Certificate Programme in

Artificial Intelligence for Managers

Overview

In response to the high industry demand for skilled personnel in the field of Artificial Intelligence, Indian Institute of Management is launching a new online-blended certificate program in Artificial Intelligence for managers.

The total duration of the programme is 16 months, and this includes 11 online modular courses stacked together based on the order of their sequence in a learning curve. Anyone who aspires to become an expert Decision Maker through AI and ML, from recent graduates to senior managers, can enroll. The program aims to make the knowledge of Data Science accessible to a large number of interested candidates without diluting quality. Participants will learn to build AI and ML models and operationalize AI and ML solutions at enterprise level.

About Certificate Programme in Artificial Intelligence for Managers:

In today's world, Artificial Intelligence (AI) has emerged as a key technology for the growth of every organization. Sophistication in AI is expected to be the main differentiator between high performing companies and low performing companies. Use of AI and its components such as statistical learning, machine learning and deep learning are expected to increase the stakeholder value and customer experience and to be the main enabler for wealth creation.

Data-driven decision-making involves analyzing of large volumes of data to identify patterns and build explanatory models. Hence, the capacity to convert raw data into its usable form is one of the most sought-after skills whose relevance is only expected to rise rapidly with time. All major organizations have AI as an integral part of their growth strategy. To maintain competitive advantage in the future, organizations need skilled talent to capitalize on Artificial Intelligence and ML's exponential potential for growth and research.

However, there is a huge gap between the demand and the supply of suitable qualified AI experts in the job market. But traditional classroom programs will not be able to provide

the numbers needed to meet the upcoming requirements. To meet this demand, the Indian Institute of Management Bangalore has designed this Certificate Program in Artificial Intelligence. It draws on the expertise of IIM Bangalore's renowned faculty in combination with industry-oriented learning pedagogy to provide hands-on experience.

Programme Objective

The Certificate Programme in Artificial Intelligence for Managers consist of 11 modules specifically designed to provide an in-depth knowledge of Artificial Intelligence and its components such as Statistical Learning, Machine Learning and Deep Learning.

At the end of the programme the participants will be able to:

- Recognize the emergence of Artificial Intelligence and Machine Learning as a competitive strategy.
- Understand components of AI such as Machine learning, statistical learning and deep learning and their applications in solving business problems.
- Learn descriptive, diagnostic, predictive and prescriptive analytics, and their applications in generating solutions for business problems.
- Understand foundations of data science on which the AI models are build.
- Demonstrate data visualization and storytelling through data.
- Understand and apply machine learning algorithms such as supervised learning, unsupervised learning, and reinforcement learning algorithms to solve problems across various functional areas of management.
- Learn the functioning of artificial neural networks (ANN) and deep learning algorithms such as recurrent neural network (RNN) and Convolutional Neural Network (CNN) with applications.
- Apply AI techniques to solve problems in various sectors such as Aerospace, Banking financial services and insurance (BFSI), E-commerce, Manufacturing, Retail, Sports and Services.
- Demonstrate hands-on experience with software such as Python, Microsoft Excel, R, and Tableau.
- Deploy the generated solution for business problems.

There are 11 modules in the programme. Participants are expected to complete 9 modules to earn a completion certificate. *They have an option to choose one of the two courses i.e. Machine Learning using Python or Machine Learning using R.

List of modules
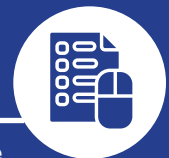
- Foundations of Data Science
- Data Preparation and Preprocessing
- Data Visualization and Story Telling
- Predictive Analytics
- Machine Learning with Business Applications
- *Machine Learning using Python or *Machine Learning Using R
- MLOps
- Prescriptive Analytics
- Reinforcement Learning
- Artificial Neural Network and Deep Learning

Program Duration

The total duration of the programme is 16 months. The duration of each course ranges from 2 weeks to 8 weeks with sufficient time between courses for students to comprehend the contents.

Sl.no	Module Name	Start Date	End Date	No. of Live-Online Sessions
1	Foundations of Data Science	22 Apr 2022	23 June 2022	2
2	Data Preparation and Preprocessing	24 June 2022	07 July 2022	1
3	Data Visualization and Story Telling	08 July 2022	18 Aug 2022	2
4	Predictive Analytics	19 Aug 2022	06 Oct 2022	3
5	Machine Learning with Business Applications	07 Oct 2022	24 Nov 2022	3
6	Machine Learning Using R	25 Nov 2022	26 Jan 2023	2
7	Machine Learning Using Python	25 Nov 2022	26 Jan 2023	2
8	MLOps	27 Jan 2023	16 Mar 2023	2
9	Prescriptive Analytics	17 Mar 2023	27 Apr 2023	2
10	Reinforcement Learning	28 Apr 2023	08 June 2023	3
11	Artificial Neural Network and Deep Learning	09 Jun 2023	10 Aug 2023	3

Program Highlights:

- Industry-relevant Curriculum
- Experienced Instructors from Industry & Academia
- State-of-the-art Pedagogical Tools
- Hands-on Learning Experience
- Education from India's Best Management School
- Certificate from IIMB and edX
- Real-World Best Selling Case Studies published by faculty at Harvard Business Publishing
- Active Community Forum
- Peer2Peer Learning through Forums
- Class labs/ Home Assignment
- Project Presentations

Who can apply?

- Graduates in engineering and science with aspirations to build a career in AI/Machine Learning or who wish to enhance their skills for better career opportunities.

- Current/ Aspiring Data, Software, and IT professionals interested in gaining cutting-edge knowledge on AI and ML.

- Consultants looking to build expertise in Data Science and Machine Learning for better client delivery.

- Senior managers and business leaders who oversee AI and Machine Learning projects with a keen interest in implementing a data-driven decision-making approach.

- Entrepreneurs and business owners who want to leverage AI and ML to accelerate their business growth.

Admission Criteria

The Programme follows a comprehensive admission procedure to ensure that the learners' goals are oriented towards a challenging experience. Participants are carefully chosen through Profile Screening and Online Test.

Important Dates

Last Date of Registration 31st March 2022

Programme Commencement: 22nd April 2022

Programme Fee: INR 1,55,000

Tax (18%): INR 27000

Total: INR 1,77,000

Course-Level Details:

1 Foundations of Data Science (8 weeks)

The process of data-driven decision making requires managers to know how to summarize, analyse, conduct hypothesis tests, interpret and communicate data using descriptive statistics to facilitate decision making. Statistical analysis is a fundamental method of quantitative reasoning that is extensively used for decision making. This course is aimed at providing participants with the most often used methods of statistical techniques along with appropriate statistical tests and concepts in linear algebra. The course is oriented towards application without compromising the theoretical aspects.

What You'll Learn:

- Introduction to data science; Different types and scales of data (ratio, interval, nominal and ordinal); Data summarization and visualization methods; Tables, Graphs, Charts, Histograms, Frequency distributions, Relative frequency measures of central tendency and dispersion; Box Plot.

- Basic probability concepts: Joint Probability; Conditional probability; Bayes' Theorem; Market Basket Analysis and Association Rule Mining.

- Probability distributions: Discrete and Continuous Distributions; Binomial, Poisson, Exponential and Normal Distribution.

- Sampling and Estimation: Random and Stratified Sampling; Sampling Distribution; Central Limit Theorem; Maximum Likelihood Estimation.

- Hypothesis testing: Null and Alternative hypothesis;

Live Session: Harvard Business Publishing (HBP) Case Discussion | Testing Marketing Hypothesis at WSES

https://hbsp.harvard.edu/product/IMB693-PDF-ENG

P-value and Significance Value; Type-I and Type-II error; One Sample tests: Z test and t-tests; Two Sample tests: two sample t test; paired t test.

- Analysis of Variance (ANOVA); Goodness of fit tests.

- Introduction Linear Algebra: Vectors and Matrices, Eigen Value and Eigen Vector.

2 Data Preparation and Preprocessing (2 weeks)

Quality of the data is important for the success of any analytics project. Anecdotal evidence suggests that more than 80% of time taken for an analytics project is spent on data preparation and data imputation. In this short module, we will be discussing data preparation and imputation techniques before advanced analytics tools can be applied.

What You'll Learn:

- Data quality check, data cleaning and Imputation.

- K Nearest Neighbors (KNN) algorithm for data imputation.

3 Data Visualization and Story Telling Through Data (5 weeks)

In the current world where everything is digitalized, there is so much of data which gets captured around us. So how do we comprehend this big data and extract valuable, actionable insights and explain this data effectively to stakeholders? As the saying goes "A Picture is worth a thousand words", Visualizations can help us make sense of the big data. A well-designed graphics are usually the simplest and most powerful in exploring and explaining insights from the Data. During this module, the participants will understand importance of data visualization and learn to use many visual components.

What You'll Learn:

- **Data Visualization Design principles**: Edward Tufte's design principles of graphical excellence.

- **Data Encodings**: Chart types: Comparison; Composition; Relationship and Distribution. Visual attributes and Effective Data Encodings. Gestalt principles of visual perception.

- **Introduction to Tableau**: Building charts and animations using Tableau; Building Business Dashboard

- **Storytelling**: Importance of business storytelling; Narrative data visualization; Story types with examples.

4 Predictive Analytics (6 weeks)

Predictive analytics model predicts occurrence of future events such as demand for a product, revenue forecast, customer churn, employee attrition, fraud, default in loan repayment, etc. based on historical data. In many business problems, we try to deal with data on several variables, sometimes more than the number of observations. Regression models help us understand the relationships among these variables and how the relationships can be exploited to make decisions using supervised learning algorithms. Primary objective of this module is to understand how regression and causal forecasting models can be used to analyse real-life business problems such as prediction, classification and discrete choice problems. The focus will be case-based practical problem- solving using predictive analytics techniques to interpret model outputs. The participants will be exposed to software tools such as MS Excel, R,   Python and SPSS and how to use these software tools to perform regression, logistic regression and forecasting.

What You'll Learn:

- Regression model building framework: Problem definition, Data pre-processing; model building; Diagnostics and Validation

- Simple linear regression: Coefficient of determination, Significance tests for predictor variables, Residual analysis.

- Multiple linear regression: Coefficient of multiple determination, Interpretation of regression coefficients, Categorical variables, heteroscedasticity, Multi-collinearity, outliers, Autoregression and Transformation of variables, Stepwise Regression Model Building

- Binary and Multinomial Logistic Regression: Logistic function, Estimation of probability using logistic regression, Deviance, Wald Test, Classification table (Error Matrix), Sensitivity, Specificity, Precision and F-Score. Receiver Operating Characteristic (ROC) Curve, Area under ROC curve (AUC), Lift Chart.

- Forecasting: Auto-Regressive Integrated Moving Average (ARIMA) Model.

- Application of predictive analytics in retail, direct marketing, health care, financial services, insurance, supply chain, etc.

Live Session 1: Harvard Business Publishing (HBP) Case Discussion | Package Pricing at Mission Hospital (Best-Seller at HBP)

https://hbsp.harvard.edu/product/IMB527-PDF-ENG

Live Session 2: Harvard Business Publishing (HBP) Case Discussion | Pricing of Players in the Indian Premier League

https://hbsp.harvard.edu/product/IMB379-PDF-ENG
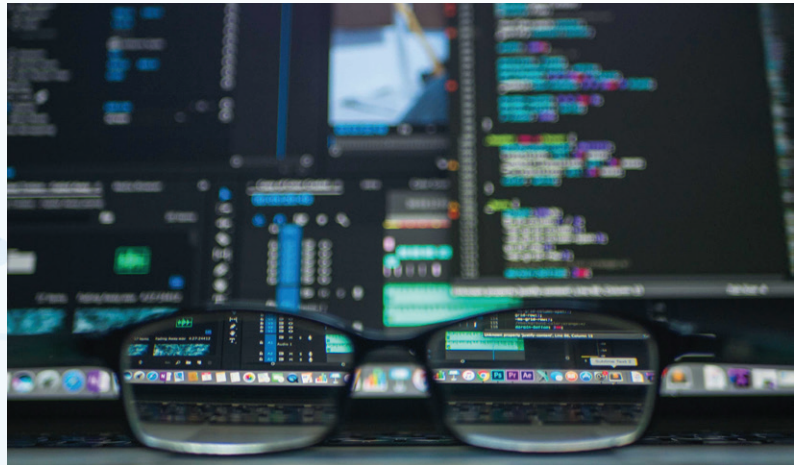
5 Machine Learning with Business Applications (6 weeks)

This course introduces the participant to machine learning algorithms such classification regression trees (CART), Chi-Square Automatic Interaction Detection (CHAID) and Ensemble Methods. The focus will be on solving classification problems with imbalanced data.

What You'll Learn:

- Decision tree learning: Classification and regression trees (CART), Gini impurity index, Entropy; Chi-square automation interaction Detection (CHAID): chi-square test of independence for feature selection. Decision trees for regression problems.

- **Ensemble Methods**: Random Forest (RF), Bootsap Aggregating (Bagging), Variable Importance.
- **Boosting Techniques**: Adaptive Boosting and Gradient Boosting.

> **Live Session 1:** Harvard Business Publishing (HBP) Case Discussion Marketing Heads Conundrum:
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> https://hbsp.harvard.edu/product/IMB541-PDF-ENG?Ntt=Marketing%20Head%27s%20Conundrum

> **Live Session 2:** Harvard Business Publishing (HBP) Case Discussion Improving Leading Generation at Eureka Forbes Using Machine Learning Algorithms:
>
> https://hbsp.harvard.edu/product/IMB779-PDF-ENG?Ntt=Eureka%20Forbes (Best Seller at HBP)

6 Machine Learning Using Python (8 weeks)

This course will provide a strong foundation in Machine Learning using Python by providing real-life case studies and examples. This course starts with an introduction to Python language and covers topics ranging from, descriptive analytics and basic statistics and probability to advanced machine learning concepts such as regression, classification, clustering and recommender systems. All the topics include real-world examples and provide step-by-step approach on how to explore, build, evaluate, and optimize machine learning models.

What You'll Learn:

- **Introduction to Python**: Learn core features of Python programming language required for building machine learning skills.
- **Exploring and preparing datasets**: Perform basic Data pre-processing and visualization to explore the data.
- **Basic Statistics and Hypothesis Testing**: Learn to find statistical insights and conduct hypothesis tests such as one sample z test and t test, two sample t test, paired t test, chi-square test of independence.
- **Supervised Learning**:
  - » Build regression and classification models to solve real world problems.
  - » Learn complete lifecycle of model building from preparing, building, tuning, validating and deploying models.
  - » Apply several ML techniques such as linear regression, logistics regression, decision trees, KNN and random forest using Python libraries.
- **Unsupervised Learning**: Learn to apply clustering techniques to real life problems and apply techniques like K-Means using Python libraries.
- **Recommender systems**: Learn to build recommender systems using association rules and collaborative filtering using Python libraries.

7 Machine Learning Using R (8 weeks)

In this course, we will start with the installation steps of R and RStudio, and quickly learn about the R-Studio features. We will further discuss about the packages such as readr, tidyr, dplyr and ggplot2 for data preparation and visualization.

An important step in statistical model building is feature selection to avoid overfitting and underfitting. Models such as regression and logistic regression use hypothesis testing to select features. We will learn to apply t-test, chi-square test, using stats package, for hypothesis testing. While developing regression and logistic regression model, we will also understand the application of hypothesis test for feature selection using caret package.

What You'll Learn:

- **Data Preparation Using R**: Perform basic data pre-processing and visualization to explore the data.
- **Statistical Inference Using R**: Conduct hypothesis tests such as t-test, chi-square test and use them in Model development.
- Optimization and Linear Algebra using R.
- Develop machine learning models on structured as well on unstructured data using R.
- Apply ML techniques like regression, logistic regression, decision trees, ensemble techniques on real life business use cases.

8 MLOps (6 Weeks)

MLOps, relatively a new discipline, helps organizations and business leaders generate long-term value and reduce risk associated with data science, machine learning, and AI initiatives. As per this report, more than 80% of the ML or Data Science projects never make it to production because of several challenges in identifying, designing, developing and operationalizing ML models. This course is designed to make students aware of the challenges and equip them will tools, techniques and best practices to deal with these challenges. Students will learn about the different layers of the data pipeline, approaches to model selection, training, scaling, as well as how to deploy, monitor, and maintain ML systems. With advancement of complex, black box ML models, they can predict with high accuracy but loose interpretation and lack trust. Students will learn ML interpretability and explainability, to ensure models create trust with their stakeholders. The course will also address other important issues like privacy, fairness, ethics and security.

What You'll Learn:

- Understand key stages in ML development lifecycle and key components in ML Systems Design.
- Learn how to select models, and keep track of various model experiments

- Understand how to choose infrastructure and tools for data preparation, model building and deployments.
- Understand various model validation strategies and when to use what metrics for measuring model accuracies.
- Learn model deployment concepts like model compression, concept drift, monitoring and model updates.

9 | Prescriptive Analytics (5 weeks)

Optimization models are core tools used in prescriptive analytics and are used in arriving at optimal or near optimal decisions for a given set of managerial objectives under various constraints. Optimization techniques such as gradient descent plays an important role in many machine learning algorithms. Optimization is an integral part of operations analytics with specific applications in operations and supply chain management. The objective of the module is to acquaint participants with the construction of mathematical models for managerial decision situations and use freely available Excel Solver to obtain solutions and interpret the results.

What You'll Learn:

- Introduction to Operations Research (OR), linear programming (LP), formulating decision problems using linear programming, interpreting the results and sensitivity analysis. Concepts of shadow price and reduced cost.
- Multi-period LP models. Applications of linear programming in product mix, blending, cutting stock, transportation, transshipment, assignment, scheduling, planning and revenue management problems.
- Integer Programming (IP) problems, mixed-integer and zero-one programming. Applications of IP in capital budgeting, location decisions, contracts.
- Non-linear programming, gradient descent algorithm technique.

10 | Reinforcement Learning Algorithms (5 weeks)

Reinforcement learning (RL) algorithms deal with problems in which an agent has to take a sequence of decisions under uncertainty and the objective is to maximize the reward earned through each decision. RL offers a powerful analytical approach to model and examine complex problems in the domains of finance, retail, marketing, operations and economics under uncertainty. In management as well as in business, many measurements change with time and are inherently random in nature. The objective of this module is to provide an introduction to stochastic processes and their applications to business and management. Stochastic models are also the basis for reinforcement learning algorithms.

What You'll Learn:

- Introduction to stochastic models, Markov models,

Classification of states, Steady-state probability estimation, Brand switching and loyalty modelling, Market share estimation in the short and long run. Google's ranking algorithm.
- Poisson process, Cumulative Poisson process, Applications of Poisson and cumulative Poisson in operations, marketing and insurance. Measuring effectiveness of retail promotions, warranty analytics.
- Reinforcement Learning Algorithms: Dynamic Programming; Markov decision process, Applications of Markov decision process in sequential decision making. Policy iteration and value iteration algorithm.

Live Session: Harvard Business Publishing (HBP) Case Discussion | Customer Analytics at Flipkart.com

https://hbsp.harvard.edu/product/IMB555-PDF-ENG

11 | Artificial Neural Networks and Deep Learning (8 weeks)

This course will provide a strong foundation in Deep Learning using TensorFlow/Keras by providing real-life case studies and examples. We shall start off by learning the concept of representational learning and understand the difference between machine learning and deep learning and list out the factors leading to deep learning's prominence. We shall dive deeper into artificial neural network by covering topics ranging from building and training simple neurons, perceptron etc. using algorithms such as gradient descent, back-propagation etc. to deep networks/architectures with hyper-parameter tuning. Deep learning has solved complex problems in the field of computer vision, natural language processing etc. through different architectures such as convolutional neural network, recurrent neural networks, transformer models etc. We shall cover all these architectures in detail and provide step-by-step approach on how to explore and build these models.

What You'll Learn:

- Artificial Neural Networks – Multiple Layer Perceptron, Autoencoders:
  » Introduction to Artificial Intelligence and Deep Learning: Relationship between Machine Learning and Deep Learning
  » Learning process: Representational learning; Deep Learning's application area; Challenges and Frameworks;
  » Artificial Neural Networks: Biological and Mathematical Neurons; Perceptron Model - Multi-Layer Perceptron; Back-propagation Algorithm; Activation Functions.
  » Training deep neural networks: Hyper-parameter Tuning, Optimizers, Addressing overfitting issues: Regularization and Dropout; Grid Search
  » Unsupervised Learning using Autoencoders and Transfer Learning

- Convolutional Neural Network (CNN) and computer vision:

  » Understand the concept of convolutions and various operations/layers such as padding, striding, pooling etc. which form convolutional neural networks.

  » Building and training CNNs for computer vision problem such as image classification.

  » Understand CNN architectures such as VGG, ResNet, Inception, Xception etc. in detail and learn to perform transfer learning by applying these pre-trained models and weights on different datasets.

  » (Optional) Understand the concept of object localization, detection, anchor boxes, fully convolutional networks, You Only Look Once (YOLO).

- Natural Language Processing (NLP), Recurrent Neural Network (RNNs) and Transformers:

  » Understand the components of NLP pipeline and the shortcomings of encodings such as one hot encoding, tf-idf and learn word embeddings such as word2vec, GloVe.

  » Apply word embedding and convolution 1D for sentiment analysis.

  » Understand the architecture of RNNs and its ability to handle sequential data, learn to train it using Back-propagation through time (BPTT) and understand its limitations and learn different types of architectures such as Long-Short Term Memory (LSTM) and Gated Recurrent Unit (GRU), bi-directional RNNs and stacked RNNs.

  » Language modeling and applying RNNs for applications such as character prediction and encoder-decoder architecture for machine language translation.

  » Learn the state of the art models such as attention layers, transformer models, GPT and deep contextualized embeddings such as ELMo, BERT and learn to apply them.

Evaluation, Grading Policy and Certification:

Each module will be evaluated using an end-of-the-module. There will be online tests for all courses except Module 2: Data Preparation and Pre-processing. It is sufficient to complete one of the two courses: ML using R/Python for certification.

To earn a course completion certificate on Artificial Intelligence for Managers, participants are expected to score 60% and above in all nine courses.

Meet Your Instructors:

Dr U Dinesh Kumar is a Professor of Decision Sciences and Chair of Excellence at the Indian Institute of Management Bangalore. Dr Dinesh Kumar has over 25 years of teaching and research experience. Prior to joining IIM Bangalore, Dr Dinesh Kumar has worked at several reputed Institutes across the world including Stevens Institute of Technology, USA; University of Exeter, UK; University of Toronto, Canada; Federal Institute of Technology (ETH), Zurich, Switzerland; Queensland University of Technology, Australia; Australian National University, Australia and the Indian Institute of Management Calcutta. Recognised as one of the Top 10 Most Prominent Analytic Academicians in India, his main research and teaching interests are Business Analytics and Artificial Intelligence, and he has published 38 case studies at the Harvard Business Publishing on data science and machine learning, Nine of his case studies are best-sellers at the Harvard Business Publishing case portal. He has authored more than 70 research articles, and two books. His books, Business Analytics – the science of data driven making and machine learning using python are Amazon India best-sellers.

Dr Dinesh Kumar has conducted training program on Analytics for several companies such as Accenture, Aditya Birla Group, Ashok Leyland, Asian Paints, Bank of America, Blue Ocean Market Intelligence, Cisco, Fidelity, Hindustan Aeronautics Limited, Honeywell, Infosys, ITC Info Tech, Madya Pradesh Agency for Promotion of Information Technology (MAPIT), National Academy for Defence Production, Ocwen financial Services, SONY and so on. Dr Dinesh Kumar conducts corporate training programme in Analytics and trained more than 1000 professionals in the field of analytics.

Instructor: Foundations of Data Science, Predictive Analytics, Machine Learning with Business Applications and Reinforcement Learning.

Dr. Rajluxmi V Murthy is an Associate Professor of Decision Sciences at the Indian Institute of Management Bangalore. Her research and teaching interests are in the fields of Analytics, Optimization and Simulation, especially in their applications to Logistics Management, Service Industry and Sustainability. She teaches courses and topics in these areas to postgraduate anddoctoral students and to Executive Education Programme participants. She has conducted consultancy and research studies in related areas. Her consulting assignments include: Preparation of RAP for Metro Line Reach 6 – Phase 2 (BMRCL), NREGA Surveys in Gulbarga, Raichur, Anantapur and Adilabad districts (Ministry of Rural Development and UNDP); Warehousing and Distribution Management at Co-optex (Handloom Cooperative in Tamil Nadu), and Construction of Godowns and Railway Siding (Food Corporation of India). Prior to joining IIMB, she worked as an operations research and system analyst at MCI Telecommunications, Dallas and helped build Decision Support Systems for the management of the company's telecommunications network. She was also a consultant to GTE, Dallas and an adjunct faculty at the Cox School of Business, Southern Methodist University, Dallas.

Instructor: Prescriptive Analytics

Kumar Rahul, is an engineering graduate from National Institute of Technology, Jaipur and an alumni of Indian Institute of Management, Bangalore, as well. He has spent 16 years of his life working in corporate and academia, and is still passionate about exploring data using a variety of tools and techniques. He has worked with the likes of Satyam computers, Nokia Siemens and Deloitte Consulting but the urge to explore the uncharted territory led to few start-ups. Currently, he works as a Freelancer as well as a founding member of AwesomeStats Consulting; a company, run by few passionate folks, which is primarily focused towards training and consulting in the field of data science. He also works as a consultant at Indian Institute of Management Bangalore and has executed several analytics projects for large corporations. His recent work in the field of analytics includes developing credit scoring model for co-operative banks of Karnataka, India; attrition and renege modelling for IT services industry; Net Promoter Score (NPS) modelling for a reputed medical equipment manufacturer; predicting design issues for a leading US auto manufacturer; sales and warranty forecasting for a leading Indian auto manufacturer; anomaly detection for a major paper-based consumer products manufacturing company of US. He has published 2 cases in Harvard business publishing and presented a technical paper on financial fraud detection which is a part of conference proceedings at Springer Publishing. He is pursuing his PhD, in Quantitative Management, from Indian Institute of Management, Kozhikode.

Instructor: Machine Learning Using R.

Manaranjan Pradhan, an adjunct faculty and alumnus of IIM Bangalore, has about 20+ years of industry experience working on Big Data & Machine Learning. He has worked with TCS, HP, and iGATE and worked on large scale project implementations for customers like Motorola, Home Depot, CKWB Bank, P&G in the roles of solution and technical architect. He is a freelancer who provides consulting and training on Big data & Data Science including Machine Learning. He has been teaching Big Data and Machine Learning for 7+ years and has trained more than 1000 people from several large MNCs including EMC, CISCO, TESCO, HP, YODLEE, Goldman Sachs, Software AG, Amadeus, Cognizant, Cap Gemini, Accenture etc. He is an alumnus of Indian Institute of Management, Bangalore (IIMB).

He has co-authored the best-selling book Machine Learning using Python

He has published a case on Harvard Business Publishing:

- Customer Analytics at Big Basket – Product Recommendations
- Improving Lead Generation at Eureka Forbes Using Machine Learning Algorithms

Instructor: Machine Learning Using using Python and MLOps.

Naveen Kumar Bhansali, Naveen Kumar Bhansali, an adjunct faculty and alumnus of IIM Bangalore, has 15+ years of industry experience as advisory consultant, senior solution architect and data scientist in data science, machine learning & deep learning, big data and automation platform for various domains/verticals such as insurance, health-care, telecom, retail, FMCG, e-commerce, and IT – Exchange & Storage across the globe, mainly South America, Europe and Asia Pacific region for clients such as Embraer Brazil, FWD Hong Kong, Bank of Thailand, TIM Brazil, Hawaiian Telecom USA, Bank of Ayudhya in Thailand, ASOS UK, VTC Hong Kong, etc.

He is also the Vice President of Analytical Society of India, which is the first and the largest body of analytics professionals and organisations in India. He has done Chartered Financial Analyst (CFA) Level 2 and is Director of R&N Capital Market Pvt. Ltd., which is into stock broking and capital market analysis.

He has also published two analytical case studies published at Harvard Business Publications:

- Customer Analytics at Flipkart.com https://cb.hbsp.harvard.edu/cbmp/product/IMB555-PDF-ENG
- Breaking Barriers – Micro-mortgage Analytics http://cb.hbsp.harvard.edu/cb/web/product_detail.seam?E=4848558&R=IMB445-PDF-ENG&conversationId=8501

Instructor: Artificial Neural Network and Deep Learning

Sharada Sringeswara, an IIM Bangalore and BITS Pilani alumni with over 20 years of experience in leading development organizations, delivering products in order management and supply-chain area with strong technical skills. Seasoned analytics executive with significant hands-on and leadership experience in building business models with understanding of the digital technology landscape. She has been teaching at IIMB executive and short duration programmes, IIML executive programmes on, Data Visualization and storytelling using Tableau, Python Dash and Apache Superset and Text Analytics.

Instructor: Data Preparation and Preprocessing, Data Visualization and Story Telling

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