

## AI/ML + Agentic AI Automation Roadmap (2025)

### PHASE 1 — Foundations (1–2 Months)

- Python basics, OOP, File Handling
- Math: Linear Algebra, Probability, Statistics, Calculus basics
- Data Handling: Pandas, NumPy, EDA

### PHASE 2 — Machine Learning (2–3 Months)

- Regression, Classification, Trees, SVM, KMeans, PCA
- Libraries: Scikit-learn, XGBoost
- Projects: Spam Classifier, Price Predictor, Customer Segmentation

### PHASE 3 — Deep Learning (2–3 Months)

- Neural Networks, CNNs, RNNs, Transformers basics
- Tools: PyTorch, TensorFlow, HuggingFace
- Projects: CIFAR-10 Classifier, Sentiment Analysis

### PHASE 4 — LLMs & Agentic AI (2–3 Months)

- LLM fundamentals, Prompting, RAG, Vector DBs, Fine-tuning
- Frameworks: LangChain, LlamaIndex, CrewAI, OpenAI Agents, AutoGen
- Projects: Multi-agent workflow, RAG chatbot, Tool-calling agent

### PHASE 5 — AI Automation (2–3 Months)

- Automation Skills: APIs, Scraping, Browser automation, Scheduling
- Tools: Zapier, Make, n8n, OpenAI Actions, FastAPI
- Projects: Auto-email bot, Monitoring agent, CRM automation

### PHASE 6 — Portfolio Projects (2–3 Months)

- ML training-to-deployment pipeline

- Multi-agent dashboard

- Fine-tuned small LLM

#### PHASE 7 — Deployment / MLOps (2 Months)

- Tools: Docker, FastAPI, Git, CI/CD, AWS/GCP

- Deploy ML model APIs and agent systems

#### PHASE 8 — Mastery (Ongoing)

- Research, open-source, real-world problem solving