AI Learning Roadmap (20 Hours/Week)

Stage 1: Core Foundations (Weeks 1-3)

Goal: Build a solid foundation in Python, basic math, and classical AI concepts.

Topics:

- Python programming

- Basic math: linear algebra, probability

- Search algorithms, logic

Projects:

- Rule-based chatbot

- Maze solver with A*

[Python for Everybody (Coursera)](#)

[Khan Academy: Linear Algebra](#)

[CS50's Intro to AI](#)

Stage 2: Machine Learning (Weeks 4-6)

Goal: Understand how to train models on data.

Topics:

- Supervised/unsupervised learning

- Regression, classification

- Evaluation metrics

Projects:

- Predict house prices

- Iris classifier

[Google ML Crash Course](#)

[Andrew Ng's ML Course](#)

[Hands-On ML Book](#)

AI Learning Roadmap (20 Hours/Week)

Stage 3: Deep Learning & NLP (Weeks 7-9)

Goal: Learn how deep neural networks and transformers work.

Topics:

- Neural nets, CNNs, RNNs, Transformers

- Tokenization, BERT

Projects:

- Sentiment analyzer

- Text summarizer

[DeepLearning.AI Specialization](#)

[Hugging Face NLP Course](#)

[The Illustrated Transformer](#)

Stage 4: LLM Agents (Weeks 10-12)

Goal: Build tool-using, autonomous LLM agents.

Topics:

- Prompting, planning

- LangChain, AutoGPT, ReAct

Projects:

- Tool-using LangChain agent

- Web-search assistant

[LangChain Docs](#)

[OpenAI Cookbook](#)

[Prompt Engineering Guide](#)

Stage 5: RL & Agent Architectures (Weeks 13-15)

Goal: Understand how agents learn via feedback.

AI Learning Roadmap (20 Hours/Week)

Topics:

- MDPs, Q-learning, PPO

- OpenAI Gym, multi-agent systems

Projects:

- Cartpole agent

- Simple multi-agent sim

[Spinning Up (OpenAI)](#)

[Deep RL YouTube Series](#)

Stage 6: Capstone Projects (Weeks 16-18)

Goal: Build real-world AI tools.

Ideas:

- AI research assistant

- Travel planner agent

- Multi-agent planner

[OpenAI Blog](#)

[Karpathy Lectures](#)

[Awesome AI Paper List](#)