**Path To ML/DL Mastery 05-09-2025**

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With up to 40 hours/week available , we can now accelerate your plan significantly and aim to get you job-ready in 3–4 months instead of 6.

**✅ Updated Profile:**

* Background: Working professional (now with full-time availability)
* Time Available: Up to 40 hrs/week
* ML/DL Experience: None yet
* Projects Built: None
* Goal: Transition into Machine Learning Engineering

**🚀 Accelerated Application Pathway (3-Month Plan)**

This plan will help you go from zero ML experience to job-ready in just 12 weeks, with a strong portfolio, resume, and interview prep.

**🎯 Final Goal (by Week 12):**

✅ Completed 4+ end-to-end ML projects  
✅ Deployed 2+ models (Flask, Streamlit, etc.)  
✅ GitHub portfolio + personal website  
✅ Resume tailored for ML roles  
✅ Started applying to jobs  
✅ Interview-ready: coding + ML concepts + system design

**🗓️ Weekly Roadmap (3-Month / 12-Week Timeline)**

**🔹 Phase 0: Setup & Python Crash Course (Weeks 1–2)**

**⏳ Time Commitment: ~30–40 hrs/week**

**🎯 Goals:**

* Set up environment
* Learn Python basics + Git
* Start math/stats refresher

**📚 Weekly Tasks:**

| **Week** | **Focus** | **Tools/Learning** |
| --- | --- | --- |
| 1 | Python basics | Variables, loops, functions, OOP |
| 2 | Data tools intro | pandas, numpy, matplotlib, Git |

**🛠 Resources:**

* [freeCodeCamp Python Full Course](https://www.youtube.com/watch?v=rfscVS0vtbw) (~8 hrs)
* [Kaggle Learn: Python](https://www.kaggle.com/learn/python)
* [Git & GitHub Crash Course (freeCodeCamp)](https://www.youtube.com/watch?v=SWYqp7iY_Tc)

💡 Tip: Code every day. Use Google Colab or Jupyter Notebooks to avoid setup issues.

**🔸 Phase 1: Machine Learning Foundations (Weeks 3–5)**

**⏳ Time Commitment: ~35–40 hrs/week**

**🎯 Goals:**

* Understand core ML concepts
* Build the first model and evaluate it
* Learn how to clean and preprocess data

**📚 Weekly Tasks:**

| **Week** | **Focus** | **Tools/Learning** |
| --- | --- | --- |
| 3 | Intro to ML | Supervised vs Unsupervised |
| 4 | Regression & Classification | Scikit-learn, Titanic dataset |
| 5 | Model evaluation & tuning | Cross-validation, metrics, hyperparameters |

**📦 Project:**

* Titanic Survival Predictor
  + EDA → preprocessing → train model → evaluate → push to GitHub

**🛠 Resources:**

* [Andrew Ng’s Machine Learning Coursera](https://www.coursera.org/learn/machine-learning) (audit for free)
* [Hands-On ML Book – Chapters 1–4](https://github.com/ageron/handson-ml)
* [Kaggle Learn: Intro to ML](https://www.kaggle.com/learn/intro-to-machine-learning)

**🔹 Phase 2: Deep Learning & Deployment (Weeks 6–8)**

**⏳ Time Commitment: ~35–40 hrs/week**

**🎯 Goals:**

* Learn deep learning basics
* Build and deploy at least one model
* Get familiar with deployment tools

**📚 Weekly Tasks:**

| **Week** | **Focus** | **Tools/Learning** |
| --- | --- | --- |
| 6 | Intro to Neural Networks | PyTorch or TensorFlow |
| 7 | CNNs, RNNs, Transfer Learning | Image classification, fine-tuning |
| 8 | Flask/FastAPI + Docker | Build and deploy an API |

**📦 Projects:**

1. Image Classifier using CNN
   * Train on CIFAR-10 or Dogs vs Cats dataset
2. Deployed Model App
   * e.g., Iris classifier API using Flask or Sentiment analysis app with Gradio

**🛠 Resources:**

* [Deep Learning Specialization by Andrew Ng (Coursera)](https://www.coursera.org/specializations/deep-learning)
* [TensorFlow Developer Certificate (Coursera Free Audit)](https://www.coursera.org/professional-certificates/tensorflow-in-practice)
* [Flask Tutorial (freeCodeCamp)](https://www.youtube.com/watch?v=Z1RJmh_OqeA)

**🔸 Phase 3: MLOps & Portfolio Building (Weeks 9–10)**

**⏳ Time Commitment: ~30–35 hrs/week**

**🎯 Goals:**

* Learn MLOps basics (model tracking, pipelines)
* Build 1–2 more projects
* Launch your portfolio site

**📚 Weekly Tasks:**

| **Week** | **Focus** | **Tools/Learning** |
| --- | --- | --- |
| 9 | MLOps & MLflow | Experiment tracking, model versioning |
| 10 | Portfolio Website | GitHub Pages, LinkedIn profile |

**📦 Projects:**

* Housing Price Predictor with MLflow
  + Track experiments and model performance
* NLP Sentiment Analysis Dashboard
  + Streamlit or Gradio UI

**🛠 Resources:**

* [MLOps Specialization (Coursera)](https://www.coursera.org/professional-certificates/mlops-engineer)
* [MLflow Quickstart](https://mlflow.org/docs/latest/quickstart.html)
* [GitHub Pages Guide](https://pages.github.com/)
* [Streamlit Docs](https://docs.streamlit.io/)

**🔹 Phase 4: Applications & Interviews (Weeks 11–12)**

**⏳ Time Commitment: ~30–35 hrs/week**

**🎯 Goals:**

* Apply to internships/jobs
* Prepare for technical and behavioral interviews
* Polish resume and LinkedIn

**📚 Weekly Tasks:**

| **Week** | **Focus** | **Tools/Learning** |
| --- | --- | --- |
| 11 | Job search + resume prep | Tailor resume, apply to jobs |
| 12 | Interview prep | Coding, system design, mock interviews |

**📌 Activities:**

* Apply to 10–20 roles
* Practice LeetCode Easy/Medium daily
* Mock interviews via Pramp or interviewing.io
* Behavioral prep using STAR method

**🛠 Resources:**

* [Grokking the Machine Learning Interview (Educative)](https://www.educative.io/courses/grokking-the-machine-learning-interview)
* [Ace the Data Science Interview (Book)](https://www.amazon.com/Ace-Science-Interview-Questions-Answers/dp/9355510482/)
* [Pramp Peer Interviews](https://pramp.com/)
* [LeetCode](https://leetcode.com/)

**🧩 Suggested Weekly Breakdown (Sample)**

Here's how to split your time each week:

| **Activity** | **Hours/Week** |
| --- | --- |
| Learning (videos, reading) | 10–15 hrs |
| Coding practice (notebooks, scripts) | 15–20 hrs |
| Project building & documentation | 5–10 hrs |
| Networking / applications / prep | 5–10 hrs |

**🧰 Tools You’ll Be Using**

| **Tool** | **Purpose** |
| --- | --- |
| GitHub | Version control, showcase code |
| Google Colab | Free GPU, no setup |
| scikit-learn | ML algorithms |
| TensorFlow / PyTorch | Deep learning |
| Flask / FastAPI | Model serving |
| Docker | Containerization |
| Streamlit / Gradio | UI demos |
| MLflow | Experiment tracking |
| LeetCode / Pramp | Interview practice |

**📁 Suggested First Projects (Ordered by Difficulty)**

| **Project** | **Skills Used** |
| --- | --- |
| Titanic Survival Predictor | EDA, feature engineering, classification |
| Iris Flower Classifier API | Flask, model deployment |
| Image Classifier (CNN) | Deep learning, transfer learning |
| Sentiment Analysis App | NLP, HuggingFace, Gradio |
| Housing Price Predictor with MLflow | Model tracking, regression |

**🧾 Resume Tips for ML Engineer (Entry-Level)**

Include these sections:

* Profile Summary : “Aspiring ML Engineer with hands-on experience in building and deploying ML models.”
* Skills : Python, scikit-learn, Flask, Docker, Git, MLflow, TensorFlow
* Projects : List 3–4 with brief descriptions
* Experience : Highlight any analytical or software skills from past work
* Education : Degree, certifications, relevant coursework

Example Bullet Point:

* Trained and deployed a sentiment analysis model using Hugging Face Transformers and Gradio, achieving 90% accuracy

**🧠 Interview Prep Checklist**

| **Topic** | **Resource** |
| --- | --- |
| Python Coding | LeetCode Easy/Medium (daily) |
| ML Concepts | Grokking ML Interview (Educative) |
| System Design | "Design a Fraud Detection API" |
| Behavioral | STAR method (YouTube tutorials) |

**🙌 Next Steps**

You’re in a great position to make a fast pivot into ML Engineering. If you’d like, I can:

* Create a Notion roadmap template for your plan
* Give you a custom resume template
* Provide a list of job boards and companies hiring ML Engineers
* Help you write your first GitHub README or project description