# 🗓️ Future-Proof 15-Month AI/ML Weekly Roadmap

*2 hrs/day → ~14 hrs/week | Scale up during breaks*

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## 1 Phase 1: Foundations (Weeks 1–12)

> **Goal:** Build ML foundations, portfolio credibility, first freelancing gigs.

### Week 1 Python Mastery & Setup

**Topics:** Python OOP, file handling, error handling, NumPy arrays.

> 🛠️ **Project:** Task Manager CLI (JSON storage + OOP).

**Benefits:**

- **MS** → Shows strong fundamentals, avoids weak coding impression.
- **Freelancing** → Automations/scripts = easy Fiverr/Upwork gigs.
- **FAANG** → Python fluency expected in interviews.

### Week 2 Statistics + Linear Algebra

**Topics:** Distributions, hypothesis testing, matrix operations, eigenvalues.

> 🛠️ **Project:** Data Analysis Toolkit (Pandas + NumPy + Matplotlib).

**Benefits:**

- **MS** → Strong math foundation = research credibility.
- **Freelancing** → Business analytics dashboards.
- **FAANG** → Essential for ML interviews + probability questions.

Week 3 **Data Visualization**

**Topics:** Matplotlib, Seaborn, Plotly.

> 🛠️ **Project:** COVID-19 Dashboard (interactive, real-time API).

**Benefits:**

- **MS** → Good for coursework projects & poster presentations.
- **Freelancing** → Dashboard projects sell well (₹5K–20K range).
- **FAANG** → Communicating insights clearly = big plus.

Week 4 **Freelance Setup**

**Topics:** GitHub portfolio, freelancing platforms (Fiverr, Upwork).

> 🛠️ **Project:** Convert Excel → Python scripts (freelance starter).

**Benefits:**

- **MS** → Shows initiative + portfolio.
- **Freelancing** → First ₹10K possible.
- **FAANG** → GitHub profile with clean READMEs matters.

Week 5 **Regression & Classification (Scikit-learn)**

**Topics:** Linear regression, logistic regression, preprocessing, pipelines.

> 🛠️ **Project:** Real Estate Price Predictor.

**Benefits:**

- **MS** → Classic ML project for professors.
- **Freelancing** → Predictive models for small businesses.
- **FAANG** → ML fundamentals tested in interviews.

Week 6 **Trees & Ensembles**

**Topics:** Decision Trees, Random Forests, Gradient Boosting (XGBoost).

> 🛠️ **Project:** Kaggle Titanic Competition.

**Benefits:**

- **MS** → Kaggle credibility helps.
- **Freelancing** → Popular method for tabular business data.
- **FAANG** → Boosted trees widely used internally.

Week 7 **Model Evaluation**

**Topics:** Cross-validation, confusion matrix, ROC, precision/recall.

> 🛠️ **Project:** Sales Forecast App (XGBoost + Streamlit).

**Benefits:**

- **MS** → Understanding evaluation = research readiness.
- **Freelancing** → Avoids "black-box" perception, clients trust results.
- **FAANG** → You'll face metric-based system design Qs.

Week 8 **Freelancing Growth**

**Topics:** Client communication, packaging ML services.

> 🛠️ **Project:** E-commerce Dashboard (Kaggle dataset).

**Benefits:**

- **MS** → Links coursework with real-world data.

- **Freelancing** → Scale to ₹20–30K/month.
- **FAANG** → Product mindset → huge edge.

Week 9 **Feature Engineering**

**Topics:** Encoding, scaling, feature selection.

> 🛠️ **Project:** Kaggle House Prices Competition.

**Benefits:**

- **MS** → Research uses feature engineering heavily.
- **Freelancing** → Adds value to client data pipelines.
- **FAANG** → Demonstrates optimization thinking.

Week 10 **NLP Basics**

**Topics:** Tokenization, bag-of-words, TF-IDF, sentiment analysis.

> 🛠️ **Project:** Movie Review Sentiment Analyzer.

**Benefits:**

- **MS** → Entry into NLP research labs.
- **Freelancing** → Social media sentiment analysis = client favorite.
- **FAANG** → Text data handling is common interview area.

Week 11 **Pretrained NLP Models**

**Topics:** Word embeddings, BERT intro, fine-tuning basics.

> 🛠️ **Project:** Kaggle NLP competition baseline.

**Benefits:**

- **MS** → Shows you understand modern NLP.
- **Freelancing** → Lets you deliver chatbot/analysis apps.

- **FAANG** → Hugging Face is used across teams.

Week 12 **Consolidation**

**Topics:** GitHub hygiene, writing tech blogs.

> 🛠️ **Project:** Portfolio Website.

**Benefits:**

- **MS** → Professors check GitHub/portfolio.
- **Freelancing** → Builds client trust.
- **FAANG** → Recruiters notice strong portfolio.

✅ **Phase 1 Outcome:**

6 projects, Kaggle top 30–40%, ₹15–20K freelancing, GPA boosted with course-aligned projects.

## 2 Phase 2: Core Deep Learning (Weeks 13–28)

**Goal:** PyTorch mastery, DL projects, freelancing $50K+.

### Week 13 Neural Networks Basics

**Topics:** Forward/backward pass, backpropagation.

🛠️ **Project:** NN from Scratch in NumPy & PyTorch.

**Benefit:** Deep foundation → professors value, FAANG expects.

### Week 14 CNNs

**Topics:** Convolution, pooling, ResNet basics.

🛠️ **Project:** CIFAR-10 Classifier.

**Benefit:** Classic CV benchmark → good for Kaggle + freelancing.

### Week 15 Transfer Learning

**Topics:** Pretrained models (ResNet, EfficientNet).

🛠️ **Project:** Image Classification Web App.

**Benefit:** Industry clients want pretrained + finetune solutions.

### Week 16 Kaggle CV Competition

> 🛠️ **Project:** Real-world CV comp (object detection/classification).

**Benefit:** Kaggle profile → resume booster.

Week 17 **Hugging Face Basics**

**Topics:** Tokenizers, pretrained models.

> 🛠️ **Project:** News Categorizer.

**Benefit:** Practical NLP + Hugging Face badge for resume.

Week 18 **Transformers Deep Dive**

**Topics:** Attention mechanism, encoder-decoder.

> 🛠️ **Project:** Text Summarizer.

**Benefit:** Shows strong modern NLP understanding.

Week 19 **NLP Fine-tuning**

**Topics:** BERT/DistilBERT fine-tuning.

> 🛠️ **Project:** Domain-Specific Classifier (Finance/Healthcare).

**Benefit:** MS → publication-worthy; Freelancing → niche projects.

Week 20 **Deploy NLP Model**

**Topics:** FastAPI, REST APIs.

> 🛠️ **Project:** Sentiment Analysis API.

**Benefit:** First deployment → clients + recruiters love this.

Weeks 21–22 **Docker & MLOps Basics**

**Topics:** Docker, experiment tracking (MLflow).

> 🛠️ **Project:** Containerized ML API.

**Benefit:** Professors impressed, FAANG expects deployment skills.

Weeks 23–24 **Cloud Deployment**

**Topics:** GCP/AWS basics.

> 🛠️ **Project:** Deploy NLP/CV model on cloud.

**Benefit:** Demonstrates production readiness.

Weeks 25–28 **Kaggle + Freelance Scale-Up**

> 🛠️ **Project:** Advanced Kaggle competition + E-commerce Sales Dashboard (with ML).

**Benefit:** Kaggle Expert + freelancing ₹40–50K/month.

✅ **Phase 2 Outcome:**

PyTorch mastery, Hugging Face fluency, deployed APIs, Kaggle Expert, 10 portfolio projects.

# 3 Phase 3: Research + Advanced AI (Weeks 29–40)

**Goal:** Publications + SaaS MVP.

### Week 29 GANs

🛠️ **Project:** Face Generator.

### Week 30 Diffusion Models

🛠️ **Project:** Text-to-Image.

### Weeks 31–32 Research Replication

🛠️ **Project:** Replicate recent paper.

### Weeks 33–34 LangChain + Vector DBs

🛠️ **Project:** RAG Chatbot.

### Weeks 35–36 SaaS MVP

> 🛠️ **Project:** Launch AI SaaS product.

Weeks 37–40 **Research Paper Draft**

> 🛠️ **Project:** Complete research paper.

**Benefits:**

- **MS** → Publications + professor collabs.
- **Freelancing** → High-value clients (₹60K+).
- **FAANG** → Proves advanced skills.

## 4 Phase 4: Production & Scaling (Weeks 41–52)

> **Goal:** Full MLOps + SaaS product.

Week 41 **CI/CD Pipelines**

Week 42 **Monitoring & Drift Detection**

Week 43 **Kubernetes**

Week 44 **Scalable ML Pipeline**

Weeks 45–48 **SaaS AI Product Launch**

**Benefits:**

- **MS** → Research + product blend = unique.
- **Freelancing** → Build productized services.
- **FAANG** → Infra/scale skills are gold.

## 5 Phase 5: Interview Prep + Applications (Weeks 49–60)

**Goal:** Secure MS admits + FAANG-level offers.

Weeks 49–50 **LeetCode Top 150**

Week 51 **ML System Design**

Week 52 **Mock Interviews**

Weeks 53–56 **MS Applications**

Weeks 57–60 **Job Offers + Negotiations**

**Benefits:**

- **MS** → 10+ projects, papers, rec letters.
- **Freelancing** → ₹1L+/month steady.
- **FAANG** → Interview-ready for L4 roles.

## ✅ Final Outcome (End of 15 Months):

**20+ strong projects**
(all portfolio/GitHub-ready)

**2+ research papers**
(conference/arXiv)

**₹1L+/month freelance**
or SaaS revenue

**Top MS admits**
OR FAANG job

## 🚀 Ready to Start?

This roadmap is your blueprint to AI/ML mastery. Print this PDF, track your progress, and adjust the timeline based on your real learning speed. Remember: consistency beats perfection.

*"The best time to plant a tree was 20 years ago. The second best time is now."*