12-Month Learning Plan to Become an AI Product Engineer

🕒 Weekly Commitment: 15 Hours

🧠 Goal: Become a Job-Ready AI Product Engineer in 12 Months

# 🧭 Summary Timeline

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| Month | Focus |
| 1(May 2025) | Python, Git, Linux, Programming Foundations |
| 2(June 2025) | Math for ML, Numpy/Pandas, Data Handling |
| 3(July 2025) | ML Fundamentals (Scikit-learn) |
| 4(August 2025) | Deep Learning & Neural Networks |
| 5(September 2025) | NLP and Generative AI (LLMs, ChatGPT APIs) |
| 6(October 2025) | Real Projects + Streamlit/FastAPI apps |
| 7(November 2025) | ML Ops: Deployment, APIs, Docker |
| 8(December 2025) | Cloud (AWS/GCP) + CI/CD |
| 9(January 2026) | Full-Stack Integration (React + AI) |
| 10(February 2026) | System Design + AI Product Architecture |
| 11(March 2026) | Capstone Project (End-to-End AI App) |
| 12(April 2026) | Polish, Portfolio, Interview Prep |

## ✅ Month 1: Programming + Git + Linux

\*\*Goal\*\*: Solid Python, terminal, Git foundation.

### Courses:

* Python for Beginners: https://www.udemy.com/course/python-the-complete-python-developer-course/
* Learn Git In 1 Hour: https://www.youtube.com/watch?v=8JJ101D3knE
* Linux Command Line for Beginners: https://www.youtube.com/watch?v=yz7nYlnXLfE

## ✅ Month 2: Math + Data Manipulation

\*\*Goal\*\*: Understand ML math + work with data.

### Courses:

* Essence of Linear Algebra: https://www.youtube.com/playlist?list=PLSQl0a2vh4HCsKzDks\_6zj-PYaY0LQpZ1
* Data Analysis with Pandas and NumPy: https://www.udemy.com/course/python-for-data-science-and-machine-learning-bootcamp/

## ✅ Month 3: Machine Learning Fundamentals

\*\*Goal\*\*: Learn core ML concepts using scikit-learn.

### Courses:

* Machine Learning A-Z: https://www.udemy.com/course/machinelearning/
* StatQuest ML Playlist: https://www.youtube.com/playlist?list=PLblh5JKOoLUIxGDQs4LFFD--41Vzf-ME1

## ✅ Month 4: Deep Learning

\*\*Goal\*\*: Understand and build neural networks.

### Courses:

* Deep Learning with PyTorch: https://www.udemy.com/course/deeplearning-pytorch/
* Deep Learning Fundamentals: https://www.youtube.com/watch?v=aircAruvnKk

## ✅ Month 5: NLP + Generative AI

\*\*Goal\*\*: Understand text data, transformers, ChatGPT APIs.

### Courses:

* NLP with Transformers: https://www.udemy.com/course/natural-language-processing-with-transformers/
* Hugging Face Transformers Crash Course: https://www.youtube.com/watch?v=9HFbhPscPU0
* OpenAI API Docs: https://platform.openai.com/docs

## ✅ Month 6: Build Real Projects

\*\*Goal\*\*: Deploy small apps using FastAPI/Streamlit.

### Courses:

* FastAPI Crash Course: https://www.youtube.com/watch?v=0sOvCWFmrtA

## ✅ Month 7: ML Ops Basics

\*\*Goal\*\*: Serve models via APIs, Dockerize, monitor.

### Courses:

* Machine Learning DevOps (MLOps): https://www.udemy.com/course/mlops-ml-model-deployment-from-zero-to-hero/
* MLflow Crash Course: https://www.youtube.com/watch?v=tLFpPwinxvA

## ✅ Month 8: Cloud + CI/CD

\*\*Goal\*\*: Learn AWS or GCP, automate deployments.

### Courses:

* AWS for Beginners: https://www.udemy.com/course/aws-certified-cloud-practitioner/
* CI/CD with GitHub Actions: https://www.youtube.com/watch?v=R8\_veQiYBjI

## ✅ Month 9: AI + Full-Stack Integration

\*\*Goal\*\*: Combine React + Python API + ML model.

### Courses:

* React Front to Back: https://www.udemy.com/course/react-front-to-back-2022/
* React + Flask AI App: https://www.youtube.com/watch?v=F5aGxRxAm3A

## ✅ Month 10: System Design + Product Thinking

\*\*Goal\*\*: Think like a product engineer, not just a coder.

### Courses:

* System Design Simplified: https://www.youtube.com/watch?v=KjYZsOGHguQ
* Designing Machine Learning Systems (Book): https://huyenchip.com/ml-interviews-book/

## ✅ Month 11: Capstone Project

\*\*Goal\*\*: Build a full end-to-end product (with AI core)

### Courses:

## ✅ Month 12: Final Polish + Portfolio + Job Prep

\*\*Goal\*\*: Launch portfolio, prepare for interviews.

### Courses: