



ABOUT THE PROGRAM

Most of the technological advancements in the recent times you see around have an element of Data Science, Machine Learning & IoT in it. This 9-month Applied Data Science and Machine Learning course is uniquely designed by E&ICT Academy, IIT Guwahati, (Top Institute in India) and industry leaders, to make you master exactly what the Data Science, Machine Learning jobs market demands. The objective of our state-of-the-art Applied Data Science and Machine Learning Certification Course is to perfectly prepare you for the Data Science, Machine Learning & IoT job roles you aspire for. You will learn real-world Data Science, Machine Learning, Deep Learning, and IoT skills through multiple ML, Deep Learning and IoT business projects, transforming you into a sought-after New Age DS, ML & IoT Specialist.



WHY IS DS, ML AND IOT IMPORTANT?

Data Science, Machine Learning and IoT 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 \$30.6B by 2024, 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 \$1.1 Trillion in IoT by 2023. The Total Economic Impact of IoT Could Range Between \$4 and \$11 Trillion per year by 2025.



Virtual Personal
Assistants



Online Fraud
Detection



Search Engine
Result Refining



Email Spam and
Malware Filtering



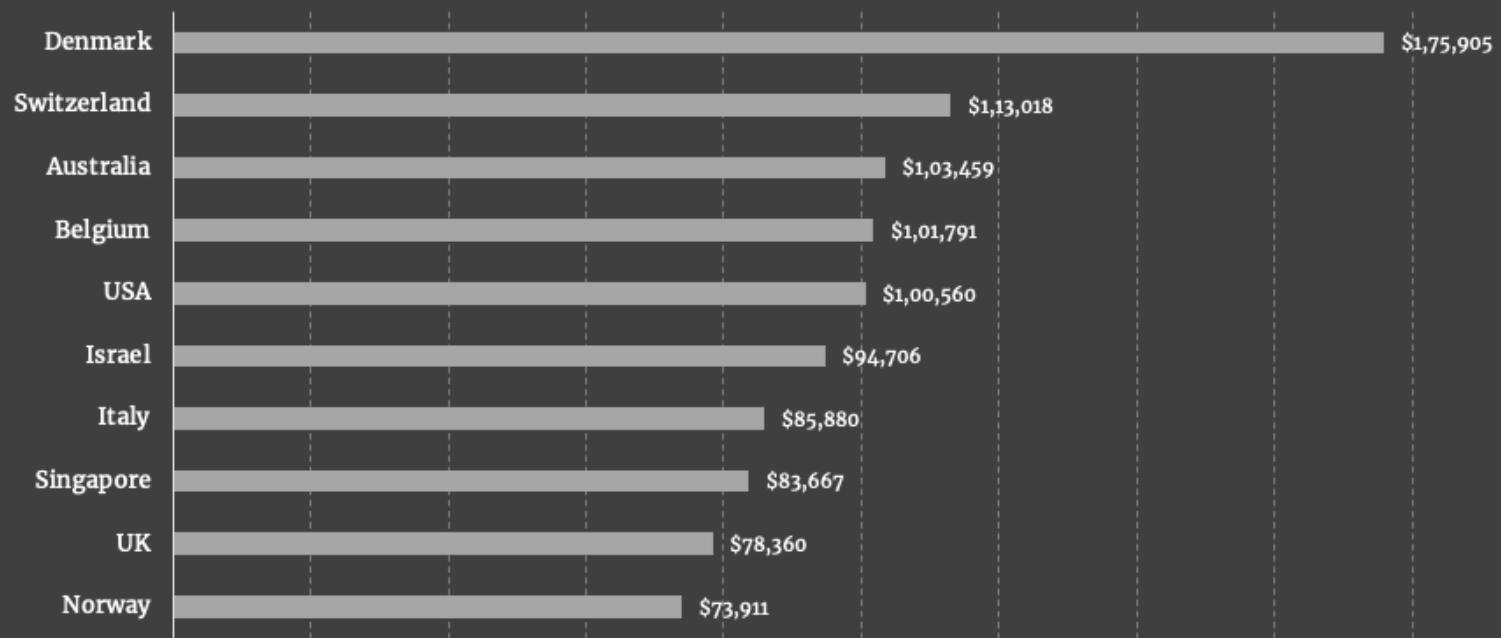
Social Media
Services



Product
Recommendations

CURRENT TRENDS IN Ds and ML JOB MARKET

As per Gartner, **Data Science and Machine Learning** will create 23 Millions job openings by 2020-25. The average annual salary of an DS, ML-IoT Engineer in World is Freshers: Between **\$9270.99 – \$11808.22** Experienced: Between **\$46367.75- \$66239.65** (Salary per annum).



Source: analyticsindiamag



ABOUT THE IIT GUWAHATI



Indian Institute of Technology Guwahati, the sixth member of the IIT fraternity, was established in 1994. The academic programme of IIT Guwahati commenced in 1995. At present the Institute has eleven departments and three inter-disciplinary academic centres covering all the major engineering, science and humanities disciplines, offering BTech, BDes, MA, MDes, MTech, MSc and PhD programmes. Within a short period of time, IIT Guwahati has been able to build up world class infrastructure and a reputation for itself.

ABOUT E&ICT ACADEMY, IIT GUWAHATI



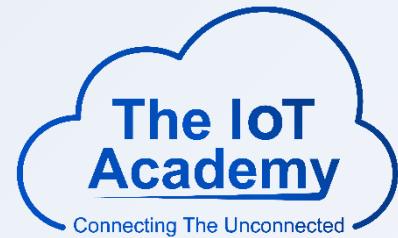
E&ICT Academy is joint venture between IIT Guwahati and MeITY (The Ministry of Electronics and Information Technology, Government of India).

E&ICT Academy, IIT Guwahati conducts specialized customized training programmes and research promotion workshops for corporate sector & educational institutions



ABOUT THE PARTNERSHIP

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



Prof. Ratnajit Bhattacharjee

Principal Investigator

E&ICT Academy, IIT Guwahati



Kaushlendra Singh Sisodia

Director, UniConverge Technologies

“

Ratnajit Bhattacharjee (Member, IEEE) received the B.E. degree (Hons.) in electronics and telecommunication engineering from NIT, Silchar, India, the M.Tech. degree in microwave engineering from IIT Kharagpur, India, and the Ph.D. degree in engineering from Jadavpur University, Kolkata, India. He has served as the Head for Electronics and Electrical Engineering Department, IIT Guwahati, Guwahati, India, from 2011 to 2014, where he is currently a Professor. He is also the Chief Investigator for MeitY sponsored project for setting up of an EICT academy, IIT Guwahati.

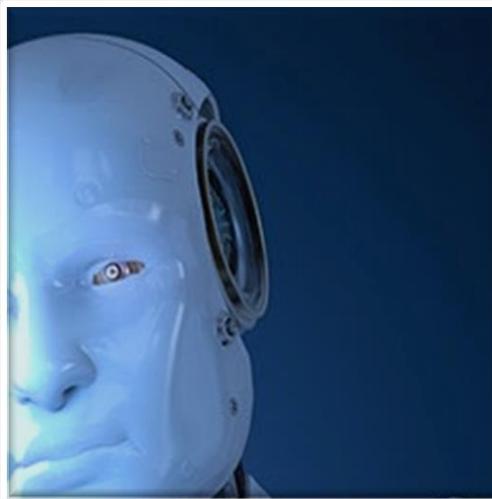
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Director at UniConverge Technologies Pvt Ltd (UCT), having 20+ years industry experience, working on IoT, AI/ML, Industry4.0, 4G/5G. He has worked with Many MNCs including Ericsson AB, Sweden for 6.5 Years and STMicroelectronics, India. He is also chief mentor for The IoT Academy. UCT his leadership, UCT has grown very rapidly in Industry4.0 and AI/ML based products. UCT has also started its staffing and recruitment division in collaboration with WeITGlobal AB, Sweden



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.



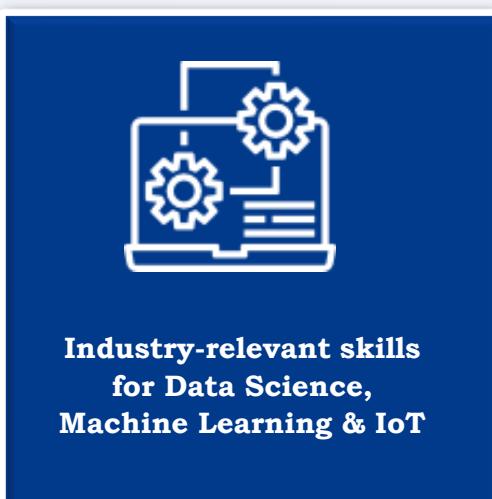
Certification from E&ICT Academy, IIT Guwahati



Career & Placement services in India and Europe in collaboration with UCT's Staffing division and WeITGlobal, Sweden



Hands-on program and Industry-Grade Capstone Projects



Industry-relevant skills for Data Science, Machine Learning & IoT



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

PROGRAM BENEFITS



Practical Knowledge

Live instructor-led online classes by industry experts.



Curriculum

Curriculum designed by professors from IITG and industry experts.



Support and Guidance

Lifetime access to our Learning Management System and Program Support



Career Guidance and Placement Support

Complete access to a plethora of our Career Assistance and Placement Services



Personalised Attention

Dedicated technical and non-technical teams to resolve all your doubts



Doubt Clearing Sessions

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



Certificate/Credentials

Certificate of Completion from E&ICT Academy, Guwahati.



Immersive Learning Experience

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

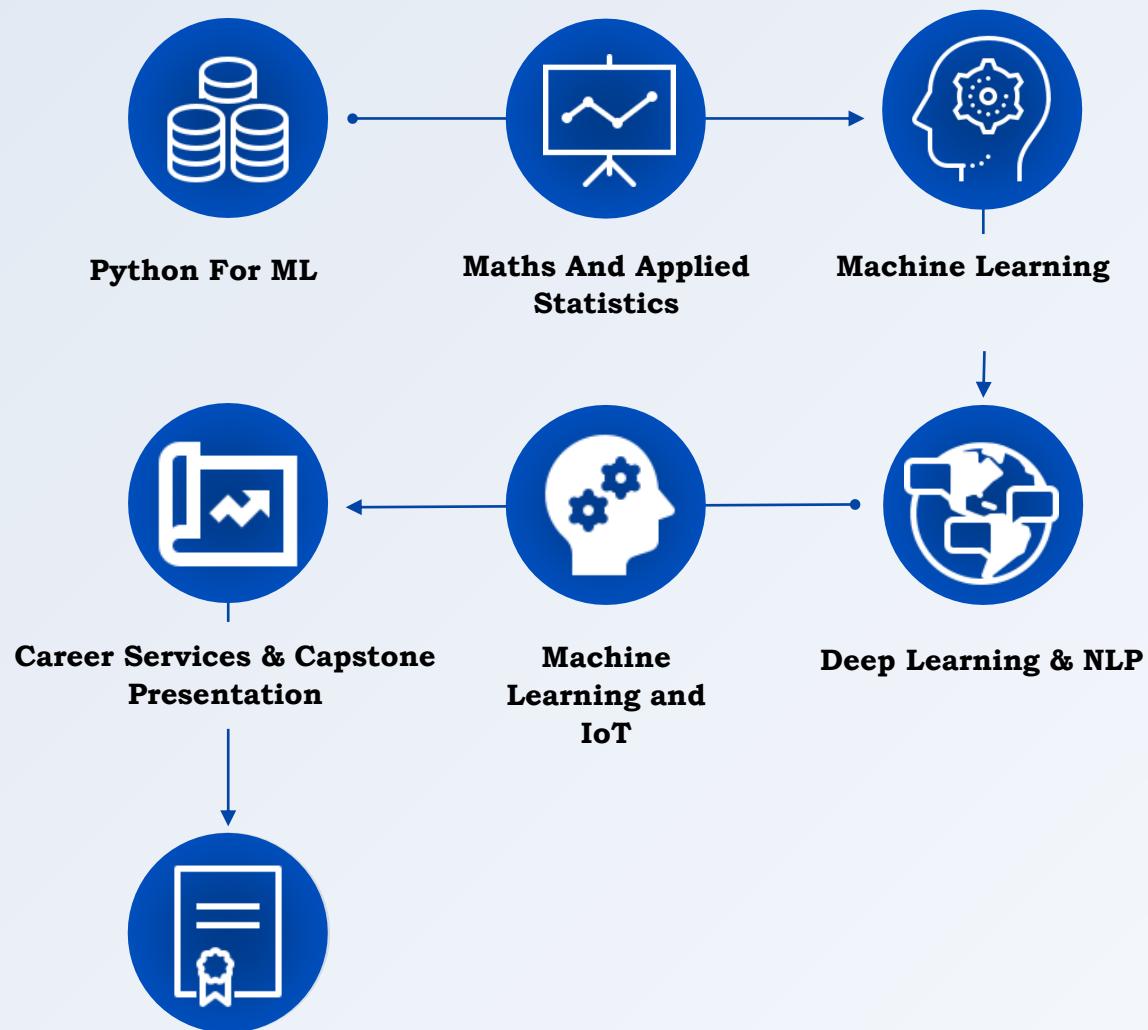
PROGRAM PEDAGOGY

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.

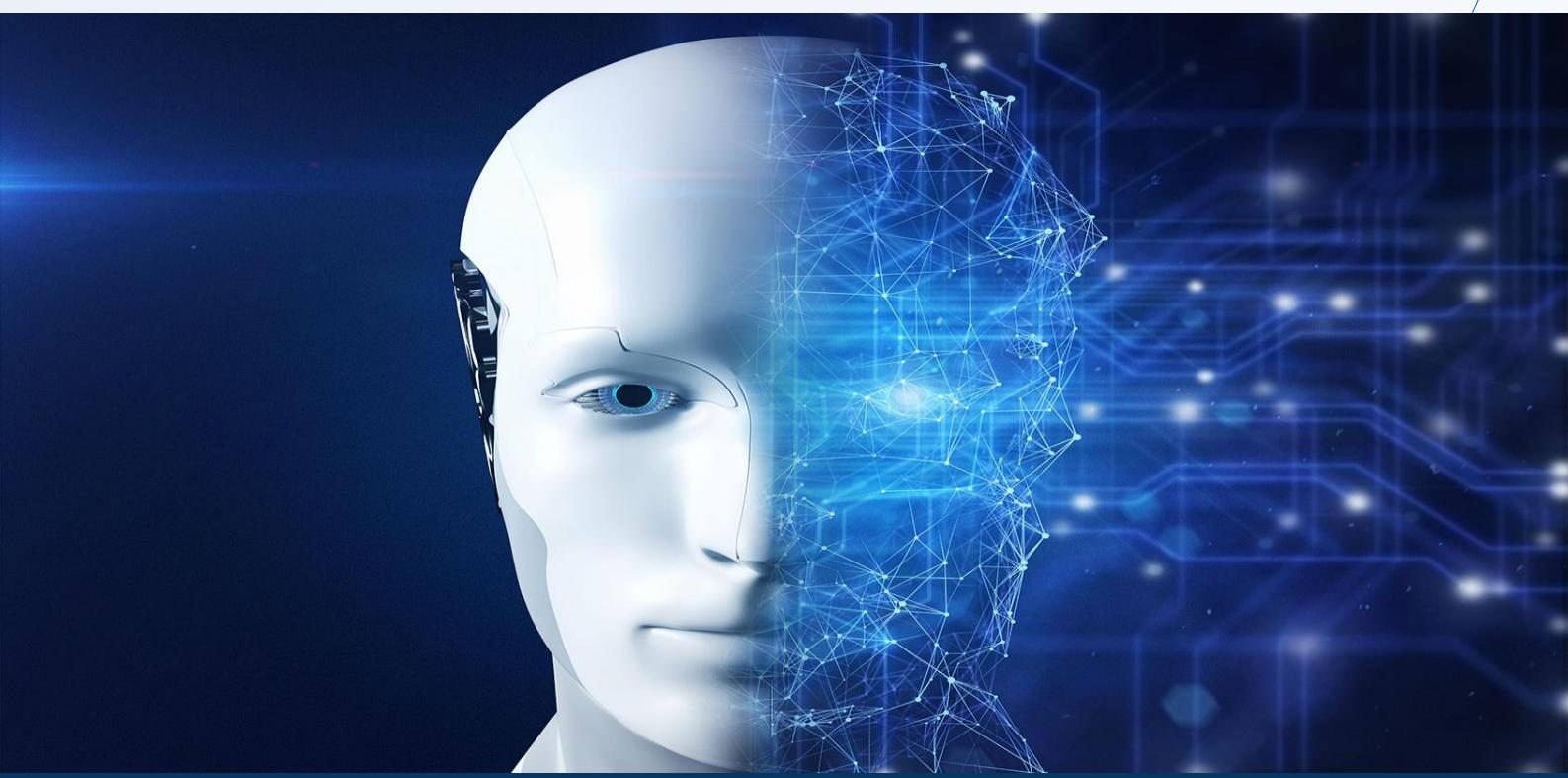


TOOLS, LANGUAGES & FRAMEWORKS

LEARNING PATH



**Advanced Certification in Applied
Data Science and Machine Learning
by E&ICT Academy IIT Guwahati**



PROGRAM CURRICULUM: LEARNING PATH

Master **Industry-relevant skills for new age Data Science and Machine Learning** through the most relevant curriculum designed by E&ICT Academy, IIT Guwahati and leaders from the industry.

PYTHON FOR ML

Module

01

Python Basics, Python NumPy & Pandas, EDA and Data Processing & Manipulation, Data Visualization, Tableau

MATHS AND APPLIED STATISTICS

Module

02

Maths for ML, Statistical Foundations, Probability, Inferential Statistics, Regression

MACHINE LEARNING

Module

03

Introduction to Machine Learning, Regression, Supervised Classification, Dimensionality Reduction, Unsupervised Learning, Association Rules Mining, Recommendation System, Time-series Forecasting

DEEP LEARNING & NLP

Module

04

Introduction to Deep Learning, Tensorflow 2.0 with Tensor Board, Introduction to NLP, TensorFlow Hub for Object Detection using Faster RCNN, Computer Vision, Text Processing Methods, Introduction to Sequence Learning, RNN vs LSTM, Sentiment Analysis, Introduction to GANs

MACHINE LEARNING AND IOT

Module

05

IoT Architecture, Protocols and ML, Introduction of Cloud Computing and Edge System Architecture, ML Optimization Techniques, IoT Cloud Platforms supporting ML

CAREER SERVICES & CAPSTONE PRESENTATION

Module

06

Resume Building, Interview preparation workshop, Capstone Project

CAPSTONE & LIVE SESSION PROJECTS

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



Automotive Industry



Education Industry



Banking Sector



Entertainment Industry



Healthcare Industry



Manufacturing Segment



Retail Industry



Production industry



Finance Sector



CAPSTONE PROJECT

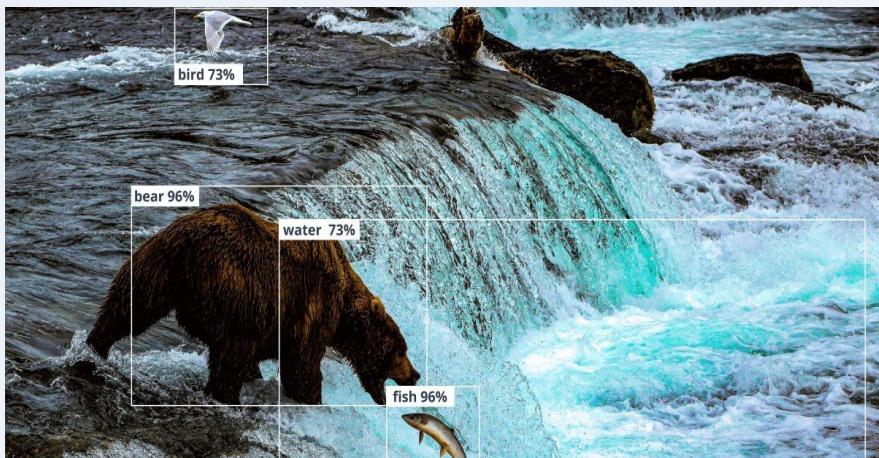
Industry projects will be a part of your Advanced Certification in Applied Data Science and Machine Learning to consolidate your learning. Industry projects will ensure you have the real-world experience to start your career in DS and ML.

- 10+ Essential Tools
- Designed by Industry Experts
- 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, Tensorflow 2/ Keras, Numpy, Pandas, Matplotlib



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 thinking about 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 important basic 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.

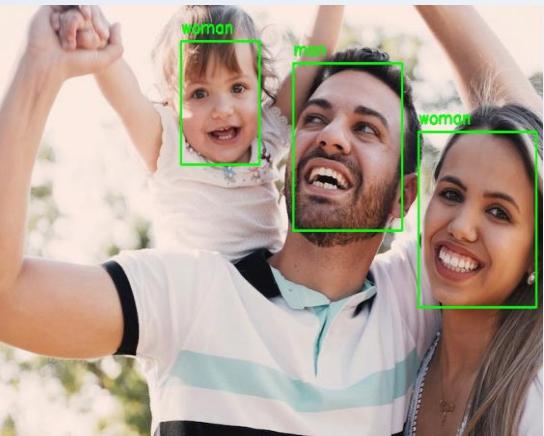
Tools you will be using: OpenCV, Tensorflow 2 / Keras, Numpy, Pandas, Matplotlib



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.

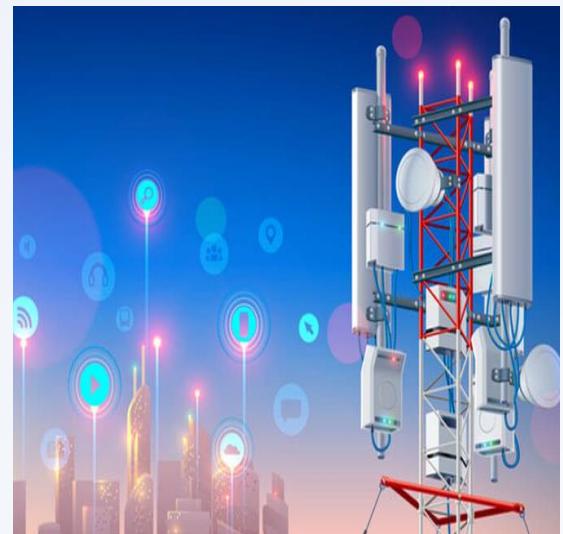
Tools you will be using: Pandas, Numpy, Seaborn, Matplotlib, SKLearn



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 collected so that the board can resolve this with proper remodeling.

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



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. Build a 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

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.

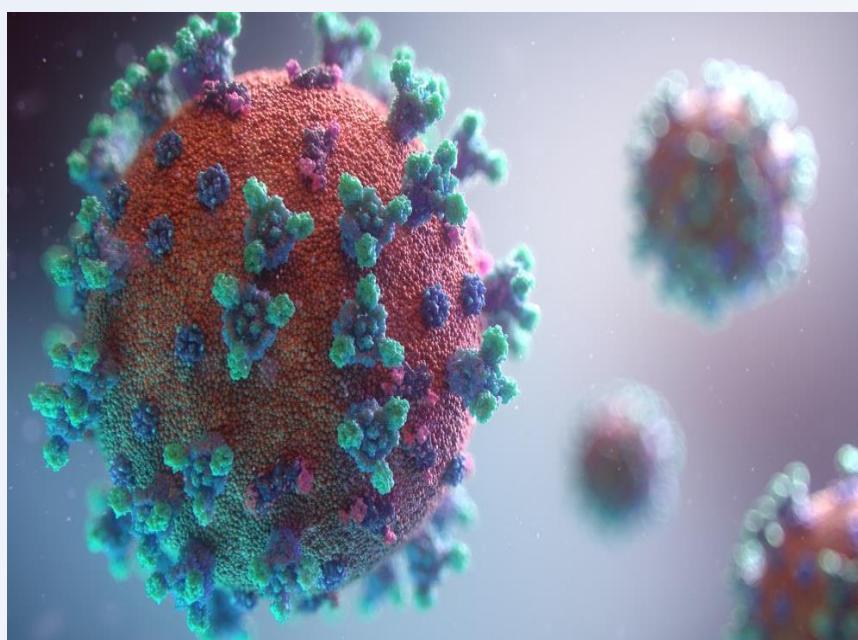
Tools you will be using: Pandas, scipy, Numpy



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 MaskRCNN model. You will be using OpenCV, Tensorflow 2, Keras, Numpy, Pandas, Matplotlib and others.

Tools you will be using: OpenCV, Tensorflow 2/ Keras, Numpy, Pandas, Matplotlib



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, TensorFlow 2, Keras, Numpy, Pandas, Matplotlib to detect and classify the traffic signals for new self-driving cars.

Tools you will be using: OpenCV, Tensorflow 2/ 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 insights by comparing the trend of COVID in India as compared to the world.

Tools you will be using: Prophet, ARIMA, Pandas, SKLearn, pyplot, Seaborn, Matplotlib, beautifulsoup



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-Profilin

Analyze & Visualize Video Games Sales

SRS Ltd. is a Korean and video game company headquartered in Seoul. You as a Data Scientist is required to 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 transactions so that customers are not charged for items that they did not purchase.

Tools you will be using: Sklearn, PyCaret, Streamlit, ELI5, Pandas-Profilin

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

Automation such as split decisions based on real time data.

Tools you will be using:

ETHERNET,Modbus,wifi,ble,arm,nodemcu,rs485,aws,nodered.



Smart Healthcare

Use of technology to device-to-data centric solutions in healthcare

Tools you will be using:

ARM,ARDUINO,Bluetooth,Sensors,wifi,Node Red



Smart Farming

Monitoring crop field through sensors and automation

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

Smart Grids

Use of smart grids for energy efficiency on a real-time basis.

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-time basis

Tools you will be using:

Accelerometer, arm, nodemcu, Edge impulse, Neural network, IBM Watson, wifi



Condition Monitoring

Help in reducing damage and maintenance costs with IoT 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, nodered, ibm bluemix



Environment 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,

Waste management

Reduces fuel consumption while dumping waste in the city

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



Connected SupplyChain

Easier to track where goods are stored

Tools you will be using: temperature and humidity sensor,accelerometer ,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



CAREER ASSISTANCE SERVICES



Live Career-Oriented Webinars

Live webinar sessions that include curriculum and career services walkthrough to 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 hands-on 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



OUR ALUMNI WORK AT



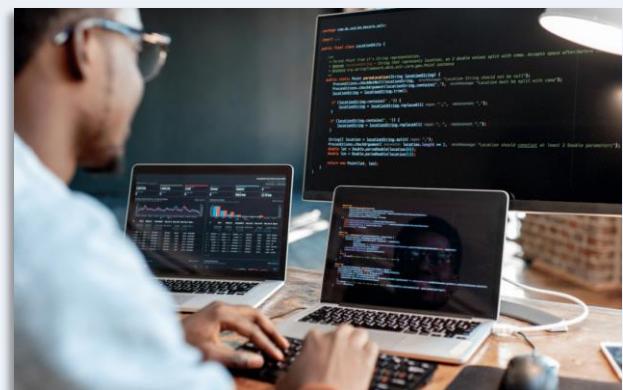
WHAT'S IN IT FOR YOU

After completing the program, you will receive a Advanced Certification In **Applied Data Science and Machine Learning**

which will be awarded jointly by E&ICT Academy, IIT Guwahati. Candidates will be able to explore a wide range of A jobs available globally, like:

Entry-Level:

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



Mid Level:

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



Senior Level:

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



PROGRAM FACULTY, INDUSTRY EXPERTS

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.



**Prof. Ratnajit
Bhattacharjee**

Principal Investigator

Electronics & ICT Academy, IIT Guwahati

[Profile](#)



Prof. Gaurav Trivedi

Co-Principal Investigator

Electronics & ICT Academy, IIT Guwahati

[Profile](#)



Prof. Sumit Kalra

Department of CSE

Indian Institute of Technology Jodhpur

[Profile](#)



Mr. Kaushlendra Sisodia

Industry Expert/Program Advisor

Director at Uniconverge Technologies, IIT Kanpur Alumnus

[Profile](#)



Mr. Sanjay Aggarwal

Data Science with ML Expert

The IoT Academy, IMS BHU Alumni

[Profile](#)



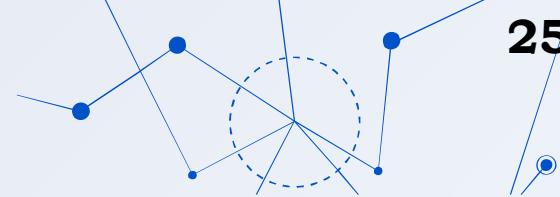
Mr. Jitesh Kumar

Embedded Systems and IoT

Senior IoT Engineer and Trainer, The IoT Academy

[Profile](#)

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 learnt.



Mr. Vivek Kumar

20+ Yrs Exp, Entrepreneur, Investor, Co-founder at WeltGlobal 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. Manbhawan Prasad

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



Mr. Anil Pandey

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



Mr. Ashish Srivastava

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



Mr. Tej Pratap Pandey

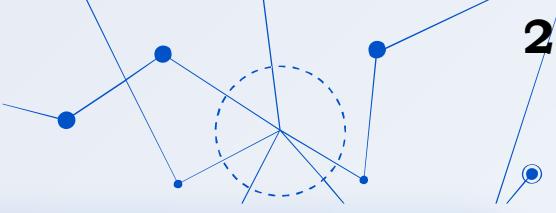
20+ Yrs Exp, COO at Mobiotics, IIT-Kanpur Alumnus



Mr. Deepak Singhal

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

SUCCESS STORIES



Sunita Devi Arya
Placed at



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 at



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 at



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 at



I wanted to improve my knowledge of AI and Machine Learning so that I could keep up with the newest trends and technology. 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 AI and Machine Learning."

ENDORSEMENT by European Business Partner

Regarding placements, **The IoT Academy's** parent company, **UniConverge Technologies (UCT)**, is responsible to place trained graduates with reputed companies in India and abroad. For staffing and recruitment, UCT has also collaboration with European companies (Rediflex AB and WeitGlobal AB) based in Sweden, targeting Indian and European clients. Please listen about us by **John Helt, CEO of WeITGlobal AB, Sweden.**

CERTIFICATIONS

Upon successfully completing this program, you'll earn **Advanced Certification in Applied Data Science and Machine Learning** 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 and Machine Learning**

Sample Certificate



Certification ID: 123AB67



Electronics & ICT Academy

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

Indian Institute of Technology, Guwahati

Certificate of Completion

This is to certify that Mr./Ms.

Shashank Vaidyar

has successfully completed the online

Advanced Certification in Applied Data Science, Machine Learning and IoT

organized by Electronics & ICT Academy Indian Institute of Technology, Guwahati

held from 1st Oct, 2021 to 31st June, 2022

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

Prof Ratnajit Bhattacharjee
Principal Investigator
E&ICT Academy, IIT Guwahati

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

Kaushlendra Sisodia
Director
Uniconverge Technologies

PROGRAM ELIGIBILITY CRITERIA

Those wishing to enrol in the Advanced Certification in Applied Data Science and Machine Learning By E&ICT Academy IIT Guwahati will be required to apply for admission.

For admission to the Advanced Certification In Applied Data Science and Machine Learning, 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.

1



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.

2



Interview Process

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

3



Scholarship & Offer Letter

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

4



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!

CONTACT DETAILS



Program Information:

Advanced Certification In Applied Data Science and Machine Learning

By **The IoT Academy** in Collaboration with India's Top Institute

