

■ AI Career Roadmap

1. Fundamentals (Math + Coding + DSA)

- Learn Mathematics essential for AI: Linear Algebra, Calculus, Probability & Statistics, Discrete Mathematics.
- Master Python Programming: syntax, loops, functions, OOP, file handling.
- Strengthen Data Structures & Algorithms (DSA): arrays, linked lists, stacks, queues, trees, graphs, sorting, searching, recursion, dynamic programming.

2. Data Science Basics

- Learn how to collect, clean, and preprocess data.
- Work with datasets from Kaggle/APIs and create simple data pipelines.
- Master Python libraries: NumPy, Pandas, Matplotlib/Seaborn, OpenCV.

3. Machine Learning (ML) Fundamentals

- Understand ML types: Supervised, Unsupervised, Reinforcement Learning.
- Implement algorithms: Linear Regression, Logistic Regression, Decision Trees, Random Forests, K-means Clustering, Naïve Bayes, SVM.

4. Deep Learning (DL) Concepts

- Study Neural Networks (ANN basics: layers, activation functions).
- Learn CNN (Computer Vision), RNN/LSTM/GRU (Sequential Data), GANs (Generative Models).
- Understand forward & backpropagation clearly.
- Frameworks: PyTorch (start), then TensorFlow/Keras.

5. Large Language Models (LLMs) & NLP

- Basics of NLP: tokenization, embeddings, sentiment analysis.
- Study LLMs (GPT, BERT, LLaMA).
- Learn how to fine-tune and deploy LLMs.
- Applications: Chatbots, Text Summarization, Translation, Content Generation.

6. Project Development

- Start building projects parallel with learning.
- Make 3–4 strong projects (Spam classifier, Stock predictor, Face recognition system, Chatbot using LLMs).
- Put projects on GitHub/Portfolio.

7. Internships & Practical Skills

- Apply for internships early (even small ones matter).

- Work with real-world tools: Scikit-learn, PyTorch, TensorFlow, Keras, Docker, Cloud Platforms (AWS, GCP, Azure).
- Learn basics of MLOps/DevOps.

8. Career Preparation

- Resume: Highlight projects + internships.
- LinkedIn: Optimize profile (skills, certifications, posts).
- Participate in Kaggle competitions & hackathons.
- Network with AI/ML professionals.

9. Salary & Growth

- Fresher AI Engineer / Data Scientist → ■6–12 LPA.
- Data Analyst roles → slightly lower.
- Growth comes from consistency + hands-on projects + internships.