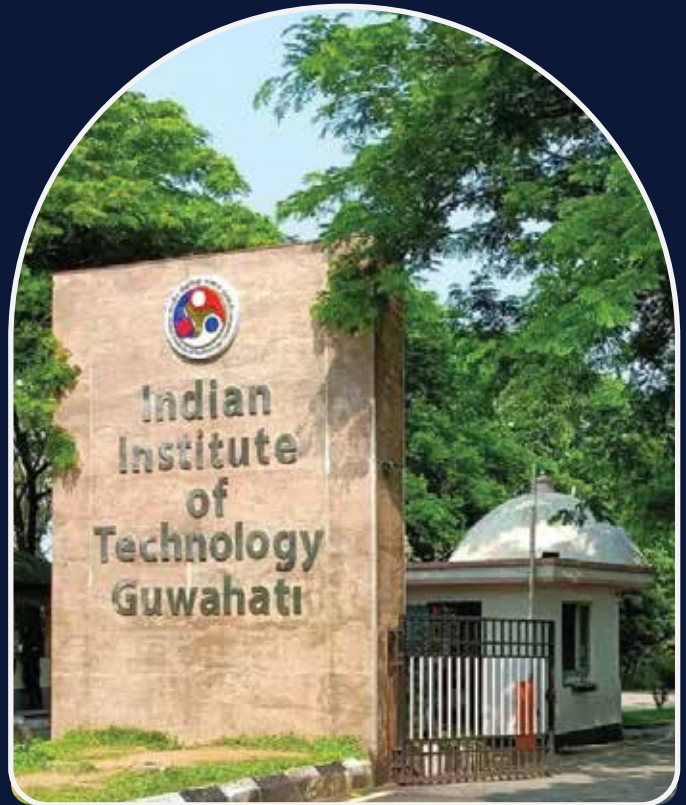
About The E&ICT Academy IIT Guwahati

Electronics and ICT Academy aims to provide specialized training to the faculties and working professionals, Arts, Commerce, Science colleges and polytechnic institutes by developing short term training programmes on fundamental and advanced topics in IT, Electronics & Communication, Product Design, Manufacturing. In addition, the Academy conducts specialized customized training programmes and research promotion workshops for corporate sector & educational

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About **The Program**

Most of the technological advancements in the recent times you see around have an element of Data Science, Machine Learning, AI & Generative AI in it. This 9-month Applied Data Science, Machine Learning & AI course is uniquely designed by E&ICT Academy, IIT Guwahati, and industry leaders, to make you master exactly what the Data Science, Machine Learning & AI jobs market demands. The objective of this certification programe is to perfectly prepare you for the Data Science, Machine Learning & AI job roles you aspire for. You will learn Artificial Intelligence & Data Technologies, AI & Advanced Analytics, Intelligent Systems & Data Science, Machine Intelligence Technologies, AI/ML & Data-Driven Solutions skills through multiple ML, Deep Learning and AI business projects, transforming you into a sought-after New Age DS, ML & AI Specialist.

Integrated with Generative AI & LLMs

| Generative AI Modules & Architecture | Building LLM Applications | Generative AI Tools & Case Studies |

Why Is ML And AI Important?

Data Science, Machine Learning and AI is redefining our way of life, enabling machines to do what people once thought only humans could do. It is also revolutionizing the way we do business. The global ML market is projected to be $44.8B by 2026, growing annually by 43%.

In terms of revenue, the global DS, ML market is projected to exceed value of US $2.8 Bn by 2030. Companies Will Invest Up to $5.8 Trillion in AI by 2028. The Total Economic Impact of AI will range between $6 and $15 Trillion per year by 2030.

- Virtual Personal Assistants
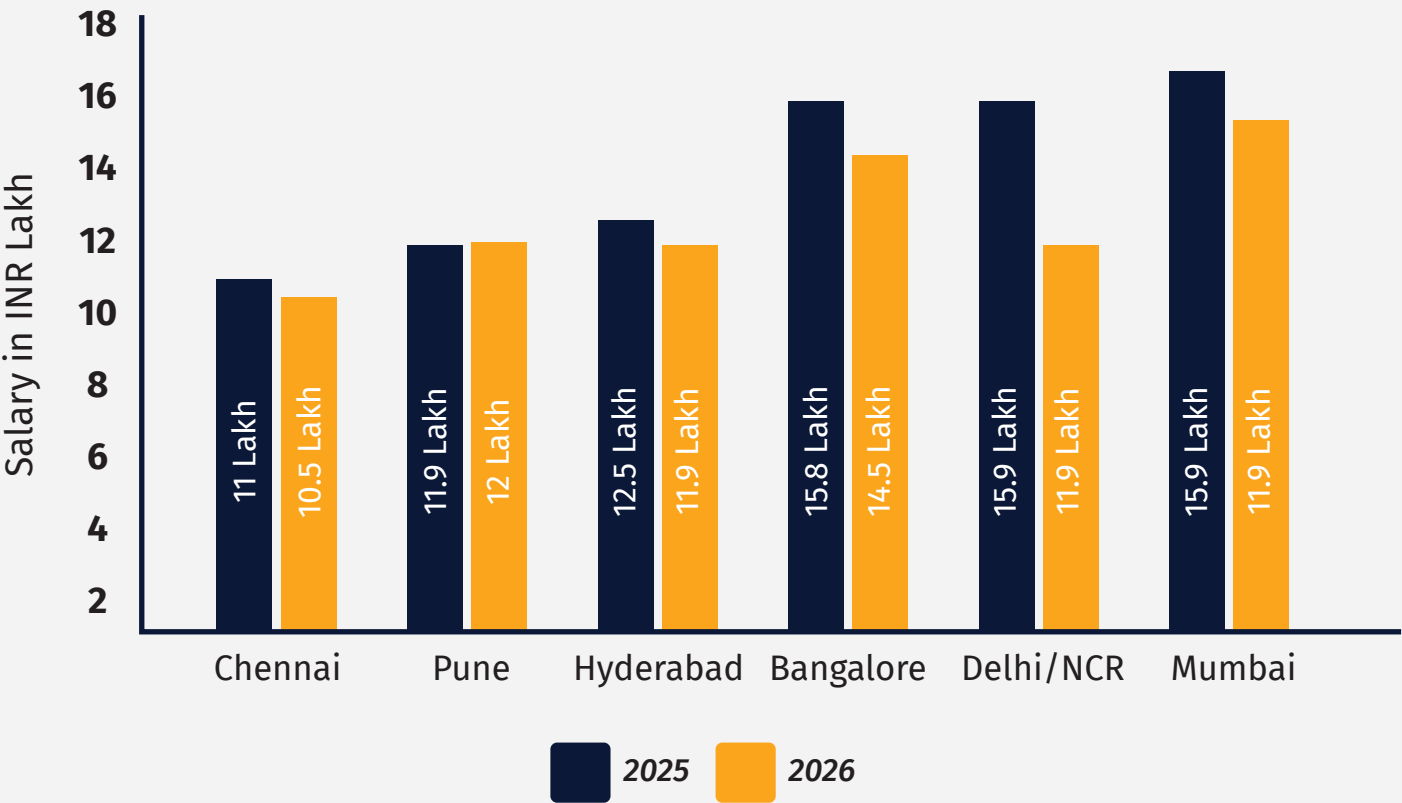- Search Engine Result Refining
- Social Media Services
- Online Fraud Detection
- Email Spam and Malware Filtering
- Product Recommendations

Current Trends In DS, ML AI Job Market

As per Gartner, Data Science Machine Learning and AI will create 23 Lakhs job openings by 2025-26 The average annual salary of an DS, ML-AI Engineer in India is Freshers: Between ₹ 6,99,807-8,91,326 Experienced: Between ₹ 35,00,000- 50,00,000 (Salary per annum).

Salary in INR Lakh

	Chennai	Pune	Hyderabad	Bangalore	Delhi/NCR	Mumbai
2025	11 Lakh	11.9 Lakh	12.5 Lakh	15.8 Lakh	15.9 Lakh	15.9 Lakh
2026	10.5 Lakh	12 Lakh	11.9 Lakh	14.5 Lakh	11.9 Lakh	11.9 Lakh

■ 2025 ■ 2026

Source- Analytics India Magazin

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About **The Partnership**

Advanced Certification In Applied Data Science, Machine Learning & AI is offered jointly by The IoT Academy and E&ICT Academy, IIT Guwahati to prepare the future workforce in Machine Learning and AI

Prof. Gaurav Trivedi
Principal Investigator
Associate Professor, IIT Guwahati

He is actively participating many Govt. of India's initiative e.g. Atmanirbhar Bharat. One of the major participation is in Semiconduct or Production Initiative in India He has also set up an aquaponics project in Guwahati.

Kaushlendra Singh Sisodia
Director, UniConverge Technologies Pvt. Ltd.

Director at UniConverge Technologies Pvt Ltd working on (IoT, AI/ML, Industry 4.0, 4G/5G). Partner with E&ICT Academy, IIT Kanpur for IoT skill development. Employed at Ericsson, Sweden for 6.5 Years and shifted to Bangalore to build and support HSPA team. Complete end to end knowledge of WCDMA 3G system.

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Program Highlights

This 9-month program is uniquely designed by E&ICT Academy, IIT Guwahati and industry leaders to help you learn exactly what the job market demands.

Certification from E&ICT Academy, IIT Guwahati

The IoT Academy provides 100% Placement Assistance

Hands-on program and Industry-Grade Capstone Projects

Industry-relevant skills for newage AI & ML

Designed by leading academic and industry experts along with IIT-Guwahati faculty

Program Benefits

Practical Knowledge
Live instructor-led online classes by industry experts.

Personalised Attention
Dedicated technical and non-technical teams to resolve all your doubts.

Curriculum
Curriculum designed by professors from IITG and industry experts.

Doubt Clearing Sessions
24x7 subject matter expert support for your technical/ non-technical doubts

Support and Guidance
Lifetime access to our Learning Management System and Program Support

Certificate/Credentials
Certificate of Completion from E&ICT Academy, IIT Guwahati.

Career Guidance and 100% Placement Support
Complete access to a plethora of our Career Assistance and Placement Services.

Immersive Learning Experience
A unique learning ecosystem to give you an offline-like immersive experience

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Program Highlights

Learn from one of the best faculty in India through live online sessions. While Academic Professors will help you learn data science concepts, industry experts will impart practical knowledge of data science, machine learning, deep learning, and AI techniques through real-world projects.

Advanced CertificationIn
Applied Data Science, Machine Learning & AI

By E&ICT Academy, IIT Guwahati

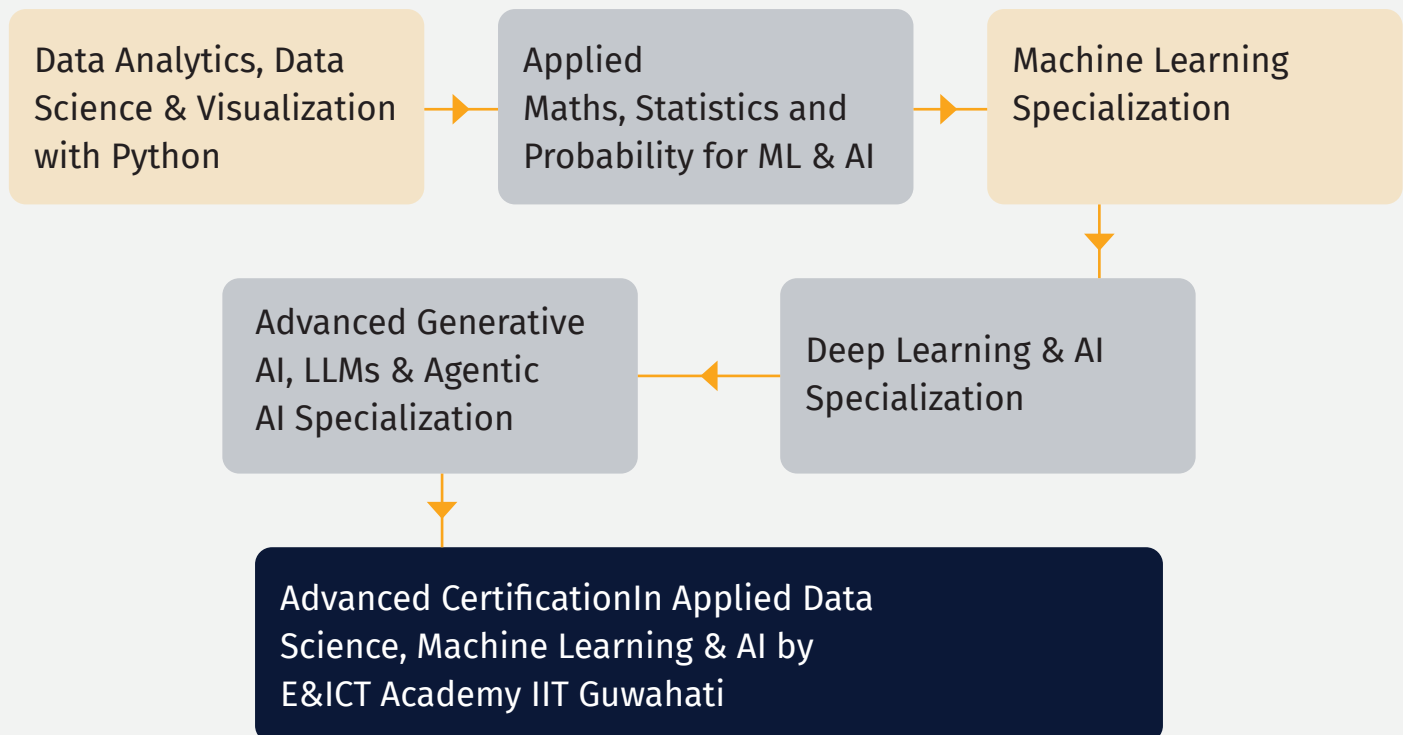|	
9-Month Online Learning	Project Work
Live Ask Expert Anything Sessions & Code	Code Reviews & Personalized Feedback
Doubt Resolution on LMS	Live Test, Home Assignments

8-10 Hours Per Week Live Instructor

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Tools, Languages & Frameworks

tableau	pandas	python	ChatGPT	Gemini
Jupyter	Midjourney	bokeh	matplotlib	MySQL
NumPy	DALL·E	scikit learn	PyTorch	TensorFlow
OpenCV	Hugging Face	spaCy	Amazon SageMaker	Google Cloud AutoML Vision
Keras	TensorFlow Lite	GitHub	OpenAI	kaggle
SQL	Power BI	deepseek	perplexity	git

Learning Path

Data Analytics, Data Science & Visualization with Python → Applied Maths, Statistics and Probability for ML & AI → Machine Learning Specialization

Advanced Generative AI, LLMs & Agentic AI Specialization ← Deep Learning & AI Specialization

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Capstone & Live Session Projects

The projects and assignments will help you accumulate real-world experience in different industries.

Automotive Industry	Educational Industry
Banking Sector	Entertainment Industry
Healthcare Industry	Manufacturing Segment
Retail Industry	Production industry
Finance Sector	

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Program Curriculum

Data Analytics, Data Science & Visualization with Python

Module-1: Python Basics

- What is Python
- Application of Python
- Why use Python for AI-ML Installation Anaconda/Other Idle
- Python Tokens
- Data Types in Python
- Conditional Statement
- Loops in Python
- Functions in Python
- Advance Functions
- File Handling
- **Mini Project**

Module-2: Intro to Git & Github and Kaggle

- Git and GitHub
- kaggle

Module-3: Python NumPy & Pandas

- Introduction to NumPy
- Exploring a NumPy Array
- Indexing & Slicing a NumPy Array
- Manipulating a NumPy Array
- Performing Mathematical & Statistical Functions using NumPy
- Performing Linear Algebra Operations using NumPy
- Introduction to Pandas
- Exploring Pandas Series
- Introduction to Pandas DataFrame
- Importing & Exporting Data
- Implementing basic DataFrame functionalities
- Exploring Descriptive Statistics with Pandas
- **Mini Project**

Modules-4: R Language Essentials

- Fundamentals of R
- Vectors & control statements
- Functions in R
- Matrices & strings
- Lists & arrays in R
- Data visualization in R

Program Curriculum

Modules-5: Exploratory Data Analysis (EDA)

- Data Types
- Dispersion & Skewness
- Data imputation
- Data Pre-processing
- Data Cleaning
- Data Manipulation
- Advanced Manipulation
- **Mini Project**

Module-6: SQL For Data Analytics

- SQL Basic
- SQL Joins
- SQL Aggregations
- Subqueries and Temp Tables
- SQL Data Cleaning
- Window Functions
- **Mini Project**

Module-7: Data Analysis with Excel

- Key Formulas and Functions, Ranges and Tables
- Data Cleaning – Text Functions, Dates and Times
- Conditional Formatting, Sorting and Filtering
- Dashboard Creation
- Analysis with Pivot Tables
- Data Analysis in Excel – Trends and Patterns
- Data Visualization in Excel – Charts and Plots
- Functions in Python
- Advance Functions
- File Handling
- **Mini Project**

Module-8: Data Visualization with Python

- Why Data Visualization?
- Introduction to Data Visualization
- Libraries & Tools for Data Visualization in Python
- Static Data Visualization Using Seaborn
- Interactive Data Visualization Using Plotly Express
- Interactive Animations & Facet Plots

Program Curriculum

Module-9: Tableau for Business Intelligence

- ✅ Understanding Data
- ✅ Creating Your First visualization
- ✅ Tableau Calculations
- ✅ Formatting Visualizations
- ✅ Manipulating Data in Tableau
- ✅ Creating Dashboards AND Stories
- ✅ Distributing & Publishing Your Visualization
- ✅ **Mini Project**

Module-10: Visual Storytelling using Power BI

- ✅ Introduction To Power BI
- ✅ Creating Power BI Reports, Auto Filters
- ✅ Report Visualization And Properties
- ✅ Chart And Map Report Properties
- ✅ Hierarchies And Drilldown Reports
- ✅ Power BI Deployment & Cloud
- ✅ Improving Power BI Reports And More...
- ✅ **Mini Project**

Capstone Project- 1 in Data Analytics

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Program Curriculum

Applied Maths, Statistics and Probability for ML & AI

Module-1: Mathematics for Machine Learning & AI

- Linear Algebra
- Introduction to Calculus
- Multi-variable Calculus

Module-2: Statistics for Machine Learning & AI

- Applications of Statistics
- Introduction to Statistics
- Categories of Data
- Basic Terminologies in Statistics
- Sampling techniques
- Descriptive Statistics
- Measure Used in Descriptive Statistics
- Z-Scores

Module-3: Probability

- What is Probability?
- Rules of probability
- Types of Probability
- Random Variables
- Probability Distribution Functions
- **Mini Project**

Module-4: Inferential Statistics

- Introduction to Inferential Statistics
- Hypothesis Testing
- Normal Distribution
- P-value
- One-tailed and Two-tailed tests
- One Sample Z test
- One Sample T test
- Independent Sample T test
- Chi-square test
- ANOVA

Capstone Project- 2

Program Curriculum

Machine Learning Specialization

Module-1: Introduction to Machine Learning

- ✔ What is Machine Learning?
- ✔ Applications of Machine Learning
- ✔ Machine Learning in your daily life
- ✔ Machine Learning in Retail
- ✔ Steps Involved in Machine Learning

Module-2: Regression

- ✔ Introduction to Regression
- ✔ Linear Regression
- ✔ Evaluation Metrics in Regression Models
- ✔ Logistic Regression
- ✔ **Mini Project**

Module-3: Supervised Classification

- ✔ Why Use Classification?
- ✔ Application of Classification Algorithms
- ✔ Introduction to Classification
- ✔ Types of Classification Algorithms
- ✔ Classification: Decision Tree
- ✔ Classification: Random Forest
- ✔ ML in Banking & Finance - Benefits
- ✔ Classification: SVM
- ✔ Classification: KNN
- ✔ Classification: Naïve Bayes
- ✔ Evaluating Classification Models
- ✔ Model Optimization Techniques
- ✔ Model Boosting Techniques
- ✔ Introduction to PyCaret
- ✔ Dealing with Unbalanced Datasets
- ✔ **4 Mini Projects**

Capstone Project- 3

Program Curriculum

Module-4: Unsupervised Learning

- What is Unsupervised Learning?
- Application of Unsupervised Learning
- Introduction to Clustering
- Types of Clustering
- Partitioning Methods: K-means, DBSCAN, Spectral
- Hierarchical Methods: Hierarchical
- **2 Mini Projects**

Module 5 :- Dimension Reduction

- PCA
- Factor Analysis
- LDA
- **Mini Project**

Module-6: Association Rules Mining

- What are Association Rules?
- Association Rule Parameters
- A-priori Algorithm
- Market Basket Analysis

Module-7: Recommendation System

- What is a Recommendation System?
- Need for a Recommendation System
- Recommendation System Use Cases
- Applications of Recommendation System
- Types of Recommendation Systems
- Collaborative Filtering
- Content Based Filtering
- Matrix Factorization
- Pros and Cons of Collaborative Filtering
- Hybrid Recommender System
- **Mini Project**

Module-8: Time-series Forecasting

- Introduction to forecasting data
- Properties of Time Series data
- Features of Time Series data
- Markov Processes - Overview and Terminologies
- Naive, Average and Moving Average Forecasting
- Exponential Smoothing
- ARIMA Approach
- **Mini Project**

Program Curriculum

Module 09 - Machine Learning Model Deployment

- Overview of Machine Learning Models
- Machine Learning System Architecture
- Research Environment
- Packaging, Serving and Deploying the model
- Differential Testing And More...

Capstone Project- 4

Deep Learning & AI Specialization

Module-1: Introduction to Deep Learning

- What is Deep Learning
- Curse of Dimensionality
- Machine Learning vs. Deep Learning
- Use Cases of Deep Learning
- Human Brain vs. Neural Network
- What is Perceptron?
- Learning Rate
- Epoch
- Batch Size

Module-2: Tensorflow 2.0 with Tensor Board

- Introduction to Tensorflow 2.x
- Installing Tensorflow 2.x
- Introduction to TensorBoard
- Defining Sequence model layers
- Activation Function
- Layer Types
- Model Compilation
- Model Optimizer
- Model Loss Function
- Model Training
- Digit Classification using Simple Neural Network in Tensorflow 2.x
- **Mini Project**

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Program Curriculum

Module-3: Computer Vision

- Introduction to Convolutional Neural Networks
- Introduction to images
- Convolution, Pooling, Padding & its mechanisms
- Forward Propagation & Backpropagation for CNNs
- CNN architectures
- AlexNet, VGGNet, InceptionNet & ResNet
- Transfer Learning
- Object Detection

Module-4: Introduction to NLP

- Introduction to NLP
- Libraries & Tools for NLP in Python
- NLTK vs Spacy
- Applications of NLP:
- Chatbot
- Search, Autocorrect and Autocomplete
- Grammar Checker

Module-5: Text Processing Methods

- Bag of Words
- Countvectorizer
- Term Frequency (TF)
- Inverse Document Frequency (IDF)
- Converting text to features and labels
- Multinomial Naive Bayes Classifier
- Leveraging Confusion Matrix Assignment
- Word Embeddings
- Word2Vec
- **Mini Project**

Module-6: Introduction to Sequence Learning

- What is Sequence Learning
- Application of Sequence Learning
- What is Sequence Model
- Bayesian Network
- Markov Model
- Markov Chain
- Hidden Markov Model
- Viterbi Algorithm

Program Curriculum

Module-7: RNN vs LSTM

- Recurrent Neural Network
- Architecture of RNN
- Calculation in RNN
- Backpropagation and Loss calculation
- Applications of RNN
- What is LSTM?
- Structure of LSTM
- LSTM architecture
- **Mini Project**

Capstone Project- 5

Module-8: TensorFlow Hub for Object Detection using Faster RCNN

- Introduction to TensorFlow Hub
- Use cases of TensorFlow Hub
- Limitations of CNN in object detection
- Architecture of RCNN
- Applications of RCNN
- Types of RCNN
- Step by step implementation of Faster RCNN

Module-9: Sentiment Analysis

- Sentiment Analysis
- Subjectivity Analysis
- Topic Extraction
- Product Reviews
- Opinion Retrieval and Spam
- Opinion Summarization
- Implementing Sentiment Analysis in Python

Module-10: Reinforcement Learning

- Understanding Reinforcement Learning
- Algorithms associated with RL
- Q-Learning Model
- **Mini Project**

Program Curriculum

Module-11: MLOps & Deployment

- Introduction To MLOps
- Automating Pipelines with Airflow
- Model Packaging
- API Building
- Model Training with AWS SageMaker
- Model Deployment
- Model Maintenance

Capstone Project- 6

Advanced Generative AI, LLMs & Agentic AI Specialization

Module-1: Introduction To Generative AI

- Introduction to Generative AI Models
- The Future of Generative AI
- Types of Generative AI Models
- Ethical Considerations in Generative AI Models & ChatGPT
- Popular Generative AI Models
- Benchmarking & Evaluating Models

Module-2: ChatGPT, Prompt Engineering, Explainable AI ChatGPT

Fundamentals of Prompt Engineering

- Zero-shot, Few-shot, Chain-of-Thought (CoT) Promptin
- Role-based Prompts, Multi-turn Conversations

Advanced Prompt Techniques

- System vs. User Prompts, Style Transfer, Iterative Prompting

Explainable AI

- Introduction to explainable AI
- **Mini Project**

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Module-3: Advanced Generative AI Models & Architecture

- Introduction to Generative Models
- Large Language Models (LLMs)
- LLMs: GPT-4, DeepSeek, LLaMA, Mistral, Claude, Falcon
- Variational Autoencoders (VAEs)
- Generative Adversarial Networks (GANs) - StyleGAN, CycleGAN
- Attention Mechanisms and Transformers (GPT, BERT, T5)
- **Mini Project**

Module-4: Advanced Generative AI - Building LLM Applications

- Langchain and Workflow Design
- Advanced Prompt Engineering Techniques
- LLM Application Development
- LLM Fine-Tuning and Customization
- Fine-Tuning & Pre-training of LLMs
- Benchmarking and Evaluation of LLM Capabilities
- LangChain for LLM Development
- RAG with Hugging Face & LangChain
- **2 Mini Projects**

Module-5: Agentic AI & Multimodal AI (Voice, Video & Document AI)

Agentic AI

- Frameworks
- Hugging Face Ecosystem

Speech-to-Text & AI Voice Processing

- Whisper, Wav2Vec, DeepSeek-STT

Multimodal AI
Text-to-Image & Image-to-Image Generation

- DALL·E, MidJourney, and Stable Diffusion
- LDMs & Hugging Face Implementations

Advanced Multimodal Models

- Google's Gemini, OpenAI's GPT-4o, and models from Meta AI
- **Mini Project**

Module-6: Generative AI Applications In Industries

- Applications in Healthcare (e.g., Medical Imaging, Diagnosis)
- Applications in Finance (e.g., Risk Modeling, Fraud Detection)
- Applications in Retail and E-commerce (e.g., Personalized Marketing)
- Applications in Media and Entertainment (e.g., Content Creation)

Module-7: Responsible AI

- Awareness, Toxicity, Misinformation, Bias, Security, Fairness

Capstone Project- 7

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Capstone Projects

Industry projects will be a part of your Advanced Certification In Applied Data Science, Machine Learning & AI to consolidate your learning. Industry projects will ensure you have the real-world experience to start your career in DS, ML-AI.

- 10+ EssentialTools
- Designed by IndustryExperts
- Get Real-world Experience

Auto Image Captioning

Automatic image captioning is widely used by search engines to retrieve and show relevant search results to the users. For example - to categorize personal multimedia collections, for automatic product tagging in online catalogs, and other areas of business and researches. Use CNN and LSTM to create a model that can automatically add captions to the image.

Tools you will be using: OpenCV, Tensorflow2/ Keras, Numpy, Pandas, Matplotlib

dd automatic subtitles to ncrease views on facebook
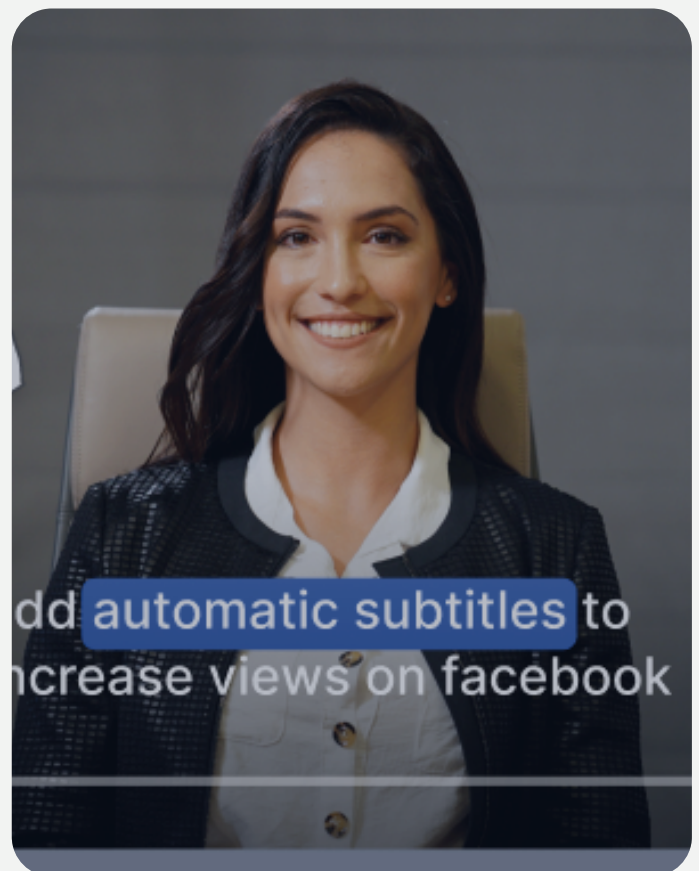
Twitter Sentiment Analysis using Tweepy

Analyzing the tweets helps us in understanding the thoughts and sentiments of people over any popular topic. It helps us to understand what people are thinkingabout the trend. Here, as a part of this project, you will use Tweepy, Textblob, nltk, and other NLP libraries to analyze the sentiments from the Trending Twitter's tags.

Tools you will be using: Tweepy, Textblob, NLTK

Building a RASA Based Chatbot

Rasa is a framework for developing AI-powered, industrial grade, powerful chatbots. The developers use it to create intent-based chatbots. In this project, we are going to understand some of the most importantbasic aspects of the Rasa framework and use RASA NLU and RASA CORE to build a conversational chatbot.

Tools you will be using: RASA NLU, RASA Core

Real-Time Age, Emotion and Gender Detection using CNN

Use CNN and OpenCV to create a model which would detect the person's age, emotion, and age in real-time.

Tools you will be using: OpenCV, Tensorflow2/ Keras, Numpy, Pandas, Matplotlib

Resort Menu Prediction

Emerald Oyster is affected by the high cost of meals at multiple restaurants within the resort. To resolve this issue, they need a new menu and choices based on the economical condition of the customer. Your task will be to identify the economic class of the customer based on the data collectedso that the board can resolve this with proper remodeling.

Tools you will be using: Pandas, SKLearn, Matplotlib,Seaborn, Numpy

Telecom Churn Prediction

A telecom company wants you to analyze its data, to keep its customers. You will be provided with the 'Telecom Churn' dataset. Use it to create a model to predict which customer will switch to other telecom service providers, based on the relevant customer data.

Tools you will be using: Pandas, Numpy,, Seaborn, Matplotlib, SKLearn
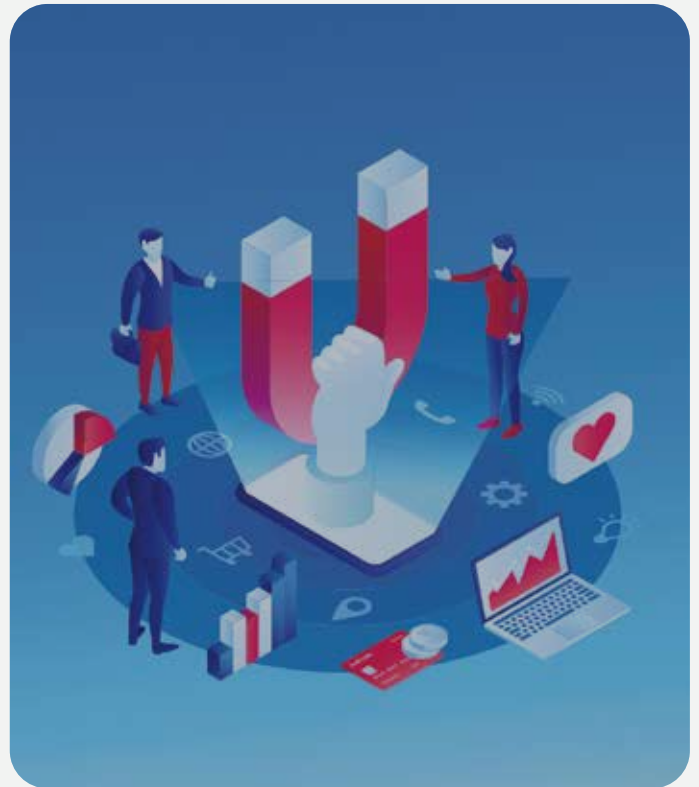
Chronic Kidney Disease Prediction

Chronic kidney disease (CKD) is a covert disease. Accurate prediction of CKD progression overtime is necessary for reducing its costs and mortality rates. The dataset is taken over a 2-month period in India. It has 400 rows with 26 features like red blood cells, pedal edema, sugar, etc. Use this to classify whether a patient has chronic kidney disease.
Tools you will be using: Pandas, SKLearn
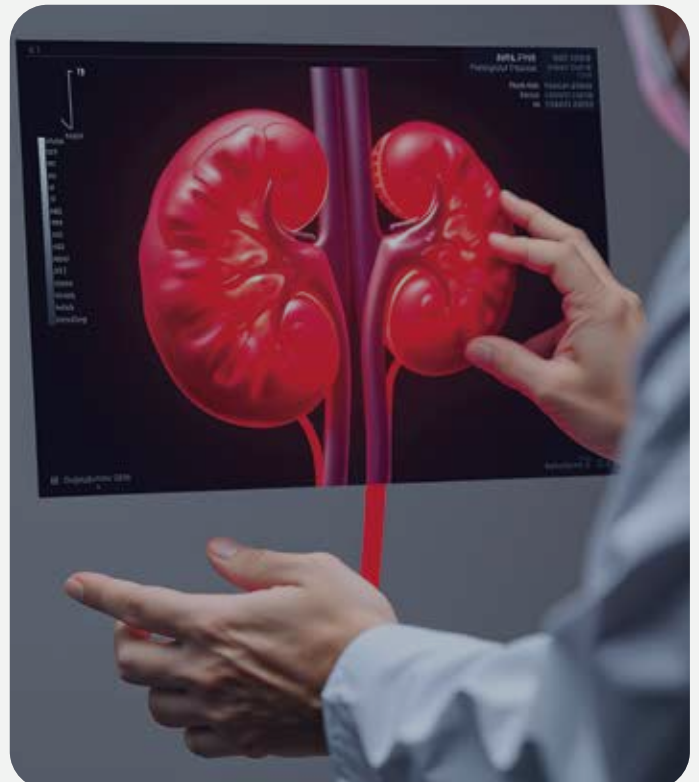
Gnar Automobiles

Gnar Automobiles engages in the distribution and sale of automobiles and light commercial vehicles. The owner of the Gnar Automobiles deals with a number of distributors across countries in different origins. As every origin sends cars with various specifications. The owner wants to determine the origin of the cars based on the specifications of the cars to further increase business opportunities.

Tools you will be using: Pandas, Matplotlib, Numpy, mlxtend

Big Mart - Customer Segmentation

The data scientists at Big Mart have collected 2013 sales data of 1559 products across 10 stores in different cities. Big Mart CEO wants to understand the customer demographics and customer retention (Customer who can converge easily) so that the marketing team can market their products and services by conducting various strategies accordingly.

Tools you will be using: Pandas, scipy, Numpy

Credit Score Prediction

Sydney based Caltech bank plans a new loan scheme for its customers and wants to analyze its customer data to find out how the customer's earning is associated with their credit score. Use clustering methods to find the high credit score clusters of customers. It will summarize the existing loan scheme and help Caltech bank to decide about the new loan scheme.
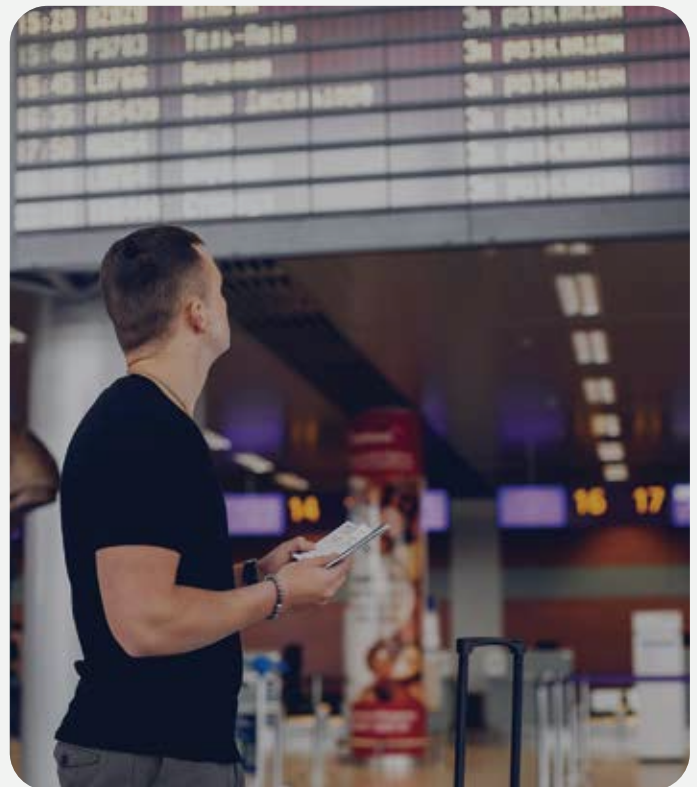
Tools you will be using: Pandas, scipy, Numpy
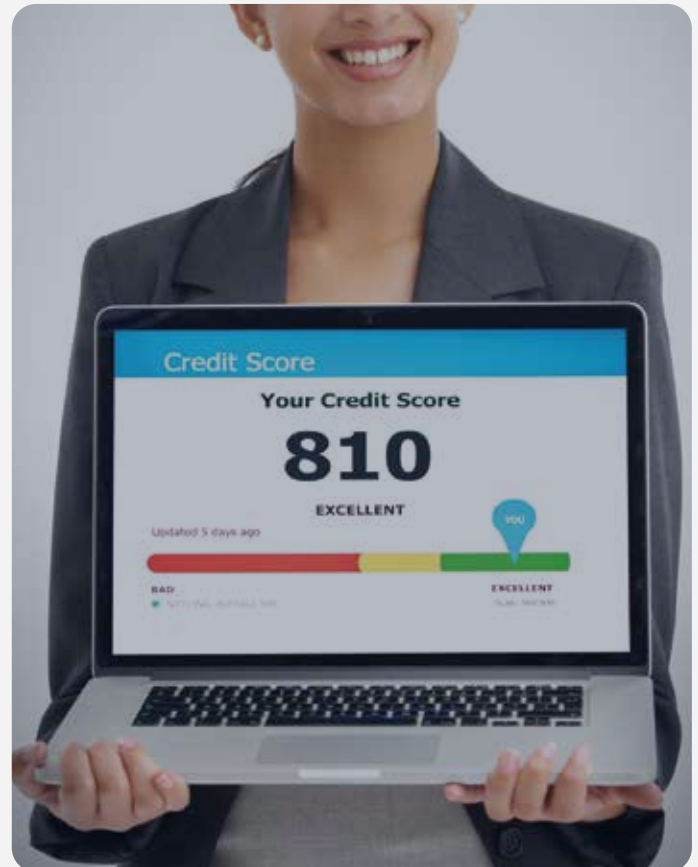
Forecast Air Passenger Traffic

An Airline called Star Air has the data of its passengers across months. The data is classified in date/time and the passengers travelling per month. Builda model to forecast the demand (passenger traffic) in Airplanes. You will learn to use Pandas, Scipy, Numpy with hands-on experience of other tools, features and libraries.

Tools you will be using: Pandas, scipy, Numpy

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Indian Institute of Technology Guwahati
An Initiative of Ministry of Electronics & Information Technology(Meity)

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Housing Price Prediction

The dataset is collected from the 1990 California census containing data of one row per census group. The dataset has various demographics and details captured. Based on this data, we have to create a model using Pandas, Scipy, Numpy that can determine the housing price of the house based on the details provided.

Tools you will be using: Pandas, scipy, Numpy

Traffic Sign Classification using CNN in Tensorflow 2.0

Detection and recognition of traffic signs are crucial for the development of self- driving cars, which have a direct impact on driving behaviors. You will learn to build a CNN model using OpenCV, TensorFlow2, Keras, Numpy, Pandas, Matplotlib to detect and classify the traffic signals for new self-driving cars.

Tools you will be using: OpenCV, Tensorflow2/ Keras, Numpy, Pandas, Matplotlib

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Smart Surveillance System

A shopping centre needs a surveillance system to detect persons and other items. As a machine learning engineer, you will create a model to detect objects using a pre-trained Mask RCNN model.You will be using OpenCV, Tensorflow2, Keras, Numpy, Pandas, Matplotliband others.

Tools you will be using: OpenCV, Tensorflow2/ Keras, Numpy, Pandas, Matplotlib

COVID Analysis in India

COVID-19 pandemic is the greatest global humanitarian challenge the world has faced since World War II. The pandemic has spread widely, and the number of cases is rising daily. The government is working to slow down its spread. Web Scrape the data from the official government website and find various insightsby comparing the trend of COVID in India as compared to the world.

Tools you will be using: Prophet, ARIMA, Pandas, SKLearn, pyplot, Seaborn, Matplotlib, beautiful soup
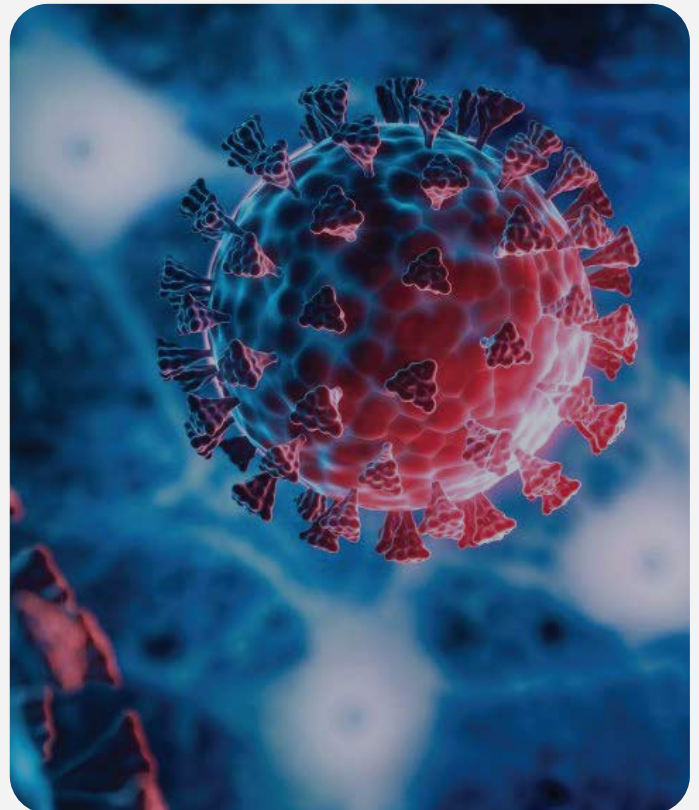
Analyze & Visualize Employee Attrition

Employee retention is one of the biggest metrics that a company should have in mind when thinking of growth. Employee attrition is caused when the total strength of the company is greatly reduced as more employees leave the company than expected. Uncover the factors that lead to employee attrition and explore the reasons as to why people are leaving the organization and predict whether an employee will leave the organization or not by creating a Web App using Streamlit that takes inputs from user's online.

Tools you will be using: Sklearn, PyCaret, Streamlit, SHAP, Pandas-Profiling

Analyze & Visualize Video Games Sales

SRS Ltd. is a Korean and video game company headquartered in Seoul. You as a Data Scientist is requiredto analyze the trend in Global Sales according to the Genres on the Video Games Sales Dataset from 1980 & visualize the change in Net Sales of different publishers from the year 2005 to 2015.

Tools you will be using: Plotly Express, Streamlit

Identify fraudulent credit card transactions

Credit card fraud happens when a fraudster or a thief steals your credit card or the information from that card to make unauthorized purchases in your name or take out cash advances using your account. Credit card companies such as Citibank, HSBC, and American Express need to recognize fraudulent credit card transactionsso that customersare not charged for items that they did not purchase.

Tools you will be using: Sklearn, PyCaret, Streamlit, ELI5, Pandas-Profiling
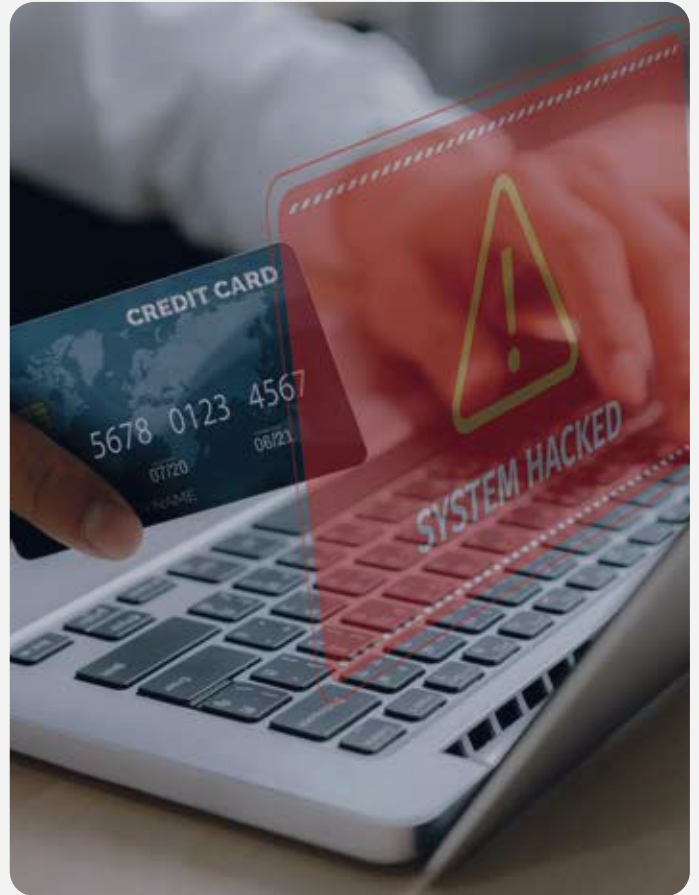
Beer Consumption Prediction

Beer is the most consumed drink in the world. Not without reason, it is perfect for almost every situation,from happy hour to large wedding parties. You will be given a data sample collected in São Paulo, Brazil. Use this to predict the quantity of beer consumption based on the features that contain climate conditions of a given day.

Tools you will be using: Pandas, Seaborn, SKLearn

Industry 4.0

Automationsuch as split decisons based on real time data

Tools you will be using: ETHERNET, Modbus, wifi, ble, arm, nodemcu, rs485, aws, nodered.
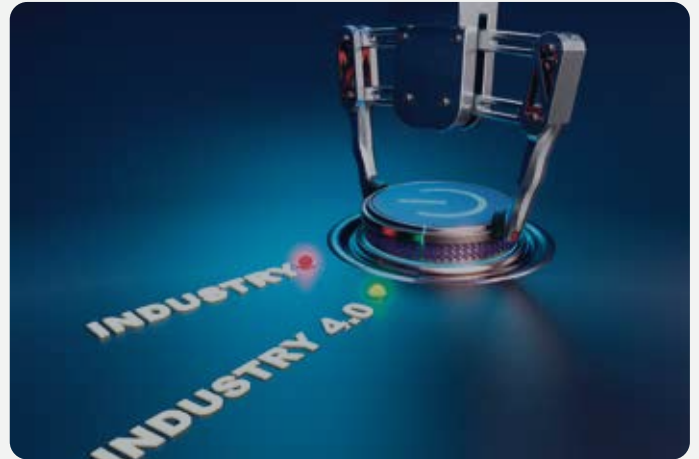
Smart Healtcare

Use of technologyto device-to-data centric solutionsin healthcare.
Tools you will be using: ARM, ARDUINO, Bluetooth, Sensors, wifi, Node Red

Smart Farming

Monitoringcrop filed through sensors and automation

Tools you will be using: LoraWan, ARM, Soil sensor, Moisture sensor, Cellular AI, Temperature and humidity sensor

Smart Grids

Use of smart grids for energy efficiency on a real-timebasis.
Tools you will be using: DLMS, LORAwan, Bluetooth, 4g, Arm, node mcu, google cloud, aws

Predictive Maintenance

To monitor, optimize & maintenance of assets on a real-timebasis

Tools you will be using: Acellerometer, arm,nodemcu, Edge impulse, Neural network, IBM Watson, wifi

Condition Monitoring

Help in reducing damage and maintenance costs with AI solutions
Tools you will be using: Current sensing, wifi, ble, xbee, lorawan, nodered, aws

Smart Building Automation

Simplifying tasks such as control building, security, temperature etc via devices.
Tools you will be using: Bacnet, Modbus, Ethernet, arm, nodemcu, nod ered, ibm bluemix

Enviroment Monitoring

Remote environment monitoring connected virtually via different devices.
Tools you will be using: PM2.5 sensor, air quality sensor, ARM, ble mesh, lorawan, nbiot

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Waste management

Reduces fuel consumption while dumping waste in the city.

Tools you will be using: wifi, nbiot, phsensor, moisture sensor, gas sensor.

Connected Supply Chain

Easierto track where goods are stored
Tools you will be using: temperature and humidity sensor, accelero meter, lte, nbiot, gps, gas sensor, pressure sensor

Smart Logistics

Increase in the real-time decision-making process in supply chain management.
Tools you will be using: Nbiot, GPS, gas sensor, vibration sensor, ARM, Arduino

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100% Placement Support

Live Career-Oriented Webinars

Live webinar sessions that include curriculum and career services walk throughto help learners understand their learning objective and expectations of hiring managers.

Leadership Skill Development Sessions

Recurring training sessions with experts to help learners Develop Interpersonal & Leadership Skills.

1-on-1 Career Mentoring Sessions

One-on-one Career Mentoring sessions on how to develop the right skills and attitude to secure a dream job.

Exhaustive Interview Preparation

Expert tips, sample interview questions, mock interviews with constructive feedback from industry experts to gain handson experience of technical rounds, HR round, and more.

Job Search Assistance & Job Feeds

Access to multiple job portals to help learners navigate through thousands of jobs including global remote jobs.

Profile Building Assistance

A dedicated Career Coach will provide expert tips on how to create an attractive, relevant resume and LinkedIn profile.

Top Recruiters

Corporates Who Hired form Us

HSBC	KPMG	IBM	wipro
genpact	Moody's ANALYTICS	accenture	kotak Kotak Mahindra Bank
firstsource	HDFC BANK We understand your world	ICICI Bank	WNS
Deloitte.	BOSCH	EY Building a better working world	tcs
cult.fit	Directi Intelligent People. Uncommon Ideas.	RIPPLING	MindTickle
ORACLE	Honeywell	Infosys	IKEA

What's In It For You

Entry-Level:

- AI Research Engineer
- Data Analyst
- Associate Machine Learning Engineer
- Research Analyst

Mid-Level:

- Machine Learning Engineer
- AI Software Engineer
- Data Scientist
- IoT Product Manager

Senior-Level:

- Sr. Data Scientist
- Machine Learning Research Scientist
- Deep Learning Expert
- Chief Internet of Things Officer

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Program Faculty Industry Experts

Kaushlendra Sisodia

Director At Uniconverge Technologies
Pvt. Ltd.
IIT Kanpur Alumnus

Prof. Gaurav Trivedi

Electronics & ICT Academy
IIT Guwahati

Mr. Sanjay Aggarwal

Data Science With
ML Expert IMS BHU Alumni
The IoT Academy

Prof. Sumit Kalra

Department Of Computer
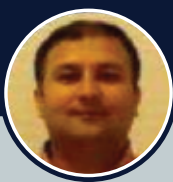Science & Engineering,
IIT Jodpur

Ashwani Kumar

AI Expert 20+ Years
Of Experience Alumni Of
University Of Miami

Program Influencer

The best of academics and industry experts to give you a robust learning experience. We aim to give you a complete exposure to real-time and relevant industry applications of the concepts learn.

Mr. Vivek Kumar

20+ Yrs Exp, Entrepreneur, Investor, Co-founder at We IT Global AB, Sweden and Rediflex AB, Sweden, IIT-Kanpur Alumnus.

Dr. Ashwani Singh

18+ Yrs Exp, Schneider, Ph.D. France Engineering, Innovation Management, IIoT, Industry 4.0.

Mr. Rajiv Bajpai

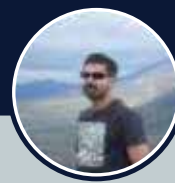20+ Yrs Exp, Apple (USA), ex-Broadcom, ex-Samsung, IIT-Kanpur Alumnus.

Mr. Anil Pandey

20+ Yrs Exp, Director of R&D Protocol Stack Development at Rohde & Schwarz MTC, UK, IIT-Kanpur Alumnus

Mr. Manbhawan Prasad

20+ Yrs Exp, Product Manager at Microsoft, Ireland EMCC Certified Coach, IIT-Guwahati.

Mr. Ashish Shrivastava

16+ Yrs Exp, Senior System Designer, Algorithm and System, LTE/5G Baseband at Ericsson, Sweden

Mr. Tej Pratap Pandey

20+ Yrs Exp, COO at Mobiotics, IIT Kanpur Alumnus

Mr. Deepak Singhal

20+ Yrs Exp, Enterprise Architect Director at Capgemini, Speakeron Cloud technologies

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Success Stories

The best of academics and industry experts to give you a robust learning experience. We aim to give you a complete exposure to real-time and relevant industry applications of the concepts learnt.

Sunita Devi Arya
Placed In

IKEA

Obtaining information from these industry insiders allows you to decipher the game's hidden codes, which will ensure your victory.
The IoT Academy exceeded my expectations and assisted me in obtaining my dream job at IKEA.

Ravi Teja
Placed In

Infosys

Every part of the training was well-organized and provided just what I required. The professors were excellent, the mentors were helpful, and the course was well-designed to meet all of the student's needs.

Srividhya HK
Placed In

IKEA

The IoT Academy assisted me in correctly channelling my energy, revising what I had learnt in college, and learning new things! Also, the industry training, which assisted me in getting a job at a reputed company.

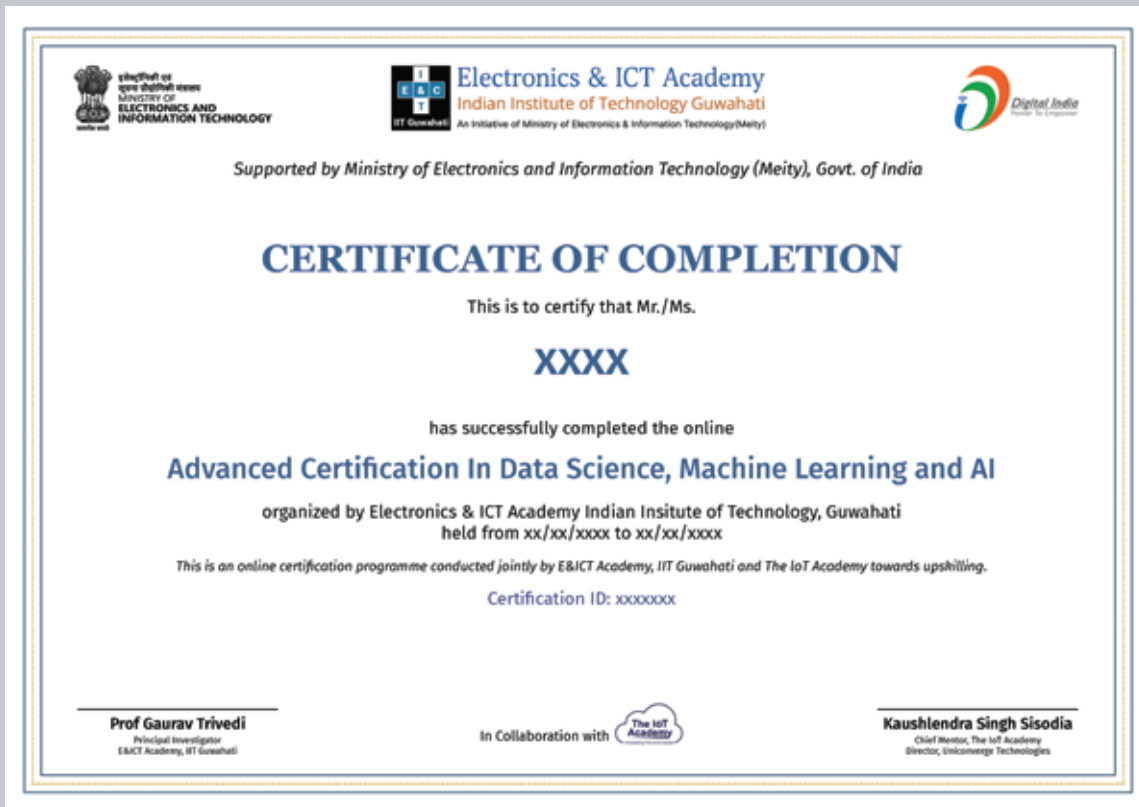### G Shravan Kumar Reddy
Placed In

Infosys

I wanted to improve my knowledge of Al and Machine Learning so that I could keep up with the newest trends and technology. The IoT Academy is the name I've chosen for myself. The IoT Academy Support staff and mentors were great help. "Highly recommended for people interested in learning about Al and Machine Learning."

Certification

Upon successfully completing this program, you'll earn Advanced Certification In Applied Data Science, Machine Learning & AI that is co-branded by E&ICT Academy, IIT Guwahati as the Knowledge Partner.

This certificate will testify to your skills as an expert in Applied Data Science, Machine Learning & AI.

SAMPLE CERTIFICATE

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MINISTRY OF ELECTRONICS AND INFORMATION TECHNOLOGY

Digital India
Power To Empower

Supported by Ministry of Electronics and Information Technology (Meity), Govt. of India

CERTIFICATE OF COMPLETION

This is to certify that Mr./Ms.

XXXX

has successfully completed the online

Advanced Certification In Data Science, Machine Learning and AI

organized by Electronics & ICT Academy Indian Insitute of Technology, Guwahati
held from xx/xx/xxxx to xx/xx/xxxx

This is an online certification programme conducted jointly by E&ICT Academy, IIT Guwahati and The IoT Academy towards upskilling.

Certification ID: xxxxxxx

Prof Gaurav Trivedi
Principal Investigator
E&ICT Academy, IIT Guwahati

In Collaboration with The IoT Academy

Kaushlendra Singh Sisodia
Chief Mentor, The IoT Academy
Director, Uniconverge Technologies

Program Eligibility Criteria

Those wishing to enrol in the Advanced Certification In Applied Data Science, Machine Learning & AI By E&ICT Academy IIT Guwahati are required to apply for admission.

> ### *For admission to the Advanced Certification In Applied Data Science, Machine Learning & AI, candidates should have:*
>
> - Any Undergraduate Degree holder like BCA, B.Tech, B.E, B.Com etc with an average of 50% or higher marks.
> - Basic understanding of programming concepts and mathematics. For candidates who do not know Python, we offer a free pre-program tutorial.
> - Working Professionals with 2+ years of experience are preferred to apply for this program.

Application Process

The application process consists of four simple steps. An offer of admission will be made to the selected candidates and accepted by the candidates upon payment of the admission fee.

Online Application Form

Apply by filling a simple online application form. You will be required to provide personal, educational, and professional details. Once we receive your details, our Admission Head will reach out to take your candidature further.

Interview Process

Go through a screening call with the Admission Director's office who will gauge your passion and eligibility for the program.

Scholarship & Offer Letter

Apply for the scholarship (not mandatory) and take the test. An offer letter will be rolled out to the selected candidates.

Admission & Batch Allotment

Complete the admission and make a quick block payment formality with assistance from our loan partners, you will be given course credentials and your learning journey will begin!

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THANK *YOU!*

Contact Details

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सत्यमेव जयते

Program Information

Advanced Certification In Applied Data Science, Machine Learning & AI

By E&ICT Academy, IIT Guwahati

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eict.iitg.ac.in   theiotacademy.co