



NAUTILUS  
PRINCIPLE

# IoA Accredited Programme on **Demystifying Artificial Intelligence**

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*When the student is ready the teacher will appear. When the student is truly ready, the teacher will disappear.*

*-Tao Te Ching*

## Overview



In response to the surging demand for skilled professionals in the field of Artificial Intelligence, Nautilus Principle is introducing a new, intensive live-online program dedicated to AI.

### Key Program Details:

#### Duration:

The entire training program spans a concise 8-day period, offering a rapid and focused learning experience.

#### Modular Learning:

Participants can expect a comprehensive 64-hour curriculum structured in a modular format, thoughtfully organized to facilitate a seamless learning progression.

#### Target Audience:

This program is open to anyone with aspirations of becoming a proficient decision-maker in the realm of Artificial Intelligence and Machine Learning (AI and ML).

### Learning Goals:

Participants will gain the knowledge and skills required to construct AI and ML models and effectively implement AI and ML solutions at the enterprise level, emphasizing practical applicability.



## About Training Program:



In the contemporary landscape, Artificial Intelligence (AI) has emerged as a pivotal technology driving the progress of every organization. Proficiency in AI is poised to be the primary distinguishing factor between high-performing and low-performing companies. The utilization of AI and its core components, including statistical learning, machine learning, and deep learning, is anticipated to enhance stakeholder value, elevate customer experiences, and serve as the principal catalyst for wealth creation.

Data-driven decision-making entails the analysis of vast datasets to uncover patterns and construct explanatory models. Consequently, the ability to transform raw data into actionable insights stands out as one of the most highly sought-after skills, a demand that is projected to grow exponentially over time. AI has become an indispensable element of the growth strategy for major organizations. To maintain a competitive edge in the future, organizations must secure a pool of skilled talent capable of harnessing the immense potential for growth and research within Artificial Intelligence and Machine Learning (AI and ML).

However, there exists a substantial disparity between the demand for qualified AI experts in the job market and the available supply. This program leverages the extensive expertise of Industry Experts, combined with industry-distinguished pedagogy, to offer a hands-on experiential learning opportunity.

### Live-Online Modules



**Session 1 & 2:**  
Python Primer for AI

**Session 3 & 4:**  
Python for Machine Learning

**Session 5 & 6:**  
Python for Deep Learning

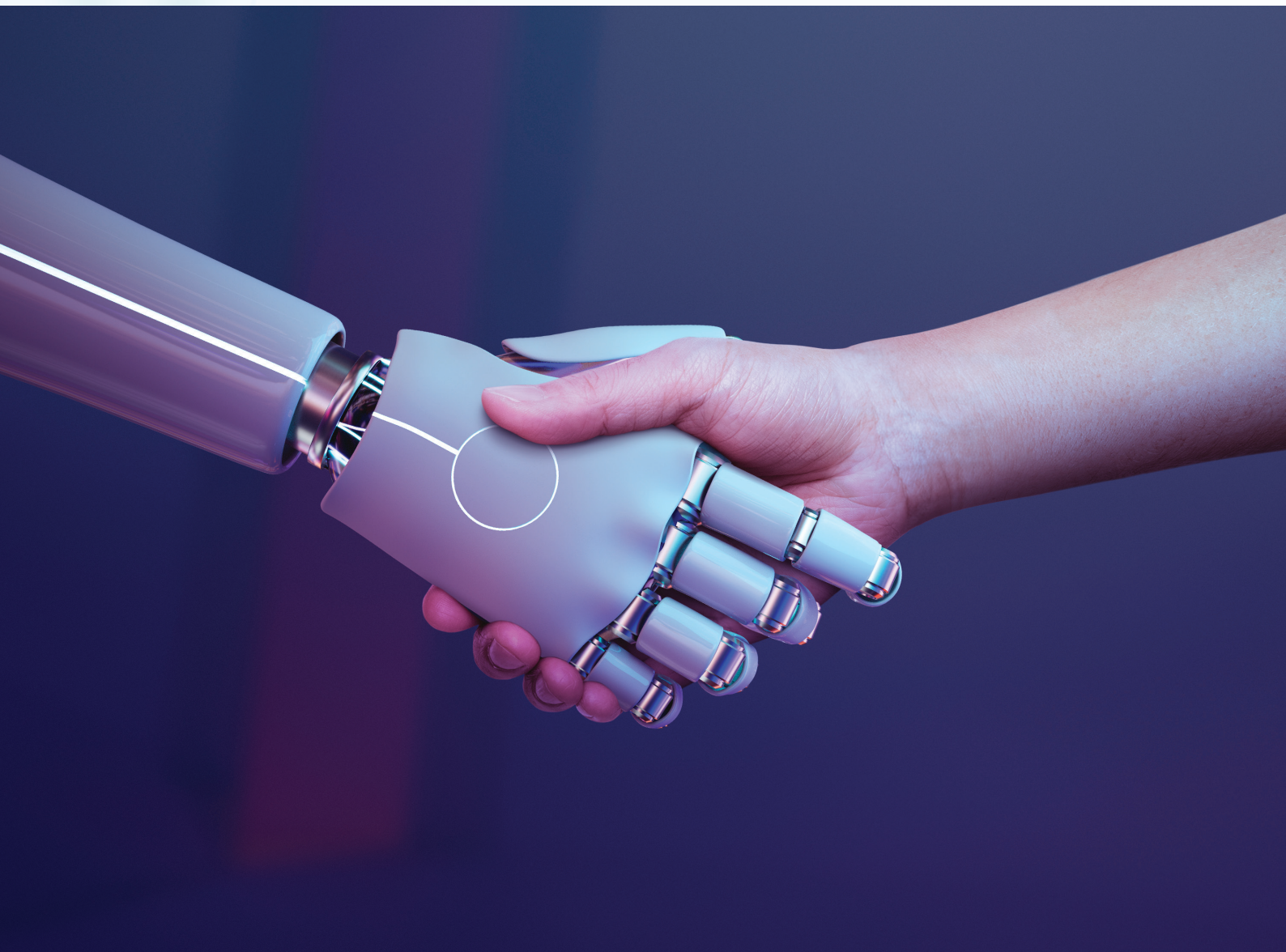
**Session 7 & 8:**  
Generative AI





### At the end of this program, the participants gain:

- Proficiency in Python coding for efficient data manipulation and analysis.
- Data handling skills encompassing various data formats.
- Expertise in data preprocessing techniques, including missing data handling.
- Ability to perform basic statistical analysis for extracting insights.
- Skills to create informative and visually appealing charts and plots.
- Comprehensive understanding of the data science landscape and fundamental concepts.
- Mastery of feature engineering techniques crucial for optimizing datasets.
- Proficiency in applying a variety of machine learning algorithms.
- Knowledge of model evaluation metrics and real-world deployment processes.
- Expertise in deep learning with PyTorch, including tensors, neural networks, and applications in computer vision and natural language processing, along with a deep understanding of Generative AI, its advanced techniques, practical applications, ethical considerations, and real-world use cases.





### • Python Primer for Artificial Intelligence

The module will cover essential Python concepts and foundational libraries, enabling participants to effectively manipulate, analyze, visualize data. It will be hands-on and case-based, allowing participants to apply their skills to real-world data sets.

The objective of this module is to enable the participants to

- Understand and learn core features of python.
- Learn how to read and write various data formats.
- Learn how to prepare and clean data using python.
- Learn how to do basic statistical analysis to find key insights from the data using python.
- Learn how to create basic charts and plots for univariate and bivariate analysis.

### • Python for Machine Learning

AI and Machine Learning is emerging as a hot new profession and academic discipline. Harvard Business Review says Data Scientist is the Sexiest Job of the 21st Century. But the demand for prompt engineers and data scientists are racing ahead of supply. People with the necessary skills are scarce, primarily because the discipline is so advent.

This module enable the participants with the following:

- Develop a deep understanding of the data science field, covering problem domains and foundational concepts.
- Learn data manipulation with Python libraries like Pandas and Scipy for efficient data handling.
- Gain expertise in feature engineering, including handling missing data, scaling, and categorical encoding.
- Master regression and classification algorithms like Linear Regression, KNN, Decision Trees, Logistic Regression, and Random Forest.
- Acquire skills in model evaluation using metrics like RMSE, R2, Confusion Matrix, Precision, Recall, and understand the model deployment process.

### • Python for Deep Learning

Python is essential for deep learning due to its readability and extensive libraries like NumPy, pandas, and matplotlib. Its simplicity and large community make it ideal for rapid prototyping. PyTorch, a popular deep learning framework, builds upon Python's strengths, providing dynamic computation graphs and automatic differentiation. This allows for easy experimentation and efficient training of complex neural networks.

PyTorch also offers GPU acceleration, enhancing performance for deep learning tasks. Together, Python and PyTorch create a user-friendly and powerful environment for researchers and practitioners, making them indispensable tools for learning and applying deep learning techniques in various domains.

This comprehensive module is designed to equip participants with the essential knowledge and practical skills needed to excel in deep learning using PyTorch.

The objective of the module is to enable the participants to:

- Gain a solid understanding of tensors and their role in PyTorch for efficient data representation, along with mastering input pipeline construction and neural network design and training.
- Understand the significance of computation graphs in optimizing deep learning models, explore automatic differentiation for gradient computation, and become proficient in training deep neural networks.
- Apply convolutional neural networks (CNNs) for computer vision tasks and leverage recurrent neural networks (RNNs) and attention mechanisms for sequential data and natural language processing applications, reinforced through hands-on projects.

## • **Generative Artificial Intelligence**

Generative AI is the backbone of transformative technologies like language models and creative content generation, shaping industries such as media, entertainment, marketing, and research.

This comprehensive module on Generative AI comprises of three main components: Fundamental Concepts of Generative AI, Applications of Generative AI, and Deep Learning for Generative AI.

The objective of the module is to enable the participants to:

- Deepen the understanding of Large Language Models (LLMs) and Generative AI, covering their principles, architecture, and diverse applications.
- Learn advanced techniques to guide LLMs effectively, including prompt design, instruction fine-tuning, and Parameter Efficient Fine-Tuning (PEFT).
- Improve LLM performance using Reinforcement Learning with Human Feedback, involving human interaction and feedback in model refinement.
- Explore practical LLM applications in text and image generation and delve into Generative Image Models like AutoEncoders, GANs, Diffusion Models, and OpenAI CLIP.
- Address ethical concerns in Generative AI, including bias mitigation and responsible AI practices, through real-world case studies showcasing its varied applications.



IoA (Institute of Accredited Artificial Intelligence) Accreditation is a prestigious recognition that validates the competence and expertise of individuals and organizations in the field of artificial intelligence. This accreditation serves as a mark of credibility and excellence, offering global recognition and opening doors to enhanced career opportunities, professional development, and industry recognition. It signifies a commitment to maintaining high standards and ethical AI practices, making it a valuable asset in today's AI-driven world.

### Accreditation



Unlock Artificial Intelligences's secrets with confidence!  
Our training program is IoA Accredited, Assurance of Quality and Excellence in AI Training.





## Meet Your Expert Trainers:



### ***Naveen Kumar Bhansali***

#### **Industry Experience:**

- Co-founder - CTO & AI Head at BlitzAI (No-code AI platform)
- 18 years of industry experience as AI advisory consultant, AI solution architect and engineer, data scientist, big data architect.
- Headed AI and Big Data multi-million-dollar projects in Latin America, EMEA, USA and Southeast Asia for EMC Technologies.
- Delivered production grade solutions for clients across the globe.
  - o Telecom: TIM Brazil, Hawaiian Telecom USA, MTN Nigeria
  - o Finance: AMEX USA, Itau Brazil, Bank of Thailand, Bank of Ayudhya (Thailand)
  - o Insurance: FWD Hong Kong
  - o Retail: ASOS UK, StyleUnion India
  - o Manufacturing: Embraer Brazil
  - o MedTech: Exdion India

#### **Academic Experience:**

- Adjunct Faculty for more than 10 years at IIM Bangalore (Ranked among top 30 business schools in the world).
- IIMBx Instructor for “AI for Managers”, covering Deep Learning and Generative AI. (<https://iimbx.iimb.ac.in/ai-for-managers/>)
- CFA Level 2
- Vice President of Analytical Society of India.
- Conducted hundreds of workshops and trained 1000s on Artificial Intelligence, Deep Learning etc. for corporates such as CISCO, JP Morgan, General Motors, EMC, Fidelity, Global Analytics India Pvt Ltd, etc. and several academic institutions across India.

#### **Publications in Harvard Business Publishing:**

- Customer Analytics at Flipkart.com  
<https://hbsp.harvard.edu/product/IMB555-PDF-ENG>
- Breaking Barriers – Micro-mortgage Analytics:  
<https://hbsp.harvard.edu/product/IMB445-PDF-ENG>



**Kumar Rahul** is an Engineering graduate from National Institute of Technology, Jaipur, and completed his general management from Indian Institute of Management Bangalore (IIMB). Currently, he is pursuing PhD in Quantitative Methods and Operations Management from Indian Institute of Management Kozhikode, India. His professional career spans more than 16 years. He has worked with companies like

Satyam Computers, Nokia Siemens, and Deloitte Consulting and has also been a founding member of a few start-ups. He is a founding member of AwesomeStats Consulting, which focuses on training and consulting in the field of Business Analytics. He is also a co-author of the book titled “Machine Learning using R.”

He has imparted 400+ sessions in R/Python/Julia in short and long duration programs at IIM Bangalore. As a trainer, he has undertaken equivalent number of sessions for working professionals in various corporates. Few of the prominent corporate clients, he has worked with are General Electric, Cisco, Deloitte Consulting, United Health Group, HSBC, Flipkart, Fidelity Investments, General Motors, JP Morgan, TVS Motors, Raukten, Hudson Bay etc.

As a part of the Data Centre and Analytics Lab, IIMB and Analytics society of India, he also imparted several sessions in faculty developments programs (FDP) and has conducted workshops in IIM Bangalore, PSG Tech Coimbatore, PSGIM Coimbatore, CIT Coimbatore, LBSIM New Delhi, Christ University Bangalore, IMT Hyderabad, JIM Trichy, SRM Chennai, SDM Mysore.

For over 7 years, he worked as a consultant at Data Centre and Analytics Lab, IIMB. He has executed several analytics projects for large corporates. Few of his assignments in the field of Analytics include: predicting credit scoring for cooperative banks of Karnataka, renege/attrition issue for an Indian retail company, net promoter score for a reputed medical equipment manufacturer and design issues for a leading U.S. auto manufacturer, forecasting sales and warranty for a leading auto manufacturer, detecting anomaly for a paper-based consumer products company based out of the U.S., analyzing the turnaround time for claim settlement and claim denial in healthcare insurance in India and fraud in earnings management by companies. Some of his publications are:

- Rahul K., Dinesh Kumar U. (2021) Machine Learning using R. In Book, Wiley India. Springer, Cham
- Rahul K., Seth N., Dinesh Kumar U. (2018) Spotting Earnings Manipulation: Using Machine Learning for Financial Fraud Detection. In: Bramer M., Petridis M. (eds) Artificial Intelligence XXXV. SGA1 2018. Lecture Notes in Computer Science, vol 11311. Springer, Cham
- Invited talk on “Using Machine Learning Algorithms to Detect Earnings Manipulations” at 5th International Conference on Business Analytics and Intelligence, IIM Bangalore 11th-13th December 2017.
- Paper on “Predicting Net Promoter Score (NPS) to Improve Patient Experience at Manipal Hospitals” published at Harvard Business Publishing, September 2017.
- Paper on “Behavioral Modeling to Predict Renege” published at Harvard Business Review, January 2016.
- Paper Presentation at CMMI conference organized by CMMI Institute, 10-11 Dec 2014 at Shenzhen, China.
- Paper Presentation at SEPG Europe conference organized by SEI | Carnegie Mellon University, 5-7 June 2012 at Madrid, Spain.

He has also undergone workshop on the usage of statistical models and techniques from ISI Bangalore. His other certifications include DB2 certification from IBM and ISO 9001:2008 lead auditor certification by DNV India.



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