Chinar Quantum AI

Cultivating AI Excellence

Brochure
Summer'24 Cohort

About Us

At Chinar Quantum AI (CQAI), our mission is to democratize Artificial Intelligence (AI) and Data Science (DS), making them accessible to all. We specialize in Quantum AI, including Quantum Machine Learning, positioning us among the few with this expertise. We address the global talent gap in AI and DS with tailored training programs that bridge the divide between academia and industry.

Our comprehensive training programs empower individuals from diverse backgrounds to pursue rewarding careers in AI and DS. We focus on developing both technical skills and leadership qualities, nurturing the next generation of tech leaders who can drive innovation and lead teams effectively.

CQAI also offers AI-powered products designed to enhance efficiency and user experiences across various industries. Our products leverage advanced technologies, including Natural Language Processing (NLP), to tackle industry-specific challenges and help businesses thrive.

Our consulting services provide customized AI solutions, enhancing business efficiency and competitiveness. We guide clients through every phase of their AI journey, from initial assessment to implementation and ongoing support.

Join us at CQAI in our mission to make AI and DS education, products, and services accessible to all. Partner with us today and experience the difference of working with a leader committed to excellence, innovation, and empowerment in the digital age.
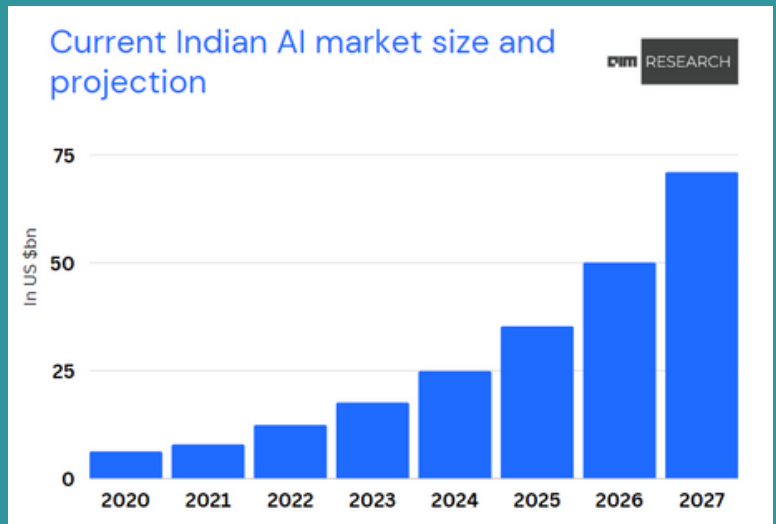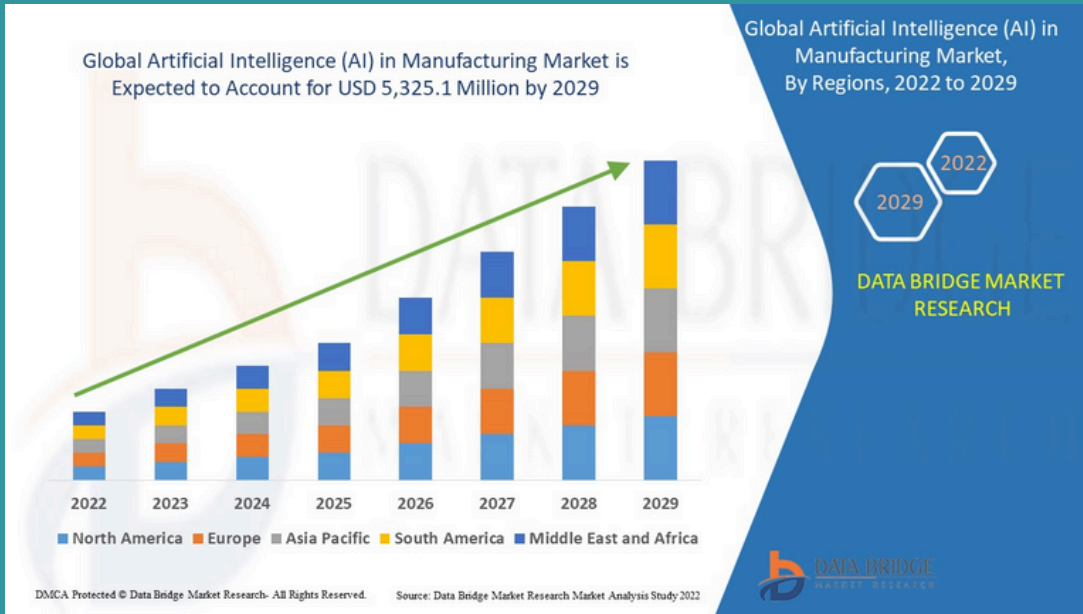
Vision

- Empower AI industry with workforce while AI powers our future
- Helping businesses and individuals harness the power of AI for growth and sustainability

Mission

- Filling the talent gap in AI industry
- Training a capable workforce for AI industry
- Democratize AI for individuals and businesses
- Providing jobs at a mass scale in AI industry

AI Market Statistics at a Glance

Global Artificial Intelligence (AI) in Manufacturing Market is Expected to Account for USD 5,325.1 Million by 2029

Global Artificial Intelligence (AI) in Manufacturing Market, By Regions, 2022 to 2029

2029 2022

DATA BRIDGE MARKET RESEARCH

2022 2023 2024 2025 2026 2027 2028 2029

■ North America ■ Europe ■ Asia Pacific ■ South America ■ Middle East and Africa

DMCA Protected © Data Bridge Market Research- All Rights Reserved.   Source: Data Bridge Market Research Market Analysis Study 2022

DATA BRIDGE MARKET RESEARCH

Current Indian AI market size and projection

DMI RESEARCH

In US $bn

75

50

25

0

2020 2021 2022 2023 2024 2025 2026 2027

Popular AI Roles and Salary Range

TeamLease Digital

Role	Salaries by experience			
	0 - 3 Yrs	3 - 5 Yrs	5 - 8 Yrs	8+ Yrs
Data Engineer	3L - 14L	8L - 19L	17L - 25L	25L - 45L
ML Engineer	2.5L - 10L	11L - 17L	17L - 24L	24L - 40L
Data Scientist	3.5L - 14L	12L - 19L	17L - 27L	23L - 32L
Devops Engineer	3L - 12L	12L - 17L	17L - 23L	18L - 27L
Data Architect	3L - 12L	12L - 18L	20L - 35L	25L - 40L
BI Analyst	3L - 14L	8L - 18L	17L - 25L	23L - 40L
Database Admin	3L -12L	12L - 15L	15L - 20L	20L - 25L

Why Choose us?
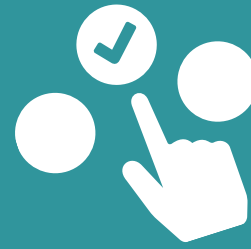
Interactive Live Sessions

Engage in real-time learning with industry experts.

Expert Trainers

Learn from seasoned industry experts.

Tailored Learning Paths

Follow customized training paths that align with your career goals.

Hands-On Projects

Apply your knowledge to real-world industry challenges.

Cutting-Edge Research:

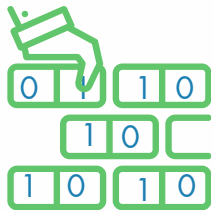Benefit from insights powered by our CQAI Center of Excellence.

Personalized Approach

Experience practical learning with industry-grade capstone projects.

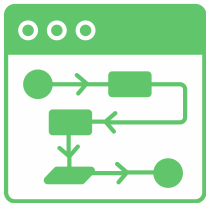# The Training Design

Foundation
Building the Basics

- **Core Understanding:** Lay the groundwork with essential programming and data concepts.
- **Tools of the Trade:** Learn the basics of Python, data manipulation, and visualization.
- **Structured Learning:** Follow a step-by-step approach to build a strong foundation.

Algorithmic
Mastering the Techniques

- **Mastering Techniques:** Delve into key algorithms and their applications across AI and ML.
- **Pattern Recognition:** Learn to uncover patterns and insights from data.
- **Hands-On Practice:** Engage in practical exercises and projects to solidify your understanding.

Implementation
Bringing Ideas to Life

- **Real-World Application:** Implement machine learning models in real-world scenarios.
- **Advanced Techniques:** Explore deep learning and generative AI.
- **Industry Tools:** Utilize industry-standard frameworks like TensorFlow, PyTorch, and Streamlit.
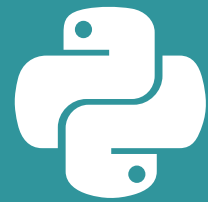
Business Understanding
Making an Impact

- **Strategic Thinking:** Translate technical skills into business solutions.
- **Impactful Projects:** Work on industry-grade capstone projects for real industry experience.
- **Leadership Skills:** Develop the ability to lead AI initiatives within organizations.
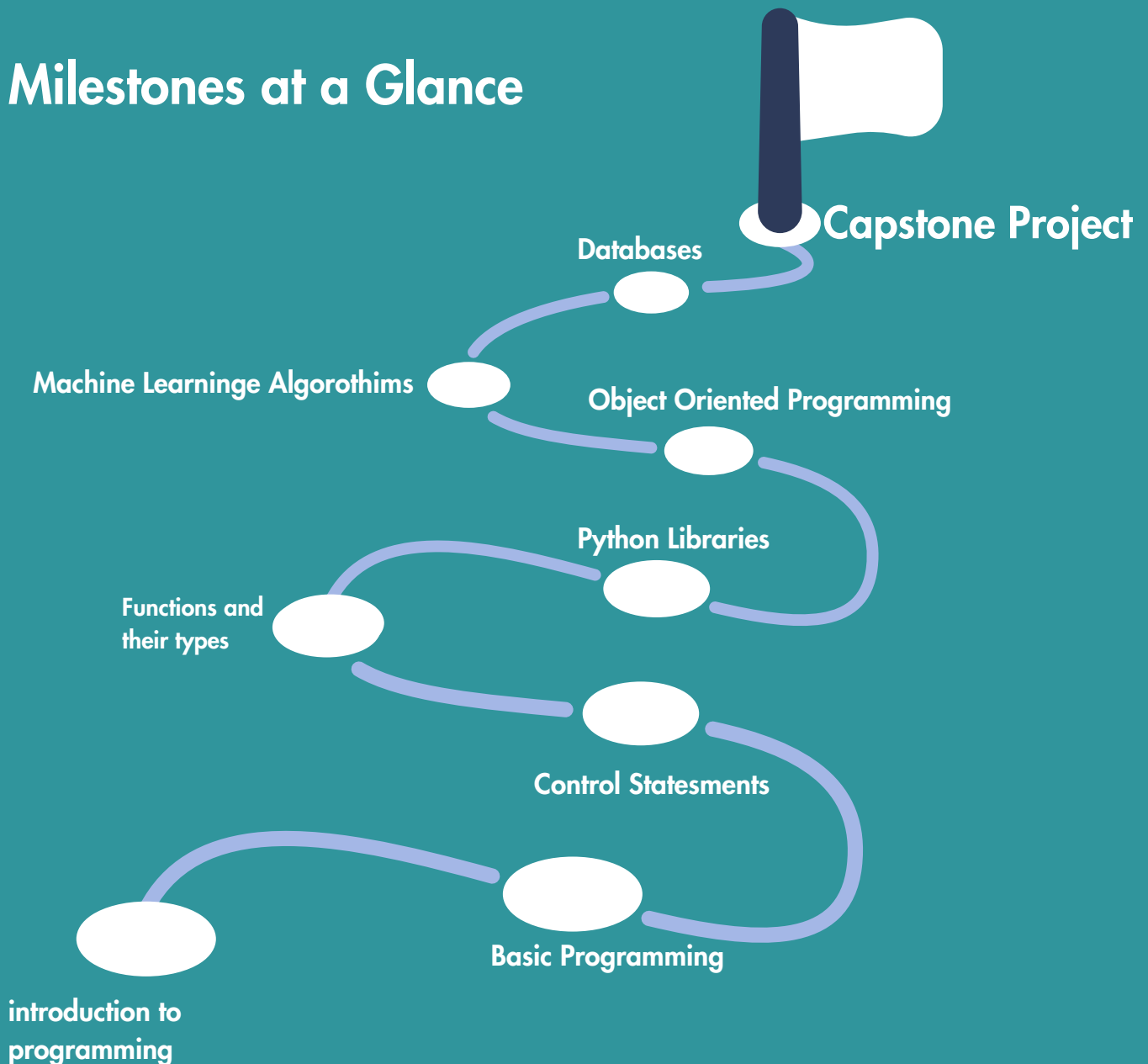
Data Analytics
Using Python

Unlock the Power of Data Science!

Data Analytics using Python combines programming and data manipulation to derive insights from data.

Milestones at a Glance

Capstone Project

Databases

Machine Learninge Algorothims

Object Oriented Programming

Python Libraries

Functions and their types

Control Statesments

Basic Programming

introduction to programming

1 Introduction to Programming

Starting the Journey:
Why Learn to Program?

Discover how programming serves as a gateway to solving real-world problems. Learn why Python is the chosen language for data scientists worldwide.

Key Markers

- **The Canvas:** The Computer: More than just hardware; it's your canvas for creating solutions.
- **The Language:** Programming Languages: From human thoughts to machine operations.
- **The Tool:** Why Python? Simplified syntax, vast community, and an ocean of libraries.

North America Big Data Analytics Market Size, 2019-2032 (USD Billion)

101.06 113.54

2020 2021 2022 2023 2024 2025 2026 2027 2028 2029 2030 2031

www.fortunebusinessinsights.com

2 Basic Programming

Building Foundations: Mastering Python Basics
Master the fundamentals that form the backbone of any software application.

Key Markers

- **Data Toolkit:** Variables and Data Types: Your toolkit for data manipulation.
- **Python Grammar:** Operators and Expressions: The grammar of Python.
- **Data Structures:** Organizing data with Lists, Tuples, Dictionaries, and Sets.
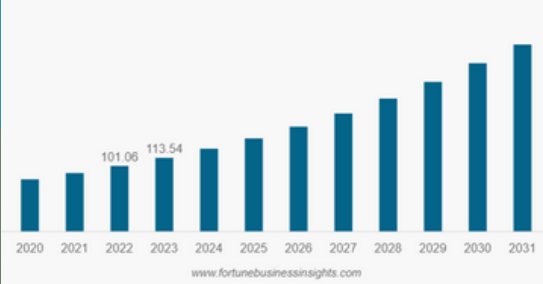
Industry

Data Science, Web, Prompt engineering

3 Control Statements

Steering the Code: Control Flow Mastery
Control the flow of your programs using logical structures.

Key Markers

- **Decision Tree**: Decision-Making: Crafting the decision tree.
- **Flow Navigation:** Flow Control: Navigating through the code.
- **Automation: Loops:** Doing more with less; automate repetitive tasks.

Job Roles

Python Developer, Web Developer, Prompt Engineer

Functions and Their Types

4

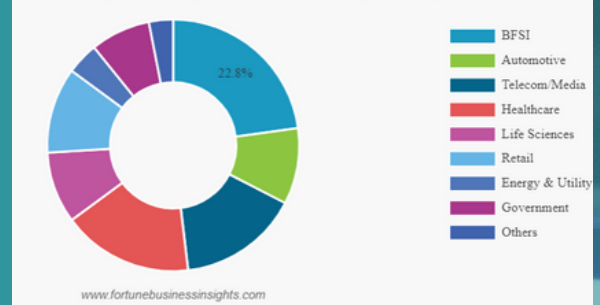**Modular Mastery: Efficient Programming**
Learn to write reusable pieces of code that make programming more efficient and organized.

- **Building Blocks:** Functions: The building blocks for reusable code.
- **Customization**: Parameters and Arguments: Customize how functions behave.
- **Recursive Solutions: Recursion:** Solving problems by solving smaller instances of the same problem.

Global Big Data Analytics Market Share, By Vertical, 2023

22.8%

- BFSI
- Automotive
- Telecom/Media
- Healthcare
- Life Sciences
- Retail
- Energy & Utility
- Government
- Others

www.fortunebusinessinsights.com

Python Libraries

5

Toolset Expansion: Harnessing Python's Power
Unleash the power of Python's data libraries to handle, analyze, and visualize data.

- **File Handling:** Managing data files.
- **Numerical Computing: NumPy:** The cornerstone for numerical computing.
- **Data Manipulation: Pandas:** Data manipulation at your fingertips.
- **Data Visualization:** Matplotlib & Seaborn: Painting data in visual form.

Industry

BFSI , Healthcare,

Object-Oriented Programming

6

Complex Systems:
Dive into the OOP paradigm to manage more complex data systems with ease.

- **Classes and Objects:** The nuts and bolts of OOP.
- **Inheritance:** Streamlining code through hierarchical arrangements.

Job Roles

Data Scientist, Business analyst, Tech Consultant

An Introduction to Machine Learning

7

Understanding Machine Learning:
Discussion on the general concept of machine learning**.**

Key Markers

- **Value of ML:** Uncovering patterns and insights from data.
- **Real-World Applications:** Predictive analytics, recommendation systems, and anomaly detection.
- **Bridging the Gap:** Preparing and preprocessing data for machine learning.
- **Building on Current Skills:** Utilizing Python skills for basic ML tasks.
- **Next Steps:** Overview of techniques and applications, detailed exploration in advanced courses.

AI Global Market Size 2021 – 2030

Market size in million U.S. dollars

Year	Value
2021	95,602.77
2022	142,319.8
2023	207,902.42
2024*	298,246.87
2025*	420,465.53
2026*	582,948.69
2027*	795,384.63
2028*	1,068,718.47
2029*	1,415,054.84
2030*	1,847,495.6

* forecasted figures

Source: Statista

semrush.com SEMRUSH

Databases

8

Data Management: Introduction to Databases
Learn how to use SQL for database management and data manipulation.

Key Markers

- **SQL Fundamentals:** Basic commands and queries.
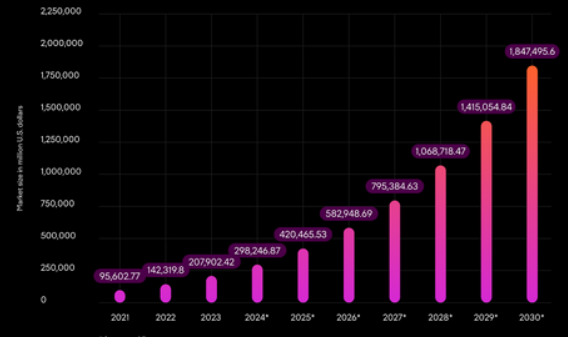- **Data Organization:** Structuring and normalizing data in databases.

Industry

BFSI , Healthcare, Digital Marketing, Sales

Industry-Grade Projects

9

Real-World Experience: Hands-On Projects
Engage in industry-grade projects that provide real-world experience and practical skills.

Key Markers

- **Project Scope:** Projects tailored to the interests of the candidate.
- **Industry Relevance:** Gain experience in solving real industry challenges.

Job Roles

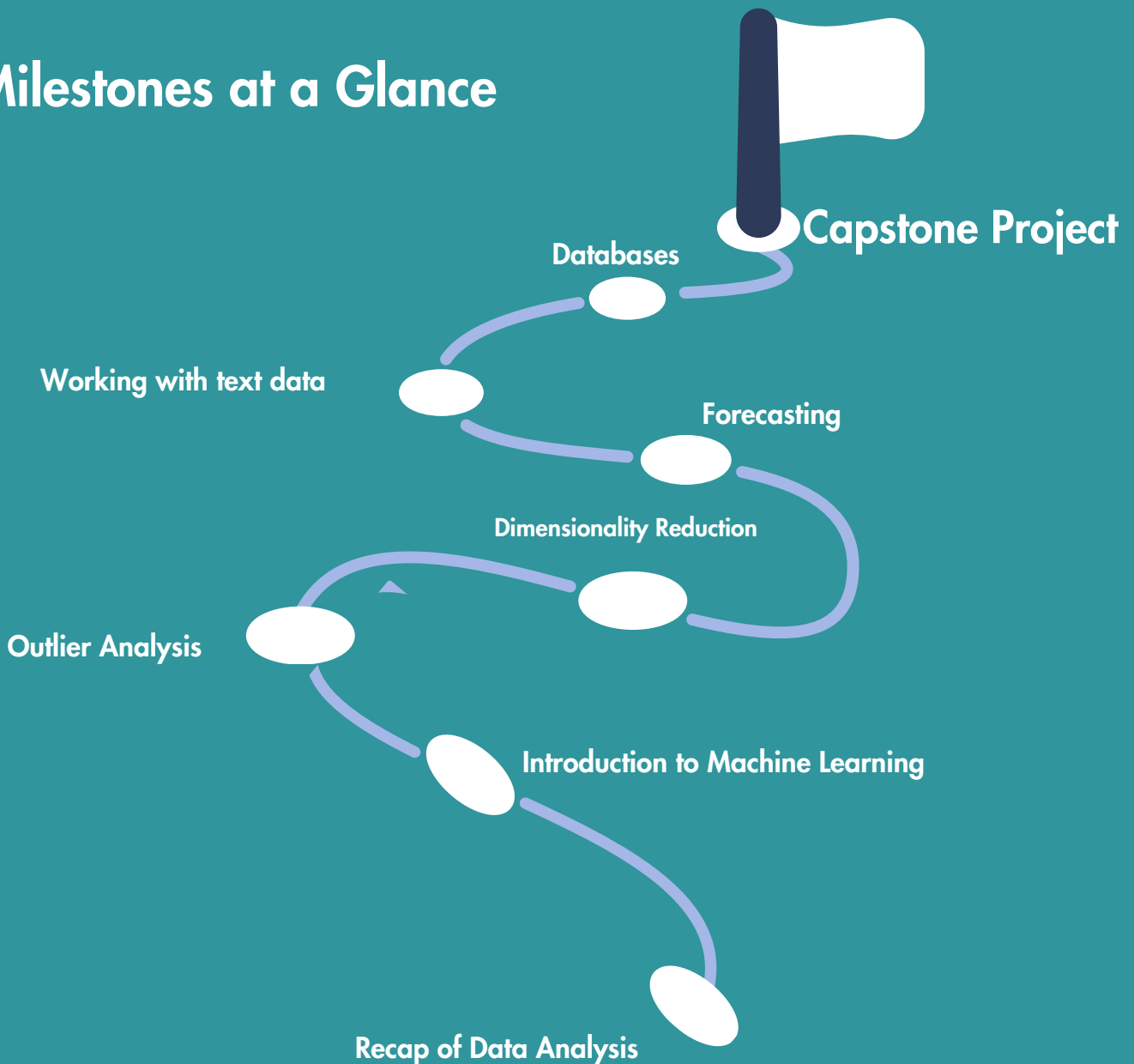Data Scientist, Business analyst, Tech Consultant

Machine Learning
For Industry Applications

Chinar Quantum AI
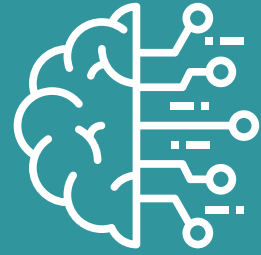
Master Predictive Modeling Techniques!

This training equips you with robust predictive modeling skills using machine learning.

Milestones at a Glance

Capstone Project

Databases

Working with text data

Forecasting

Dimensionality Reduction

Outlier Analysis

Introduction to Machine Learning

Recap of Data Analysis

1 Recap of Data Analysis

Foundation of Machine Learning: Brush Up on the Essentials
Refresh your understanding of data analysis to lay a strong foundation for advanced machine learning techniques.

Key Markers

- **Data Analysis Unveiled:** Understanding its role in today's AI-driven world.
- **AI Landscape:** A bird's eye view of artificial intelligence and its components.
- **Statistical Basics:** Core terminologies that fuel data interpretations.
- **Visual Tools:** Revisit the vibrant world of Matplotlib and Seaborn.

83% of companies claim that using AI in their business strategies is a top priority

83%

Source: Analytics Insight

2 Introduction to Machine Learning

Unraveling the Machine Learning Mystique Dive into the diverse types of machine learning and understand how algorithms learn from data.

Key Markers

- **Machine Learning Defined:** From theory to practical applications.
- **Learning Types:** Exploring Supervised vs. Unsupervised Learning.
- **ML at Scale:** Broader perspectives on applying machine learning.
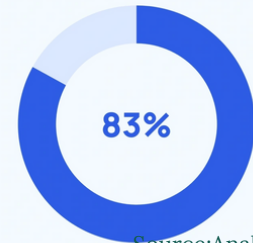- **Workflows and Pipelines:** Streamlining the machine learning process for efficiency.

Industry

Finance, Healthcare, Manufacturing

3 Outlier Analysis

Detecting the Anomalies
Learn to identify and analyze outliers that can dramatically skew the data you work with.

Job Roles

Data Analyst, Fraud Analyst, Quality Assurance Engineer

Key Markers

- **Significance of Outliers:** Impact on datasets and decisions.
- **Detecting Outliers:** Techniques for identifying data anomalies.
- **Analysis Strategies:** Tools and methods for outlier investigation.

Dimensionality Reduction

4

Simplifying Complexity
Address the curse of dimensionality by learning powerful techniques to reduce data dimensions while retaining essential information.

Key Markers

- **Understanding Dimensionality:** Challenges of high-dimensional data.
- **PCA:** A refresher on Principal Component Analysis.
- **Clustering Techniques:** K-Means, DBSCAN, Hierarchical Clustering for grouping data.
- **Advanced Visualization**: t-SNE for advanced data visualization with t-distributed Stochastic Neighbor Embedding.

Forecasting

5

Predicting the Future
Master the art of forecasting using both traditional statistical models and innovative machine-learning approaches.

Key Markers

- **Forecasting Foundations:** Predictive analytics in a nutshell.
- **Statistical Models:** Dive into ARIMA, ETS, and VAR.
- **ML Integration:** Enhancing forecasts with machine learning techniques.
- **Autoregression Techniques:** Delve into models that predict future values based on past data.

Working with Text Data

6

Unlocking the Power of Words
Explore how machine learning can extract meaningful insights from text, from social media analysis to advanced NLP applications.

Key Markers

- **Text Data Exploration:** Introduction to handling and analyzing text.
- **Data Collection:** Techniques for gathering text from diverse sources, including social media.
- **NLP Basics:** An overview of Natural Language Processing with tools like Spacy and NLTK.
- **Deep Dive into Embeddings:** Learn how vector embeddings transform text into analyzable data.

Worldwide natural language processing market revenue

Revenue: $0B, $10B, $20B, $30B, $40B, $50B
Year: 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025
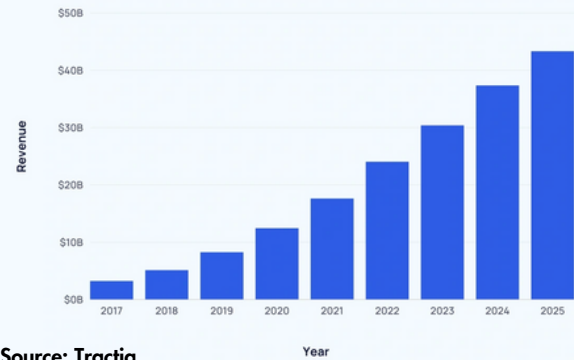
Source: Tractia

Industry

Finance, Healthcare, Digital Marketing, Customer Service

Job Roles

Data Scientist, Finance Analyst, NLP Engineer, Bioinformatician, Supply Chain Manager, Forecasting Expert

Databases

7

Introduction to Vector Databases
Discover the significance of vector databases in handling complex data types and supporting machine learning models.

Key Markers

- **Vector Databases Unveiled:** Understanding their role in modern data management.
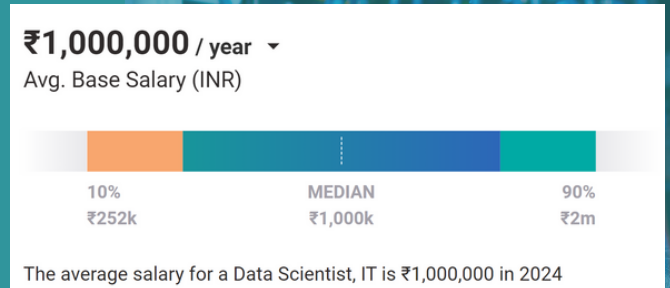- **Integration Techniques:** Methods for incorporating vector databases into ML workflows.

Industry-Grade Capstone Project

8

Real-World Experience in Deep Learning and Generative AI
Apply your knowledge to a comprehensive, industry-grade project that tackles real-world problems.

Key Markers

- **Project Selection:** Choose a project aligned with your interests and industry trends.
- **Problem Definition:** Formulate a clear and actionable problem statement.
- **Data Collection:** Gather and preprocess data relevant to your project.
- **Model Building:** Design and implement deep learning models to solve the problem.
- **Evaluation and Tuning:** Assess model performance and optimize for better results.
- **Deployment:** Learn the steps to deploy your model in a real-world environment.
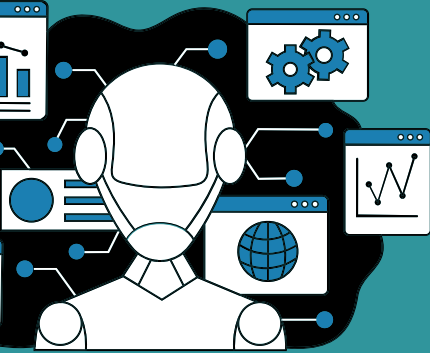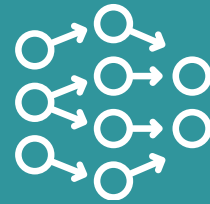- **Documentation and Presentation:** Compile a professional report and present your findings.

₹1,000,000 / year ▾
Avg. Base Salary (INR)

10%	MEDIAN	90%
₹252k	₹1,000k	₹2m

The average salary for a Data Scientist, IT is ₹1,000,000 in 2024

Industry

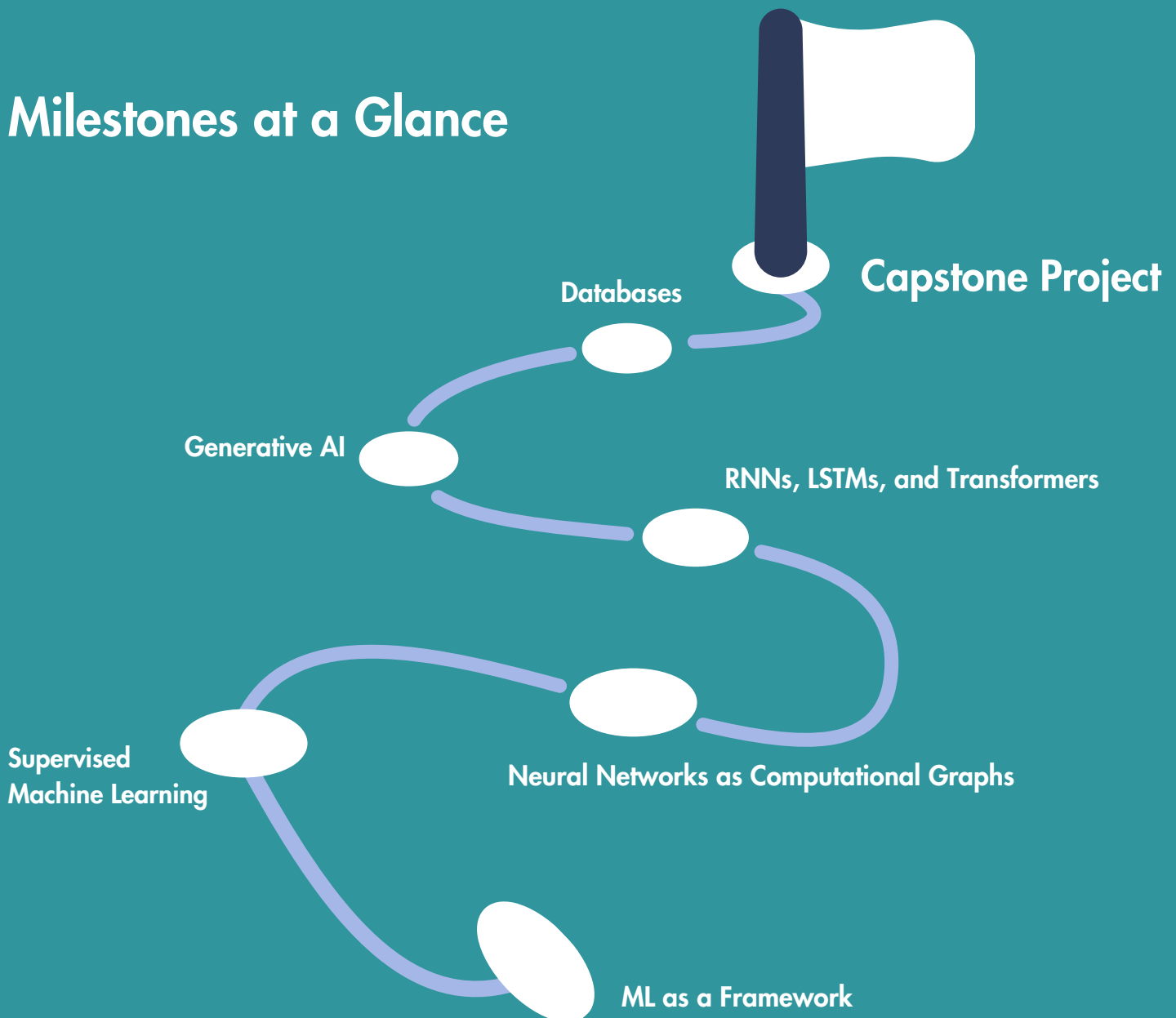BFSI , Healthcare, Digital Marketing, Sales

Job Roles

Data Scientist, Business analyst, Tech Consultant

Deep Learning and Generative AI

Explore Advanced AI Techniques!

Deep Learning and Generative AI delve into complex topics for cutting-edge AI solutions.

Milestones at a Glance

Capstone Project

Databases

Generative AI

RNNs, LSTMs, and Transformers

Neural Networks as Computational Graphs

Supervised Machine Learning

ML as a Framework

ML as a Framework

1

Overview: Understanding the Machine Learning Landscape
Dive into the various types of machine learning and introduce deep learning as a specialized sub-field.

Key Markers

- **ML Framework:** Understanding Machine Learning as a comprehensive framework.
- **Variants of ML:** Exploring Supervised, Unsupervised, and Semi-Supervised Learning.
- **Deep Learning Introduction:** Delve into Deep Learning as a crucial component of ML.

Readiness of organisations to fill AI demand supply talent gap (TeamLease Digital)

No plan to do this — 9%
Develop a plan — 8%
Planned and yet to implement — 27%
Have implemented initiatives — 56%

Supervised Machine Learning

2

Tasks in Supervised Learning: Principles and Practices
Master the foundational supervised learning techniques essential for predictive modeling and classification.

Key Markers

- **Linear Regression:** Principles and applications in predictive modeling.
- **Logistic Regression:** Understanding binary classification problems.
- **ML Model Architecture:** Components like Cost/Loss Function, Error Metric, and Optimizer.
- **Supervised Learning Algorithms:** Overview of Decision Trees, Random Forests, and Support Vector Machines (SVMs).
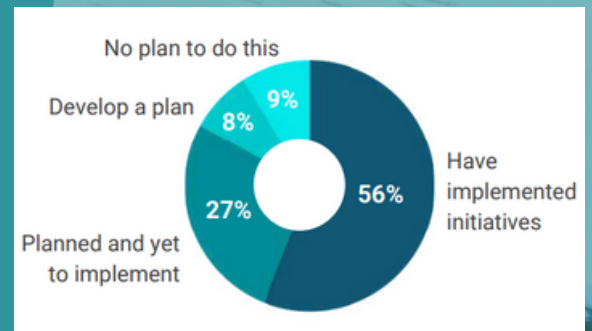
Industry

BFSI, Healthcare, Supply chain, Manufacturing, Logistics

Neural Networks as Computational Graphs

3

Understanding Neural Networks
Explore the core concepts and implementation of neural networks using popular frameworks.

Key Markers

- **Feedforward Neural Networks (FFNNs):** Deep dive into architecture and key concepts.
- **Implementation:** Building neural networks from scratch with NumPy, TensorFlow, PyTorch, and JAX.

Job Roles

Data Scientist, ML Engineer, Prediction consultant, Predictive Analytics Engineer

4 RNNs, LSTMs, and Transformers

Sequence-to-Sequence Tasks: Handling Temporal Data
Learn about recurrent neural networks and their advanced variants for processing sequential data.

Key Markers

- **RNNs:** Introduction to Recurrent Neural Networks and their applications.
- **LSTMs:** Understanding Long Short-Term Memory Networks for handling temporal data.
- **Transformers:** Overview of Transformer Architecture and its role in Natural Language Processing (NLP).

5 Generative AI

Generative AI Overview: Creating Innovative Solutions
Explore the powerful generative models and their applications in various fields.

Key Markers

- **GANs:** Concept of Generative Adversarial Networks and their practical applications.
- **Advanced Architectures: Understanding Transformer Architecture and Diffusion Models.**

6 Databases

Introduction to Vector Databases:
Gain insights into the modern data storage and retrieval systems essential for handling complex data types.

Key Markers

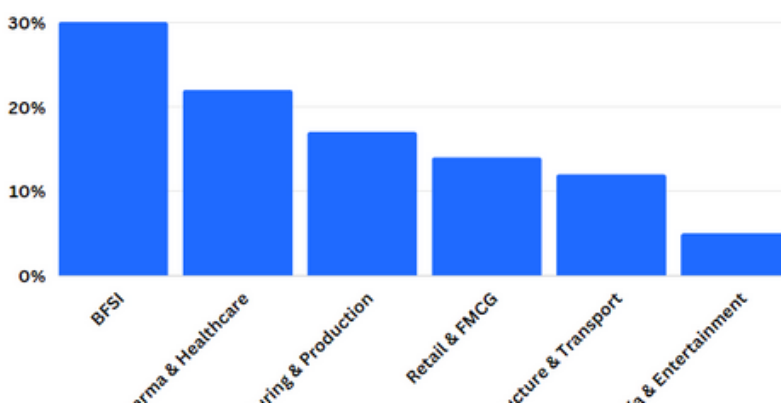**Vector Databases:** Introduction and applications in handling high-dimensional data.

Industry

BFSI, Healthcare, Computer Vision, Text Analytics

Job Roles

Roles: Data Scientist,NLP Engine GenAI engineer, LLM engineer, Forecasting Expert

Share of open AI jobs across non-IT sectors

RESEARCH

(bar chart)

Sector	Share
BFSI	30%
Pharma & Healthcare	22%
Manufacturing & Production	17%
Retail & FMCG	14%
Infrastructure & Transport	12%
Media & Entertainment	5%

Industry-Grade Capstone Project

Real-World Experience in Deep Learning and Generative AI Apply your knowledge to a comprehensive, industry-grade project that tackles real-world problems.

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- **Documentation and Presentation:** Compile a professional report and present your findings.
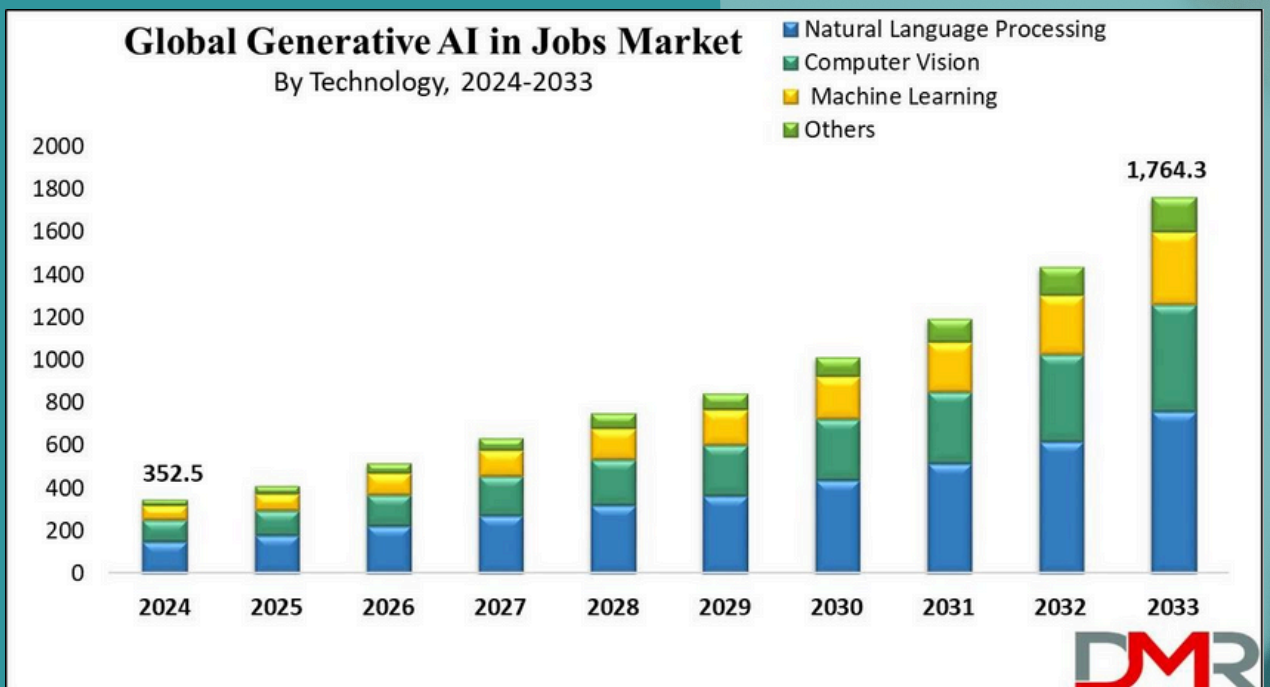
Industry

BFSI, Healthcare, Digital Marketing and Sales, Computer Vision

Job Roles

Roles: Data Scientist,AI/ML Engineer, NLP Engineer GenAI engineer, LLM engineer, Forecasting Expert

Global Generative AI in Jobs Market
By Technology, 2024-2033

Legend:
- Natural Language Processing
- Computer Vision
- Machine Learning
- Others

352.5 (2024)
1,764.3 (2033)

Y-axis: 0, 200, 400, 600, 800, 1000, 1200, 1400, 1600, 1800, 2000
X-axis: 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033

DMR

JOIN US

Become Part of the CQAI Community!

Ready to transform your career or business with AI? Dive into the future with Chinar Quantum AI's innovative training programs. By joining us, you'll gain access to live interactive sessions led by industry experts, hands-on projects that tackle real-world challenges, and a vibrant community of like-minded individuals. Whether you're aiming to enhance your technical skills, lead AI-driven initiatives, or simply stay ahead in the rapidly evolving tech landscape, CQAI provides the tools and support you need. Don't just learn—innovate, grow, and lead with CQAI. Start your journey today!

✉ support@chinarqai.com

📞 +91 9906619248

💬 +49 15259640305

Scan for the Quick Links!

🏠 F-3, Uptown Centre
Hyderpora, 190014

🌐 www.chinarqai.com

Chinar Quantum AI

In the rich cultural tapestry of Kashmir, Allama Iqbal immortalized the spirit of the land through the metaphorical 'Aatish-e-Chinar' (the fire of chinar), drawing inspiration from the grand chinar trees that stand as silent guardians of the region's legacy. These ancient chinars, deeply rooted in centuries of resilience, not only provide sanctuary from the blazing summer sun but also transform the valley into a canvas of vivid colors during the enchanting autumn season. As modern challenges in science and technology loom large, the indomitable spirit of the chinar serves as a guiding light for Kashmir's inaugural venture into artificial intelligence and quantum technology – Chinar Quantum AI (CQAI). Unyielding in the face of adversity, CQAI endeavours to redefine the boundaries of possibility, cultivating a workforce not only for the local AI industry but with global ambitions. The poetic declaration, 'At CQAI, the Aatish-e-Chinar entangles with the quantum potential of AI,' encapsulates the very essence of CQAI's mission – a future as dynamic as the autumnal chinar leaves, deeply rooted in fundamental research and mathematics, poised to empower the AI industry on an international scale. Just as the chinar tree finds its place in timeless folk narratives, CQAI aspires to carve a niche in the global tech landscape, where tradition converges with innovation, and strength harmonizes with cutting-edge advancements. In this convergence, CQAI envisions a future where the flame of 'Aatish-e-Chinar' illuminates the path toward unparalleled excellence in the world of artificial intelligence.

@chinarqai