12-Week AI Study Roadmap

Week 1-2: Python & Math Foundations

Topics:

- Python basics (variables, loops, functions, classes)
- NumPy, pandas
- Matplotlib/seaborn for visualization
- Basic statistics (mean, median, std, probability)

Practice:

- Build small Python scripts (e.g., a calculator, file reader)
- Analyze a CSV dataset with pandas

Week 3-4: Core Machine Learning

Topics:

- Supervised vs. Unsupervised learning
- Linear/Logistic Regression, KNN, Decision Trees, Random Forest
- Overfitting, train-test split, cross-validation

Practice:

- Use scikit-learn to train models
- Work on a small dataset like Titanic or Iris

Week 5-6: Deep Learning

Topics:

- Basics of neural networks, activation functions
- CNNs for image classification
- RNNs and LSTMs for sequences

Tools:

- TensorFlow or PyTorch

Practice:

- Build and train a digit classifier using MNIST

Week 7-8: NLP & Transformers

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Topics:

- Text preprocessing, TF-IDF, word embeddings
- Introduction to BERT and HuggingFace

Practice:

- Sentiment analysis project or chatbot

Week 9: Computer Vision

Topics:

- Image classification, object detection
- OpenCV basics

Practice:

- Detect faces, classify photos

Week 10: MLOps & Deployment

Topics:

- Flask/FastAPI, streamlit
- Model deployment on web servers
- Version control (Git/GitHub)

Practice:

- Deploy a simple ML model as an API

Week 11: Freelancing & Job Prep

Topics:

- Setting up Upwork/Fiverr profiles
- Resume and LinkedIn optimization

Practice:

- Submit 1-2 mock proposals
- Share a project on GitHub

Week 12: Final Capstone

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Capstone Project:

- Choose a domain (e.g., healthcare, education)
- Solve a real-world problem using AI
- Document code, presentation, and deployment

Tools:

Tools You'll Use:

- Python, Jupyter Notebook
- Pandas, NumPy, Matplotlib
- Scikit-learn, TensorFlow/PyTorch
- Flask/FastAPI, Streamlit
- Git & GitHub