

Master of Science in

Data Science

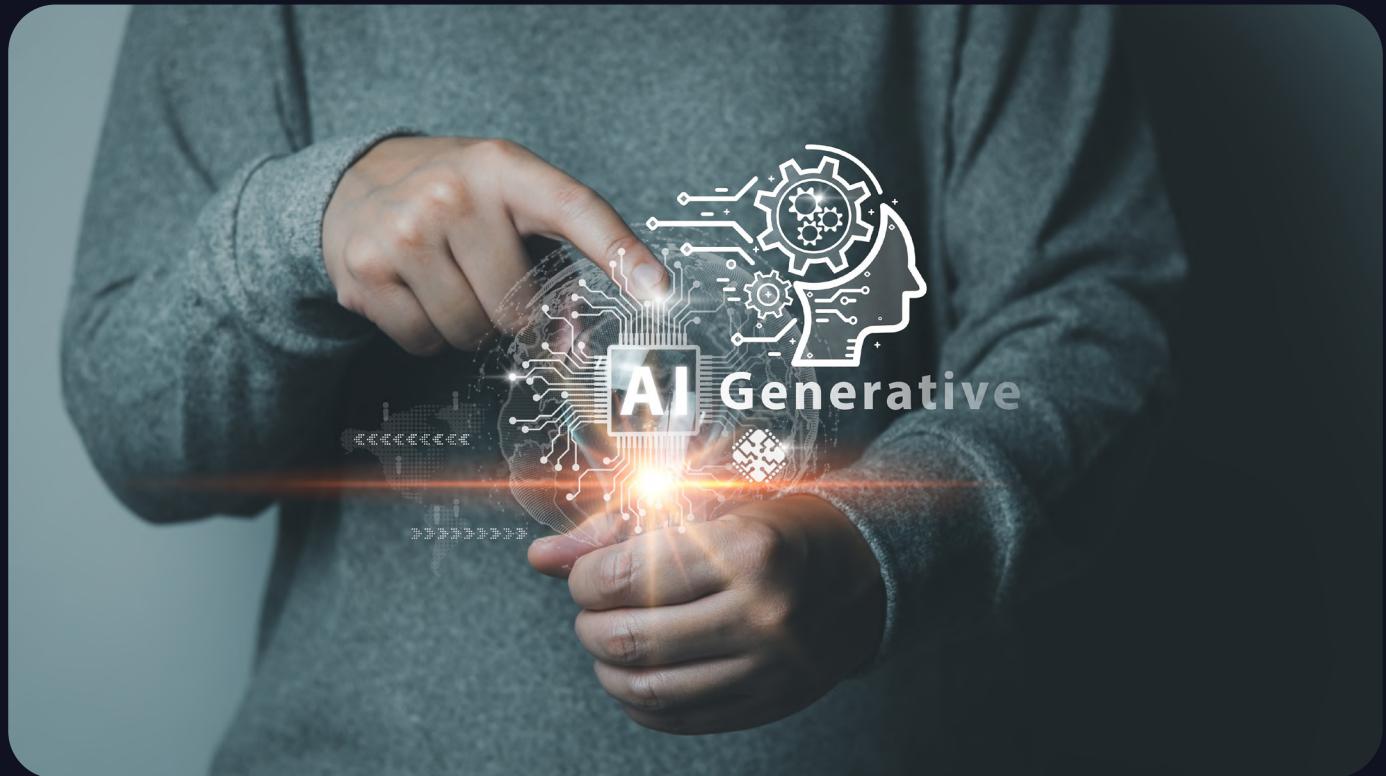


Now integrated with
Generative AI

Duration 18-21 months



The Era Of Generative AI



Usually, this first page is reserved for "About upGrad". But the world is at the cusp of Generative AI rapidly changing the world as we know it. At upGrad, we've always believed in imparting learners the skills necessary to thrive in the fast-evolving world of technology. We are hence quite thrilled to pioneer Generative AI as an elective in the Master of Science in Data Science.

With this key inclusion of Generative AI, learners will delve deeper into the fascinating realm of using Data Science to build practical applications like conversational AI chat bots, Image creators, and content recommenders amongst others, to solve real-world challenges. So dive into this brave new world of Generative AI and Large Language Models with us, and watch yourself transform into a 10x Data Scientist.

"IIIT Bangalore prides itself in constantly updating cutting-edge topics to its curriculum. Our faculty has shaped this exciting Generative AI elective along with upGrad's industry experts, thus ensuring both academic rigour as well as incorporating the latest advancements in tech"

**Dr. V. Sridhar,
Head-Faculty, IIITB**

"As an organisation that asks professionals to stay updated with the latest skills, we had to be one of the first to teach Generative AI. With this move, we are excited to witness the impact that Generative AI will have on the future, as well as the value our learners will bring to the field with this essential skill."

**Mayank Kumar, Co-founder & MD
upGrad**

About upGrad, IIITB, and LJMU, UK

upGrad has delivered over 20 million hours of learning, delivering programs by collaborating with universities across the world including Duke CE, IIIT Bangalore and Golden Gate University, among others

Online education is a fundamental disruption that will have a far-reaching impact. **upGrad** was founded taking this into consideration. upGrad is an online education platform to help individuals develop their professional potential in the most engaging learning environment. Since inception, upGrad is focussed on helping working professionals in their bid to learn, grow and move up in their career through a wide-range of programs designed to improve their expertise.

IIITB is a renowned university offering programs specialising in data science, machine learning and artificial intelligence. IIITB's faculty bring with them an average of 15 years of experience. The faculty covers the conceptual depths of topics such as Data Science, Machine Learning and AI, and Big Data Analytics. These will be complemented by industry relevant case studies from major industry verticals by industry leaders with 10+ yrs of experience from upGrad's industry network. The Executive Diplomas in DS and ML has been developed with the experienced faculty of IIITB in collaboration with Industry experts & upGrad to bring you cutting edge-curriculum with industry relevance. The strong placement network, industry mentorship and the credibility of this Executive Diploma from IIITB will provide you with just the right push to accelerate your career in Machine Learning and AI!

With a heritage that stretches back to **Liverpool John Moores University** UK is now one of the largest and well-established universities in the UK. It has been ranked in the Top 100 World Young Universities & Top 50 in the UK by Student Satisfaction. There are two faculties within the University - Faculty of Society and Culture and the Faculty of Health, Innovation, Science and Technology. The university is well regarded for its esteemed faculty & teaching as well as research & also for student satisfaction. With an M.Sc. from this university, you are sure to be able to access global job opportunities.

Program Highlights

Here are the
top reasons why
you should consider
this program



Future-Ready Curriculum

Master In-Demand and Trending Competencies



Personalised Learning Experience

Learning Experience Tailored to Your Needs



Specialisations

Specialise in Two In-Demand Data Science Specialisations



In-Demand Tools

100+ Industry Tools, Languages, Libraries



Outcome-Driven Learning Experience

Personalised Portfolio-Building Support and Career Preparation Sessions



Best-in-Industry Experts

Decorated Faculty and Top Industry Practitioners



Golden Learning Ratio

Perfect Blend of Mathematics, Technology, and Business Understanding



Hands-on Learning

Solve 30+ Domain-Focused Assignments and Case Studies

Offline Graduation Function

On-Campus IIITB Graduation Ceremony

Double Accreditation and Alumni Status

Get Executive Diploma from IIITB and MSc Data Science from LJMU and gain double alumni status

Live LJMU Classroom Hour

Live sessions with LJMU staff for dissertation related queries

LJMU Immersion

Option to Participate in On-Campus Immersion at LJMU, UK

Program Impact Success Stories

Comprises success stories from the MSc Data Science and MSc Machine Learning & Artificial Intelligence Programs

Before upGrad

Tejasvy Gunturu

accenture

Application Development Associate



After upGrad

accenture

Application Development Analyst

Before upGrad

Viveet Ved

tcs TATA CONSULTANCY SERVICES

System Engineer



After upGrad

tcs TATA CONSULTANCY SERVICES

IT Analyst

Before upGrad

Krish

MARUTI SUZUKI

Deputy Manager



After upGrad

SAMSUNG

Lead Engineer

Before upGrad

Vikas Kumar Gupta

TATA POWER

Data Scientist



After upGrad

TIBIL™
SOLUTIONS

Senior Data Scientist

Before upGrad

Sunil Acharya

intel®

Software Engineer



After upGrad

intel®

AI Engineer

Our Transition Statistics

INR 1.23 Cr Highest Salary

433% Highest Hike

50% Average Hike

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Faculty in the LJMU Dissertation Phase



Prof. Dhiya Al-Jumeily

Program Leader, Professor - School of Computer Science and Mathematics, LJMU



A senior member of the IEEE, a chartered IT professional, and a member of the UK Higher Education Academy

Faculty in the IIIT Bangalore Executive Diploma Phase



Prof. Debabrata Das

Director, IIIT Bangalore



He has received his PhD from IIT-KGP. His main areas of research are IoT and Wireless Access Network.



Prof. G. Srinivasaraghavan

IIIT Bangalore

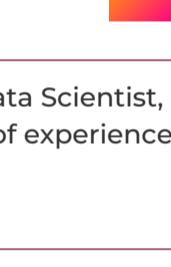


Prof. Srinivasaraghavan has a PhD in Computer Science from IIT-K and 18 years of experience with Infosys Technologies and several other companies.



Prof. Dinesh Babu Jayagopi

IIIT Bangalore



Dr. Dinesh is currently an Associate Professor at IIIT-B where he heads the Multimodal Perception Lab. His research interests are in Audio-Visual Signal Processing, Machine Learning, and Social Computing. He obtained his doctorate from Ecole Polytechnic Federale Lausanne (EPFL), Switzerland.

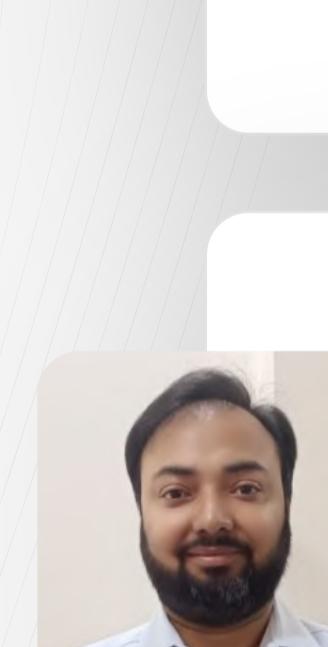


Prof. Chandrashekhar Ramanathan

Dean (Academics), IIIT Bangalore



Prof. Chandrashekhar is a faculty member at IIIT-B since 2007 serving as professor, researcher and administrator. He has been working in the field of Computing for over 25 years in various capacities across industry and academia.

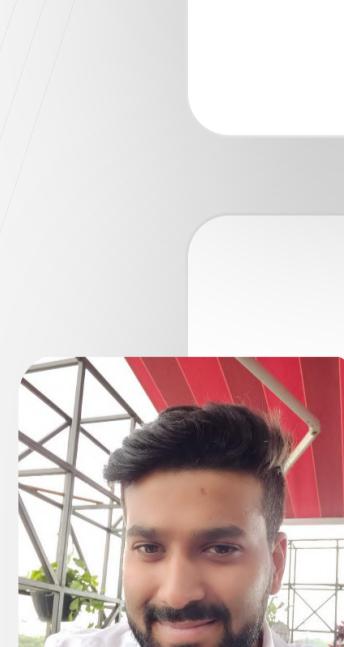


Prof. Tricha Anjali

Ex-Associate Dean, IIIT Bangalore



Prof. Anjali has a PhD from Georgia Institute of Technology as well as an integrated MTech (EE) from IIT Bombay.

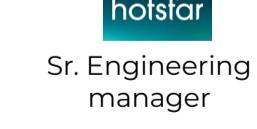


Deependra Singh

VP & Head of Data Science



Having worked with Microsoft as a Senior Data Scientist, he is an alumnus of IIT Kharagpur with 10+ years of experience in a Data Science domain



Ex-Senior Data Scientist



Release Manager

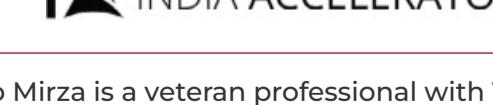


Certified Scrum Master

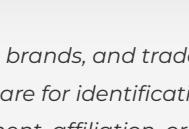


Mirza Rahim Baig

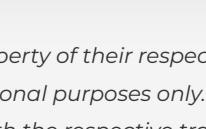
Startup Mentor



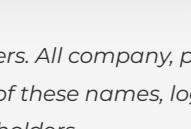
Analytics Lead, Zalando Mirza is a veteran professional with 10+ years of experience in application of data science, machine learning in e-commerce and healthcare.



Team Lead - Product



Machine Learning Engineer



Machine Learning Research Engineer

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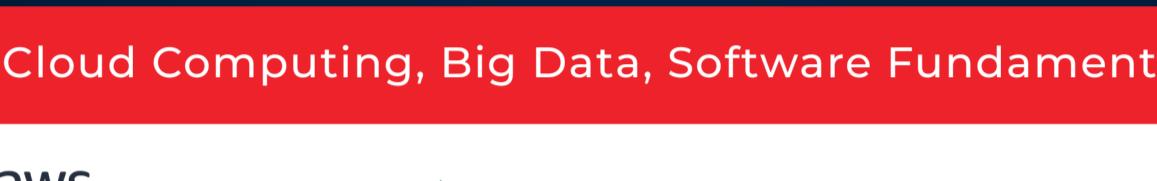
More than 100+ In-Demand Industry Tools and Technologies

To be covered in the Executive Diploma phase from IIT Bangalore

Python for Data Science



Data Analytics and Business Intelligence



Cloud Computing, Big Data, Software Fundamentals



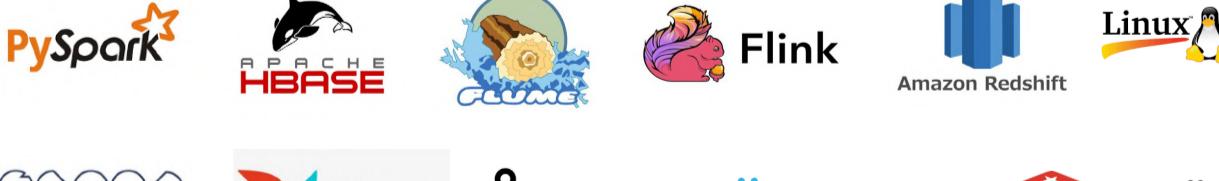
Foundations of Machine Learning



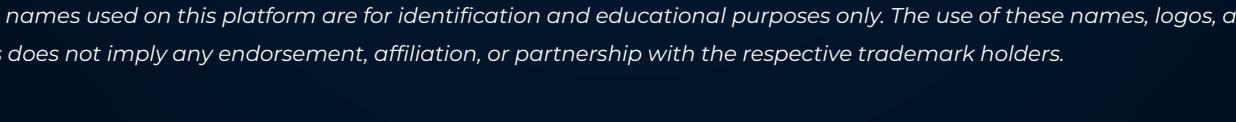
Deep Learning and Natural Language Processing



Generative AI



Data Engineering & Big Data Analytics



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Assignments and Case Studies from 12+ In-Demand Business Domains

To be covered in the Executive Diploma phase from IIIT Bangalore



Retail & Ecommerce

ETL Pipelining with Spark

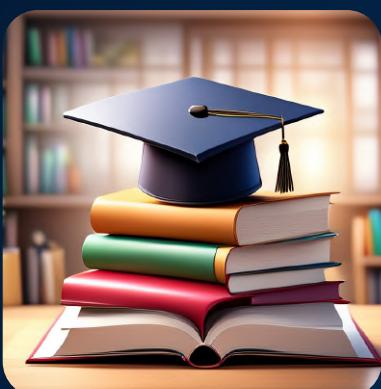
Media & Entertainment

Data Analysis using SQL

Transportation

EDA

using Python



Education

Model Selection
using Sklearn

Civil Engineering

Classification using
CNNs

HR

Semantic Classification
using Word2Vec



Manufacturing

Regularisation using
Sklearn

Healthcare

Classification using
Sklearn

Law

RAG using
LangChain



InfoSec

Feature Engineering
using Sklearn

FMCG

Big Data Analysis
using Spark

BFSI

Sequence Data Prediction
using RNN

Your Program Journey

Phase 0

Math and Programming Bootcamp (12 weeks)

Phase I

Core Curriculum

(28 weeks, 16 IIITB credits)

Phase II

Specialisation Tracks

(22 weeks, 20 IIITB credits)

Phase III

Capstone

(4 weeks, 4 IIITB credits)

Phase IV

Thesis Dissertation

(6 months, 70 LJMU credits)

Applied Math and Programming Bootcamp

Bootcamp delivered by upGrad

Personalise the initial 3 months of the program to your profile



Topics: Sets, Combinatorics, Basics of Probability, Conditional Probability, Descriptive Statistics, Functions, Vector Algebra, Derivatives, Integrals, Coding Environments, Variables, Data Types, Syntax, Conditionals, Loops, Functions, Lists, Sets, Tuples, Dictionaries, Introduction to MySQL, Basic SQL Querying

Marks Structure: Total marks - 100

- **Section A - 40 marks** (basic mathematics)
- **Section B - 60 marks** (basic programming)
- Passing marks - 25 marks in section A & 35 marks in section B

*No added cost to be paid for the bootcamp
We make sure that you are well-equipped to draw the most benefit from the program!*

CORE CURRICULUM

This is a part of Executive Diploma in DS & AI delivered by IIIT Bangalore

The core phase of the curriculum will equip you with the most up-to-date and industry-relevant skills and technologies for data science and machine learning such as programming and mathematics, data analysis tools and techniques, cloud computing and big data analytics, and foundational topics in machine learning, deep learning, and natural language processing.

Topics

Advanced Mathematics for Data Science and Machine Learning

Master essential mathematical concepts to understand how to work with large amounts of data and train efficient machine learning models

- » **Conditional Probability and Probability Distributions**
- » **Advanced Linear Algebra and Linear Transformations**
- » **Multivariate Calculus**

Advanced Programming for Data Science and Machine Learning

Wrangle real-world data using universal programming languages such as Python and SQL, and use GenAI for generating and debugging code faster

- » **GenAI for Coding and Problem-Solving**
- » **Object-Oriented Programming**
- » **Python Data Science Libraries**
- » **Database Design and SQL Querying with MySQL**
- » **Introduction to NoSQL Databases**

Data Analysis and Exploration

Implement industry-standard statistical methods using tools such as Python, Tableau, and Power BI to analyse data and derive business insights

- » **Data Analysis with Python**
- » **Exploratory Data Analysis**
- » **Inferential Statistics and Hypothesis Testing**
- » **Data Analysis and Visualisation with Power BI and Tableau**

Cloud Computing and Big Data Fundamentals

Take your data processing and analysis workflows to the cloud and work with larger amounts of data to derive enterprise-scale business insights

- » **Cloud Computing with AWS, GCP, Microsoft Azure**
- » **Big Data Analysis with PySpark**

Foundations of Machine Learning

Train industry-standard machine learning models to automate insight generation and predict business metrics behaviour

- » **Machine Learning Paradigms**
- » **Linear and Logistic Regression**
- » **K Nearest Neighbors**
- » **Regularisation and Hyperparameter Tuning**
- » **Decision Trees and Ensembles**
- » **Clustering Models**

Deep Learning and Natural Language Processing

Build and train deep neural network models for different kinds of business data such as images and sequences

- » **Artificial Neural Networks**
- » **Convolutional and Recurrent Neural Networks**
- » **Lexical, Syntactic, and Semantic Processing**

Deployment Fundamentals

Share and deploy your insights and machine learning models so that other collaborators can work with your contributions

- » **Containerisation and Deployment Tools**

- » **Version Control**

Projects

Querying with SQL

Analyse Spotify music data for targeted recommendations or NDAP insurance data for risk assessment

Exploratory Data Analysis

Analyse NYC taxi operations for efficient taxi positioning or US beer production data for better brewery operation management

Big Data Analysis

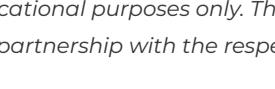
Analyse Mercari products data for better targeted recommendations or customer interaction data to enhance customer engagement

Linear Regression

Predict household energy consumption using appliance energy readings data to increase power consumption efficiency or parcel delivery time for Porter using historical delivery data for better planning and management

Deep Learning

Predict stock prices of Microsoft, Amazon, Google, IBM, using their historical stock price variations or temperature/pressure readings in Morocco using historical weather data



Data Analysis Specialisation

DA

This is a part of Executive Diploma in DS & AI delivered by IIIT Bangalore

The data analysis (DA) specialisation of the curriculum will focus on essential modern skills for data and business analysts such as advanced machine learning techniques, advanced analytics and dashboarding technologies, AI integrations in analytics tools, generative AI for data analysis, and core business analysis and project management principles.

Topics

Advanced Machine Learning

Train advanced industry-oriented machine learning models for enhanced predictive power and stronger business insight generation

- » **Support Vector Machines and Naive Bayes**
- » **Feature Engineering and Model Selection**
- » **Dimensionality Reduction**
- » **Time Series Analysis**
- » **Association Rule Mining and Recommendation Systems**
- » **Explainable AI**

Advanced Analytics

Wrangle with enterprise-level data using advanced analytics tools such as Tableau and Power BI, and use GenAI integrations to automate analytics and storytelling workflows

- » **Advanced Excel and Power BI with Copilot**
- » **Advanced Tableau**
- » **Data Storytelling Principles**
- » **Machine Learning with PySpark**

GenAI for Data Analysis

Prompt large language models (LLMs) for simplifying and automating analytics tasks and understand the advantages and disadvantages of GenAI-based methods

- » **Fundamentals of GenAI and Prompt Engineering**
- » **Advanced Prompt Engineering**
- » **Large Language Model (LLM) Frameworks such as LangChain**
- » **GenAI ChatBot System Design and Development**
- » **Data Security and Governance**
- » **AI Ethics and LLM Security**

Business Analytics Essentials

Transform your analytics insights into actual actionable business statements by translating mathematical language into realistic business metrics

- » **Requirements Gathering and Guesstimates**
- » **Business Problem Solving and Project Management**
- » **Data Science Applications in Finance and Ecommerce**

Projects

Feature Engineering and Model Selection

Predict fraudulent insurance claims using the Mendeley farmers insurance claims dataset or network intrusion events using historical network activity data

Advanced Data Analytics

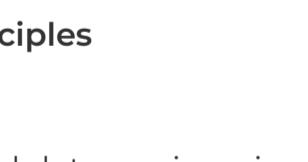
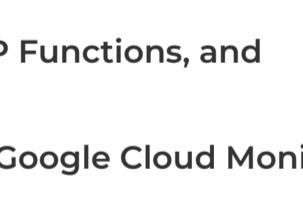
Analyse Namma Yatri travels data to understand customer behaviour and route utilisation for optimisation or Blinkit customer transactions and purchases data to improve product recommendations and enhance shopping experience

Advanced GenAI for Analytics

Analyse Amazon customer reviews to identify prevalent sentiments and themes to improve product offerings and enhance customer satisfaction or ChatGPT customer feedback to derive actionable insights for business improvement

Essentials of Business Analytics

Analyse HDFC Bank's annual reports and create a BCG matrix to provide strategic business recommendations or Snapdeal app feedback data to create a business requirement document for improving app functionality



Data Engineering Specialisation

DE

The data engineering (DE) specialisation of the curriculum will focus on essential modern skills for data engineers around the world such as distributed data processing frameworks, cloud native big data processing frameworks and technologies, large-scale data warehousing principles and technologies, real-time data processing, end-to-end data pipeline creation and monitoring, and data architecting principles.

Topics

Large-Scale Distributed Data Processing

Design robust distributed frameworks, both server-based and cloud-based, for big data processing to handle vast amounts of enterprise data

- » **Distributed Data Processing with Hadoop Framework**
- » **Data Ingestion with Sqoop/Flume and HBase Data Querying with Hive**
- » **Cloud Native SQL Databases such as Amazon Aurora, Google Spanner, and Azure SQL**
- » **Cloud Native NoSQL Databases such as Amazon DynamoDB, Google BigTable, and Azure Cosmos DB**
- » **Linux and Java Programming**

Data Warehousing Principles and Methodologies

Understand industry-standard data warehousing and ETL/ELT pipelining principles

- » **Datawarehousing and Cloud Data Warehousing**
- » **Cloud Data Warehouses such as Amazon Redshift, Google BigQuery, and Azure Synapse Analytics**
- » **Understanding ETL and ELT Pipelines**
- » **Advanced Data Modeling Concepts and Techniques**

Large-Scale Data Pipelining

Build complete end-to-end data pipelines and automate them to generate both batch-wise and real-time business insights

- » **End-to-End Data Pipelining Fundamentals**
- » **Pipeline Automation with AWS Lambda, GCP Functions, and Azure Automation**
- » **Data Monitoring with Amazon CloudWatch, Google Cloud Monitoring, and Azure Monitor**
- » **Feature Stores and Vector Databases**
- » **Real-Time Analytics with Flink, Kafka, and Spark Streaming**
- » **Real-Time Analytics with Amazon Kinesis, Google Cloud Pub/Sub and DataFlow, Azure Stream Analytics and Event Hubs**
- » **Multicloud and Hybrid Cloud Operating Principles**

Modern Data Engineering Technologies

Work with some of the most in-demand advanced data engineering technologies such as modern databases and designing data infrastructures using code

- » **Modern NoSQL Databases**
- » **Infrastructure as Code (IaC) with Terraform**
- » **Data Architecting Principles**
- » **Data Security and Governance**
- » **Decentralized Governance and Data Mesh**

Projects

Hadoop Processing

Analyse Iowa liquor sales data to identify purchasing trends and customer preferences or Los Angeles crime data to identify crime hotspots and trends

Hadoop Processing

Analyse Iowa liquor sales data to identify purchasing trends and customer preferences or Los Angeles crime data to identify crime hotspots and trends

Data Pipelining and Warehousing

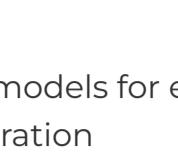
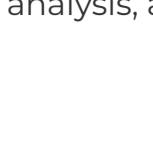
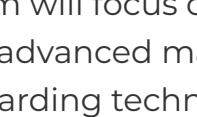
Develop an ETL pipeline to aggregate and standardise banking data to enhance financial decision making using Wikipedia and currency exchange rates data or aggregate and analyse California traffic collision data to drive road safety improvement measures

Real-Time Data Analytics

Develop a real-time analytics pipeline for ecommerce data to enhance customer experience or a real-time patient health monitoring system for faster corrective actioning

Data Architecting

Develop a multi-cloud system using Terraform and cloud services of your choice to provide a layer of redundancy while working with critical healthcare data or website monitoring data



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Capstone that Adapts to Your Preference

Infuse our Capstone with Your Data

Modify existing projects as per your industry data and problems

Bring Your Own Capstone

Work on a completely novel project of your choice and solve problems that excite you

Pre-Designed Industry Capstone

Choose one of our existing projects that cover in-demand trending industry domains

Bring Your Own Capstone

Design your own capstone project relevant to your domain and interest, and get feedback throughout your capstone stages



Identify a real-world problem relevant to your domain



Source datasets aligned with your business problem



Design and implement your solution



Document your efforts and present your findings



Continuous expert feedback at every step of capstone

Thesis Dissertation

This is part of LJMU phase and delivered by LJMU

The thesis dissertation phase of your program experience focuses on working on your master's thesis in the domain of data science, machine learning, and artificial intelligence, so that you can truly master this high-impact domain.

Topics

Introduction to Research

Understand different types of research, formulate your research question, and learn to study and cite research papers

- Aspects of Research and Formulating a Research Question
- Understanding Various Research Designs
- Reading and Citing Research Papers
- Research Project Management
- Report Writing and Presentation Design
- Scientific Ethics in Research

Sample Thesis Topics

Study sample thesis topics to get a concrete understanding of what a research thesis entails

- Investigate dietary patterns and metabolite fingerprints of takeaway (fast) food consumers using PCA and clustering methods
- Investigate a diagnosis of eye diseases using imaging ophthalmic data
- Structure medical images with information geometry
- Using social media feed to place tweets regarding natural disasters on a map
- Preventing credit card fraud through pattern recognition
- Developing a recommender system for a media giant
- Risk modelling for financial activities and investment banking

Final Thesis Report

Submit your in-depth research work in a final thesis report and present your findings

Research of Our Learners

A Glimpse

1

Thesis Topic

Build a prediction model to accurately detect

Abstract

Background

Damage to peripheral nerves causes Peripheral neuropathy (PN). Patients complain of pain, numbness and loss of balance. If not identified early and treated adequately, PN could progress rapidly and lead to fatal complications. Defining factors to classify PN accurately has remained challenging. This research proposes a model to detect and classify PN into axonal, demyelinating, mixed and normal types from clinical and nerve conduction study (NCS) data using the Random Forest algorithm.

Data and methods

Clinical and NCS data of 304 Indian patients, 229 affected by PN and 75 normal was collected with ethical approval from Kauvery hospital, Chennai. Exploratory data analysis and the Random Forest Algorithm was used to build a model.

Results

Random Forest model was able to predict and classify PN with an accuracy of 96%. In axonal cases, sensory and motor nerves showed a drop in amplitudes of greater than 40% compared to normal patients. Reduced amplitude (>40%) in motor nerves of lower limbs and missing values (>90%) in sensory nerves of lower limbs identified axonal PN. Delayed onset latency (>40%) in motor nerves of upper limbs, decreased conduction velocity (>60%) in sensory nerves of upper limbs and increased onset latency (>40%) in F-waves of upper limbs delineated the demyelinating type. Median ages of patients were mixed (65), demyelinating (51) and axonal (61). Axonal (18.75%) was significant in diabetic patients and demyelinating (14.8%) in non-diabetic patients. Both axonal and mixed (16.78%) types were greater in hypertensive patients, and demyelinating (17.11%) type was higher in patients without hypertension. Reflex was depressed more in mixed (17.49%) than axonal (15.51%) and demyelinating (11.89%). Mixed (37.06%) type showed more in-sensitivity to pin-prick than axonal (29.37%) and demyelinating (24.48%) types. Mixed (45%) patients tested positive for Romberg's test more than axonal (31%) and demyelinating (21%). Mixed (34.65%) patients complained of numbness more than axonal (23.62%) and demyelinating (26.77%) types.

Conclusion

Random forest algorithm identified and classified PN well using clinical and NCS features. Clinical features (age, diabetes, hypertension, reflex, Romberg's test, numbness and perception to pin-prick) were useful in detecting PN. Nerve conduction study features (amplitude, onset latency, conduction velocity, F-wave response and missing sensory values) were instrumental in classifying PN. Reduced amplitudes of sensory and motor nerves identified the axonal condition. Delayed onset latency and low conduction velocities along with missing and delayed F-wave responses identified the demyelinating type.

2

Thesis Topic

Automatic network coding of traffic junctions using

Abstract

Before any traffic simulation can be performed, the network of roads and junctions is modeled. Assigning attributes to the roadway network, such as the road length and width, the junction type, number of arms, and lanes, is a crucial task while building the network. This research is an attempt to develop an efficient traffic junction classifier using machine learning and deep learning algorithms on satellite images. Three junction categories, Priority, Roundabout, and Signal, are considered for analysis. As this is a novel research idea, the required image dataset of junctions is created using the Google Maps API. By using robotic process automation, the downloading of the images is automated. Two approaches are taken to build the classifiers: a machine-learning approach and a deep-learning approach. The machine learning approach is split into two phases: the feature extraction phase and the classification phase. In the feature extraction phase, a Histogram of Oriented Gradients (HOG) descriptors is used to extract features from the images. Furthermore, in the classification phase, several classification algorithms are applied to the HOG features to build classifiers. In the deep-learning approach, taking advantage of powerful pre-trained models and transfer learning, a Convolutional Neural Network (CNN) is developed for classifying the junctions. The models are evaluated, and in the end, a comparison between the various classification models is performed. The results showed that the CNN classifier modeled had the best accuracy and AUC compared to the other models with scores of 0.81 and 0.94 respectively. Among the machine learning models that were trained on the HOG features, the Extreme Gradient Boosting model has the best accuracy of 0.62. The ultimate aim of this work is to use this junction-classifier model on real projects to aid the process of finding the type of junctions and reduce the effort and time required to model the roadway networks.

Build A Strong Portfolio



Commits

Demonstrate consistency, collaboration, and coding discipline

Code

Showcase well-documented repositories

Projects

Host end-to-end DS/ML/AI projects that highlight real-world problem-solving

GitHub helps with

- Validating coding skills
- Showing growth and consistency
- Being interview-ready for Tech roles

Kaggle helps with

- Building credibility in data science circles
- Applying learning to real datasets
- Speaking confidently in Tech interviews

Headline

Concise summary of goals, competencies, and professional identity

Summary

Engaging overview of learnin and career journey

Projects

Showcase practical experience, outcomes, and skill application

LinkedIn helps with

- Improving visibility with recruiters
- Positioning better for job openings
- Networking with peers and mentors in the field

Microsoft-Certified Advantage –

This program doesn't just prepare you for the world of Data Science & AIML—it gives you the Microsoft edge.

Learners earn industry backed certification from upGrad in association with Microsoft by completing specially designed modules integrated into the program, boosting both credibility and career readiness.



Microsoft Learn content modules covered

- Introduction to Generative AI Concepts
- Introduction to GitHub Copilot
- Design & Manage Analytics Solutions using Power BI
- Designing & Implementing a Data Science Solution on Azure

Rich and Dedicated Live Support

Industry Expert Sessions

Engage with industry practitioners as they help you master in-demand skills and concepts using a demonstrative hands-on approach



IIITB Faculty Sessions

Learn from some of the most accomplished academicians as they take your knowledge and understanding of data science to another level

Just-In-Time Interview Support

Participate in Technical and HR mock interviews designed to boost your confidence and prepare you to ace interviews.

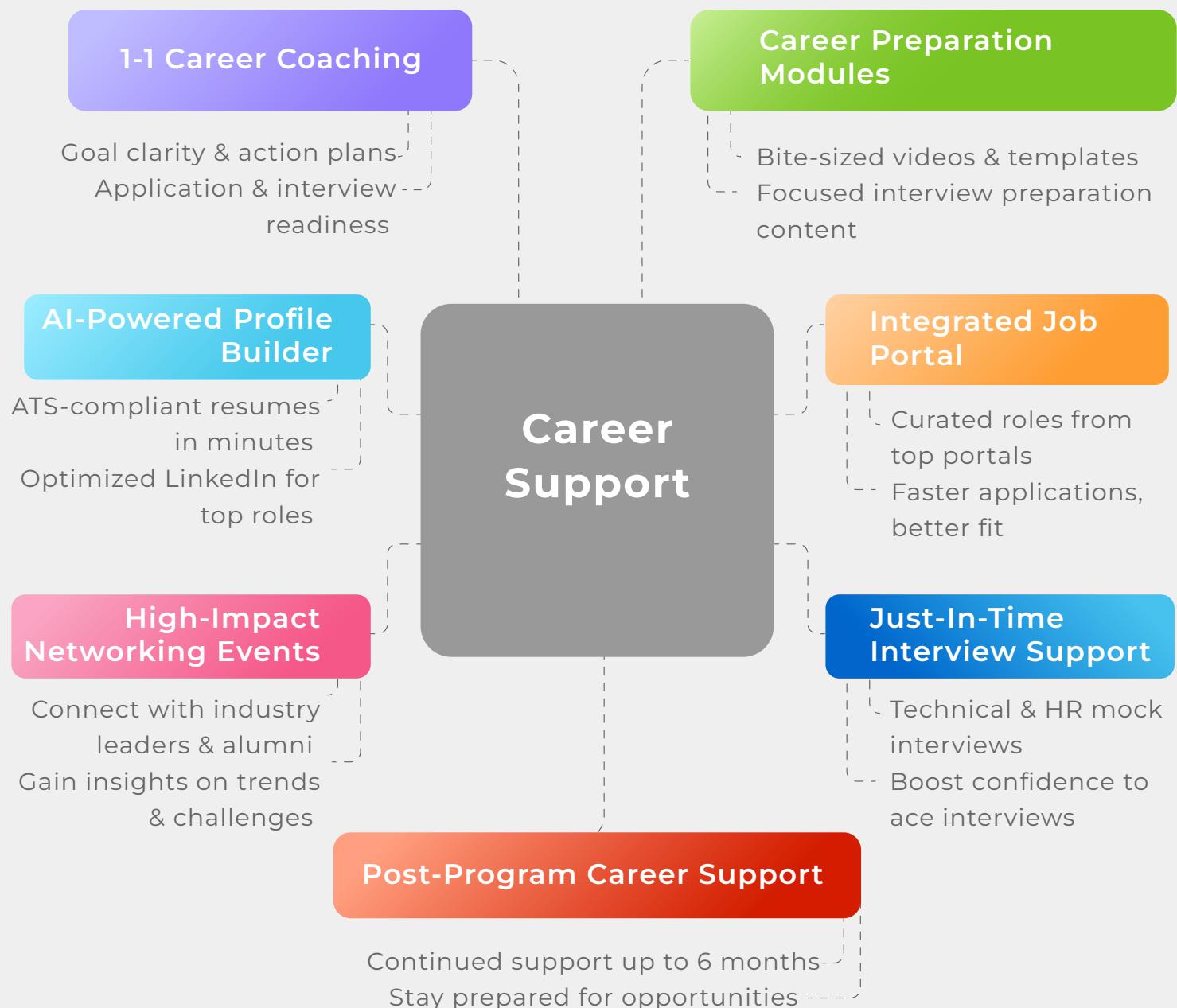
Career Coaching Sessions

Engage in Career Coaching Sessions via Career preparation modules, High-impact networking events and Just-in-time mock interviews

Daily doubt resolution sessions

Join doubt resolution session slots, that are available daily, and have an expert available to resolve your queries for a smooth learning journey

Effective and Complete Career Support



Student Support

Telegram channel for learner communications

Cohort Telegram channel for timely program updates and announcements.

Non-academic and non-technical query assistance

24 X 7 m-AI-ask bot support for non academic assistance.

Completion Support

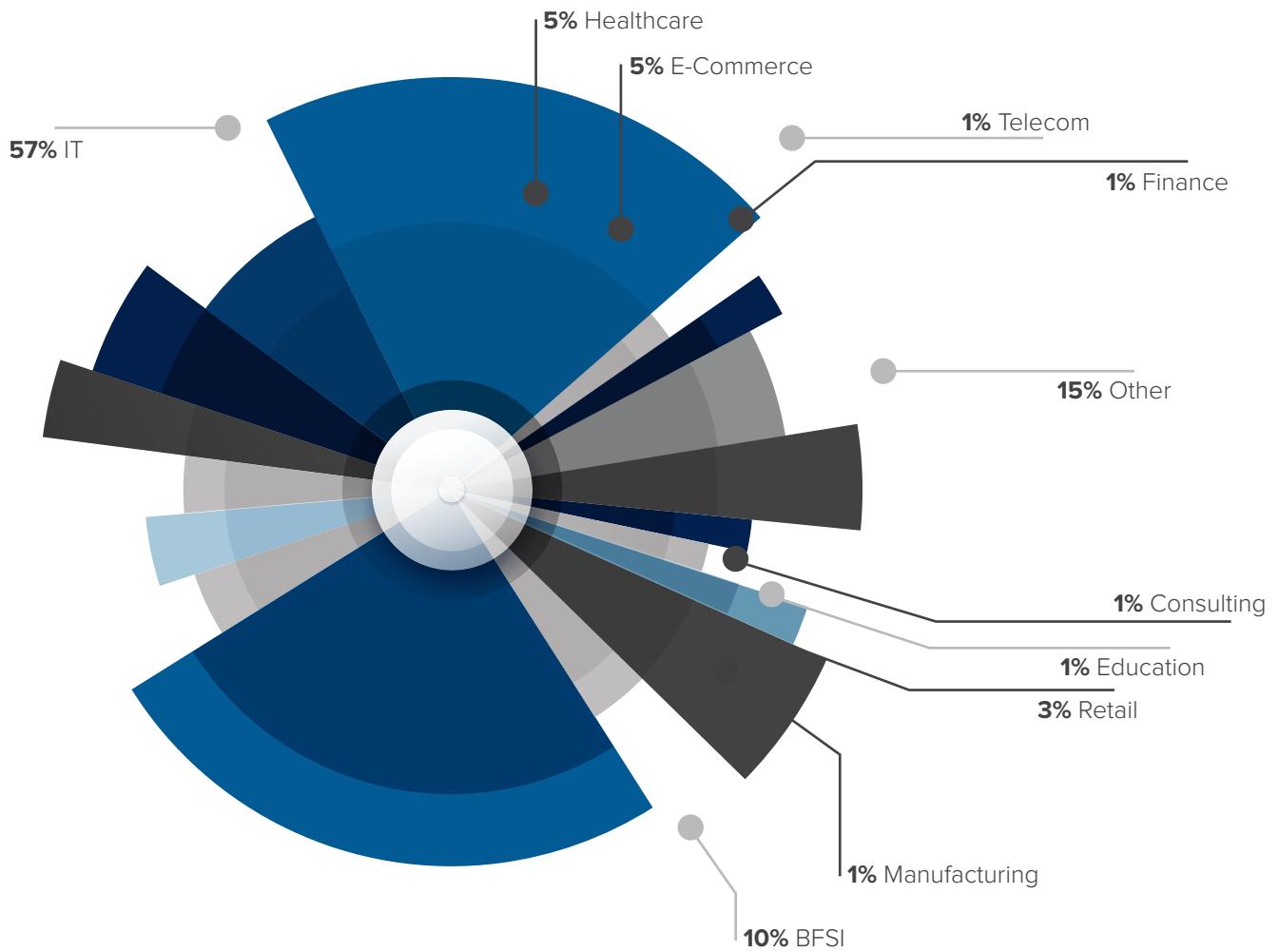
Personalised assistance for smooth program completion, managing backlogs, and cohort deferrals with free and paid waiver options.

Financial benefits

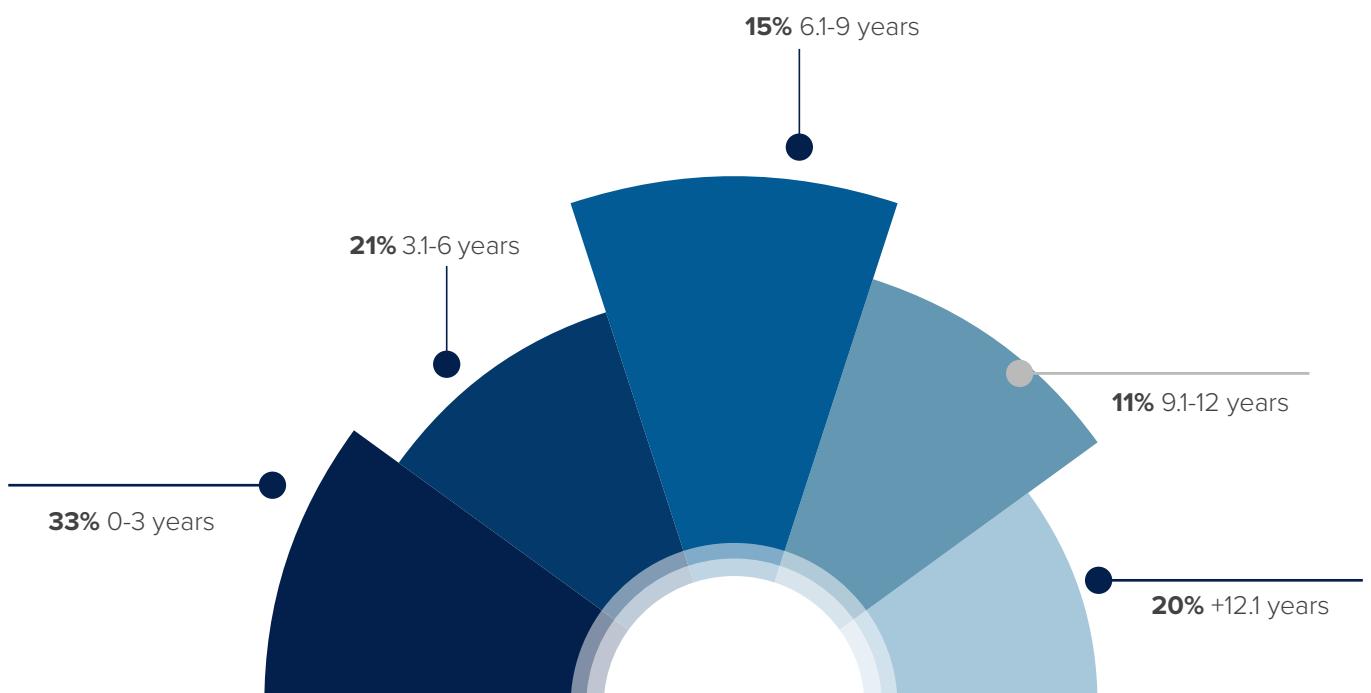
Access benefits like referrals and repeats by sharing details with your program co-ordinator or student support executive.

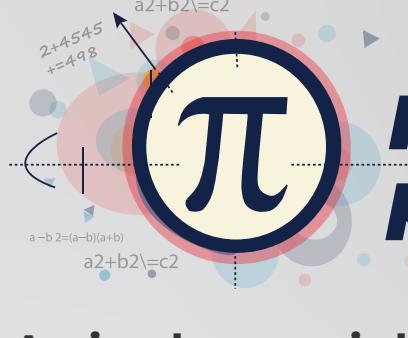
Meet the Class

Industries Our Students Come From



Work Experience





Professional pack

A single specialty is no longer enough.

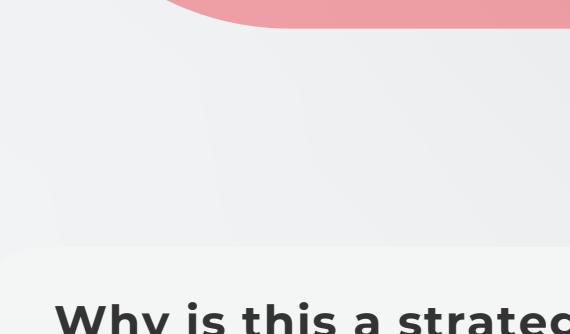
For years, the T-shaped professional was considered the gold standard—someone with broad knowledge across multiple areas (the top of the “T”) and deep expertise in one core area (the vertical stem). This model worked well in stable environments where projects moved slowly, and roles were clearly divided.

But today's AI-driven, high-velocity world has exposed the limits of the T-shape. Knowledge silos, handoff delays, and rising complexity mean one deep skill is no longer enough.

Today's employers need π -shaped professionals - someone with two deep, complementary specialisations while maintaining broad knowledge across domains, who can own entire project lifecycles without team dependencies, bridging the gap between development, operations, and analytics seamlessly.

Introducing The π Professional Pack

Add an extra specialisation in just 3 months



STEP 1

Choose your primary foundation

Select your core specialisation:

Data Engineering, Data Analytics, Generative AI or MLOps

STEP 2

Add your strategic second specialty

In the latter half of your program, unlock a complete second track featuring:

- ⌚ Full curriculum coverage
- 📊 Live interactive sessions with industry experts
- 🛡️ Dedicated faculty support
- 🤝 Expert mentorship across both domains

Why is this a strategic career investment?

👉 Expert in two complete specialisations

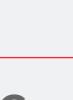
👉 Industry-validated skill combinations based on hiring data

👉 Hands-on experience in both domains

👉 Portfolio projects demonstrating π -shaped expertise

Your Competitive Edge:

While others graduate with single specialisations, you emerge as a π -shaped leader ready to:



Own complete project lifecycles



Bridge team silos and communication gaps



Command premium positions in India's GCC & IT sectors



Adapt quickly as AI continues reshaping the industry

Popular specialisation combos

GenAI + MLOps

Why Gen AI + MLOps?

Enables end-to-end ownership of Gen AI models from fine-tuning to deployment, monitoring, and safety. This pairing creates a professional who can not only innovate but also reliably deliver and manage that innovation.

GenAI + Analytics

Why GenAI + Analytics?

Unlocks AI-driven business insights with a combination of natural language queries, auto-reporting, and data storytelling. This pairing is about creating smarter and more accessible business insights.

MLOps + Data Engineering

Why MLOps + Data Engineering?

This is the ultimate combination for building robust and scalable AI infrastructure. Enables you to build an automated, end-to-end machine learning factory that is efficient, reliable, and ready for production demands.

GenAI + Data Engineering

Why GenAI + Data Engineering?

Let's combine Gen AI innovation with solid data pipelines scalable AI products. This pairing ensures that innovative GenAI projects are built on a solid foundation, allowing them to be scalable and successful in the long run.

Earn Second Certificate

π Professional pack for dual specialisations

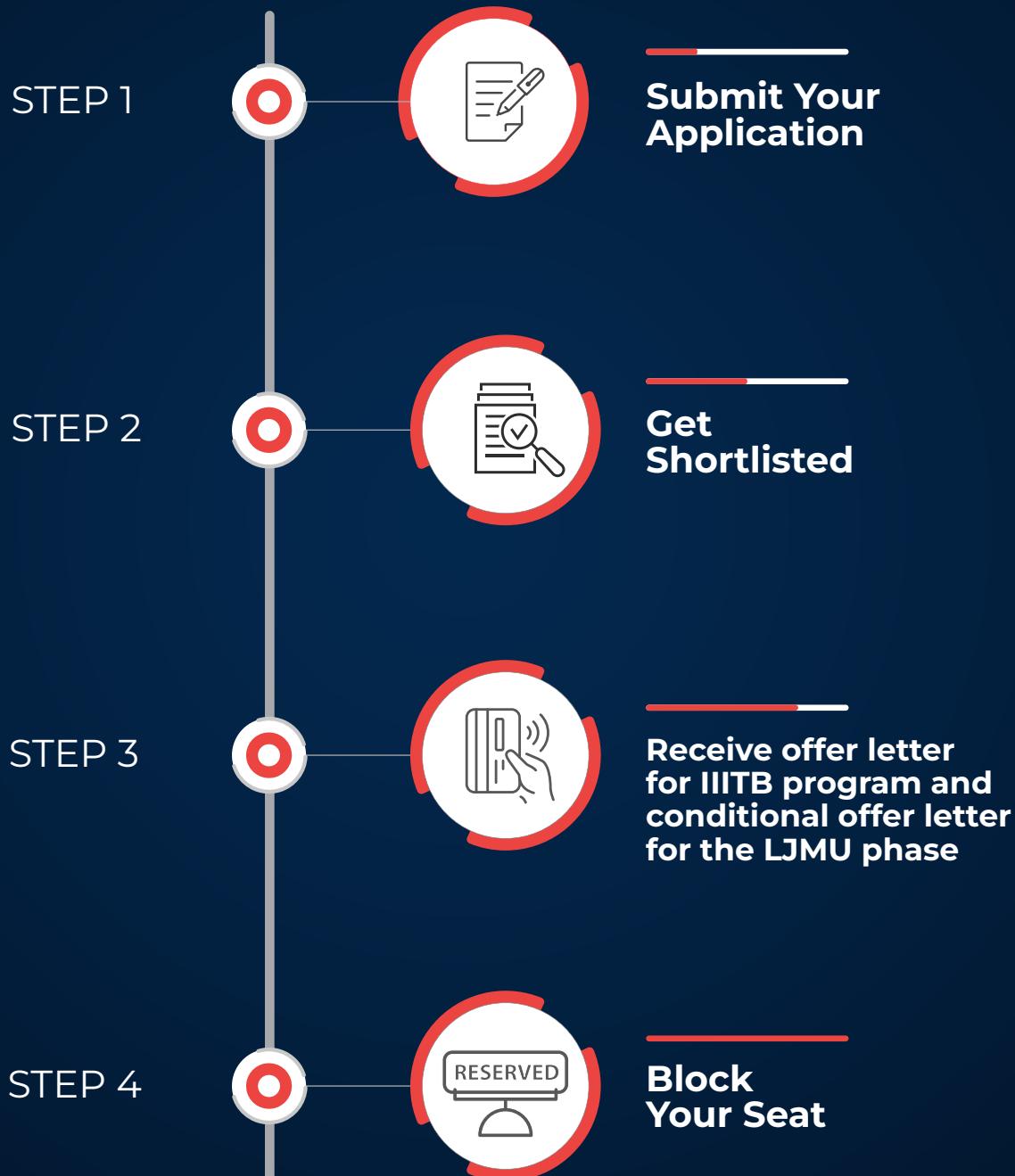


In just 3 more months learners can earn 1more specialization across both
Data Science & Machine learning specializations

Enrol in 4 small steps, Then take a giant leap.

Eligibility Criteria

Bachelor's or Master's Degree or its equivalent in any discipline with minimum 50% aggregate mark or equivalent CGPA.



Please note that your admission to the LJMU's MSc in Data Science Program is strictly provisional and conditional upon your successful completion of the IIITB Executive Diploma in Data Science & AI

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www.upgrad.com |
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LET'S TALK

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