

AI Domain Roadmap with Timeline

Phase 1: Fundamentals (1-2 Months)

- Learn Programming Language (Python preferred)
- Study Linear Algebra, Calculus, Probability, and Statistics
- Understand basic Data Structures and Algorithms
- Master Git and version control

Phase 2: Data Handling & Preprocessing (2-3 Months)

- Learn NumPy and Pandas for data manipulation
- Master data cleaning and preprocessing techniques
- Understand feature engineering and dimensionality reduction
- Visualize data using Matplotlib, Seaborn, Plotly

Phase 3: Machine Learning (3-4 Months)

- Study Supervised and Unsupervised learning algorithms
- Learn Scikit-learn library
- Understand Model Evaluation and Hyperparameter Tuning
- Work on ML projects (Regression, Classification, Clustering)

Phase 4: Deep Learning (4-5 Months)

- Learn Deep Learning concepts (Neural Networks, CNNs, RNNs)
- Master TensorFlow and PyTorch frameworks
- Work on projects (Image Classification, NLP, GANs)
- Study Model Optimization and Deployment

Phase 5: Specialized AI Topics (3-4 Months)

- Natural Language Processing (NLP)
- Reinforcement Learning (RL)
- Generative AI (GANs, Transformers)
- Explainable AI (XAI)

Continuous Learning & Industry Practices

- Contribute to Open Source AI Projects
- Participate in Kaggle competitions
- Follow AI Research Papers and Blogs
- Earn AI/ML certifications (TensorFlow, Deep Learning Specialization, etc.)