ELEVORIX
ACADEMY

AI Systems Engineering

DIPLOMA

NLP, RAG and Agents

From Python fundamentals to production AI systems.

24 Weeks • Open Enrollment • ~120 Hours • Live Hybrid

Program Overview

24	~120h	3	40+
Weeks	Live Instruction	Phases	Sessions

What You'll Build

- ✓ Production RAG system with evaluation harness
- ✓ Fine-tuned LLM (LoRA/QLoRA) with experiment report
- ✓ LangGraph AI Agent with MCP integration
- ✓ Dockerized NLP microservice with FastAPI + Streamlit UI
- ✓ Full capstone with architecture docs & live defense

Format & Delivery

- ✓ 2 live sessions per week
- ✓ 5-6.5 contact hours/week
- ✓ Live hybrid (online + offline)
- ✓ English delivery + Arabic support
- ✓ Diploma upon successful completion

The Learning Journey

Phase 1

Foundations

Weeks 1-10 | ~50h

- Python & NumPy & Pandas
- Applied ML (sklearn)
- Deep Learning (PyTorch)
- CNNs & Transfer Learning

Phase 2

Deployment Bridge

Weeks 11-13 | ~18h

- HuggingFace Pipelines
- FastAPI for AI services
- Docker & containerization
- Streamlit UI layer

Phase 3

NLP / LLM / Agents

Weeks 14-24 | ~55h

- Classical NLP to Transformers
- RAG Architecture + Eval
- LoRA/QLoRA Finetuning
- LangGraph + MCP Agents

CAPSTONE • Week 24 • Live Demo + Architecture Defense + Evaluation Report

Phase 1 - Foundations (Weeks 1-10)

Wk 1-2

Python Fundamentals

Data types, loops, functions, NumPy essentials

Wk 3-4

Pandas & Visualization

EDA, data cleaning, Matplotlib & Seaborn

Wk 5-6

ML Workflow + Classification

sklearn pipelines, logistic regression, F1, ROC-AUC

Wk 7-8

Regression & Ensembles

Linear regression, Random Forest, Gradient Boosting

Wk 9-10

Deep Learning & CNNs

PyTorch, backprop, training loops, transfer learning

Mini-Capstone: Week 8

Full ML notebook + slides + decision memo

Phase 2 - Deployment Bridge (Weeks 11-13)

Week 11

HuggingFace + Inference

- Model hubs, tokenizers, pipelines
- Hosted vs local inference
- Packaging model assets

Week 12

FastAPI for AI Services

- Request/response schemas
- Error handling & versioned endpoints
- Serve an LLM-powered endpoint

Week 13

Docker + Streamlit + Metrics

- Dockerize AI services
- Lightweight Streamlit UI
- Evaluation metrics & deploy checks

Outcome: A Dockerized API + Streamlit UI ready for the full NLP/LLM phase

Phase 3 - NLP • LLMs • RAG • Agents (Weeks 14-24)

Wk 14-15

Classical NLP

Tokenization, POS, NER, TF-IDF, spaCy, seq models

Wk 16

LLM Engineering

Prompt design, Pydantic, retry logic, cost analysis

Wk 17-18

RAG Architecture

Chunking, embeddings, hybrid search, reranking, citations

Wk 19

Eval & Debugging

Hit@k, MRR, LLM-as-judge, failure taxonomy harness

Wk 20

LoRA / QLoRA

Parameter-efficient finetuning, dataset construction, eval

Wk 21

LangChain

Chains, LCEL, memory, port raw Python workflow

Wk 22

LangGraph Agents

Planner-executor, state/edges, adversarial robustness

Wk 23

MCP Protocol

Client-server, tools/resources, multi-tool agent link

Final Deliverables

- ✓ **Foundation Mini-Capstone**
  ML notebook, slides & decision memo
- ✓ **Dockerized API + Streamlit UI**
  Deployment bridge application
- ✓ **Classical NLP Pipeline**
  With full evaluation report
- ✓ **LLM Microservice**
  Structured, versioned, cost-tracked
- ✓ **Production RAG System**
  Baseline + improved + metrics
- ✓ **LoRA/QLoRA Report**
  Training config + pre/post evaluation
- ✓ **LangGraph Agent**
  With MCP integration + failure docs
- ✓ **Capstone - Live Defense**
  Architecture diagram + Dockerfile + eval

Who Should Enroll?

Perfect For

- ✓ University students seeking AI credentials
- ✓ Career changers building technical AI skills
- ✓ Developers ready to move beyond basic ML
- ✓ Engineers wanting NLP + LLM + Agent expertise
- ✓ Anyone serious about production-grade AI work

Not Suitable If

- ✗ You expect zero-code, no-effort AI magic
- ✗ Not comfortable with trial, error, iteration
- ✗ You can't commit 5-6 hours/week
- ✗ Looking for a shortcut to skip foundations
- ✗ Prefer passive watching over active building

No prerequisites required • All backgrounds welcome • Open enrollment

The Anti-Hype Promise

We Show Failures

Every module includes what breaks and why, not just polished success demos.

We Teach Limitations

Learn what AI cannot do before celebrating what it can.

Honest About Costs

Real cost analysis of free, paid, and self-hosted options.

We Build for Real Life

Systems that survive production, not demos that work once.

People who complete this program understand what they're building, not just how to demo it.

Why Elevorix Academy?

Practical & Honest

We show failures, teach limitations, and build for reality.

Story-Driven Learning

Foundations to deployment to specialization in one coherent path.

Expert Instruction

Learn from practitioners who built production AI systems.

Community Support

Peer help, shared wins, and lasting professional connections.

Recognized Credential

Diploma valued by employers seeking AI engineering talent.

Lifetime Access

Recordings, materials, templates, and community access forever.

Schedule & Logistics

Period	Weeks	Content
Weeks 1-10	**Phase 1**	Python, NumPy, Pandas, ML Workflow, Deep Learning + CNNs
Weeks 11-13	**Phase 2**	HuggingFace, FastAPI, Docker, Streamlit, Evaluation Metrics
Weeks 14-15	**Phase 3a**	Classical NLP, spaCy, Sequence Models, Road to Transformers
Weeks 16-19	**Phase 3b**	LLM Engineering, RAG Architecture, Hybrid Retrieval, Eval Harness
Weeks 20-23	**Phase 3c**	LoRA Finetuning, LangChain, LangGraph Agents, MCP Protocol
Week 24	**Capstone**	Integration Sprint + Live Defense + Architecture & Eval Report

Included: All materials • Lifetime recordings • Setup support • Alumni community

START YOUR AI JOURNEY

WITH REAL SKILLS - NOT BUZZWORDS

1

Visit or Email

www.elevorix.org or
ceo@elevorix.org

2

Register & Pay

Secure your spot - Early Bird pricing available

3

Get Started

Receive setup guide, join cohort workspace, ready for Week 1