AI ACADEMY DIRECT

by Fusion AI labs

A gradute programme for applied AI

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The AI market is moving fast. Most training courses are already outdated before you finish them.

Fusion AI Labs Academy bridges the gap between learning and employment in AI.

An AI-driven, personalised program built around your needs, supported by AI assistants and real industry experts to help you transition into a real AI career.

THE CONTEXT: THE SKILLS GAP

AI is evolving faster than traditional education can keep up.

1%

MATURE ORGANIZATIONS

- Only 1% of companies reach full AI maturity.
- 46% of leaders cite talent gaps as the primary reason why Gen-AI projects are progressing too slowly.

Fonte: McKinsey

60%

AI SKILLS DEVELOPMENT

AI skills are evolving 60% faster than any other industry, making traditional training courses **obsolete in less than 12 months.**

Source: Deloitte / PwC

40- 70%

SKILL GAPS AMONG EMPLOYEE

- 40–70% of C-level executives face significant AI skills gaps within their teams.
- Only 5% of companies realize the full value of AI at scale; only 1/3 of employees are satisfied with the training they receive.

Source: BCG

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Fusion AI Labs transforms advanced AI technologies into concrete solutions for industry and public administration through applied research rigorously validated.

Founded by world-renowned **AI experts,** in collaboration with Expert.ai, a European leader in semantic AI with over 30 years of experience, deployed in **Fortune 500 companies.**

A team of researchers with PhDs and peer-reviewed publications, with complementary expertise: LLM fine-tuning, computer vision, NLP, and semantic AI.

CENTER OF EXCELLENCE

Internationally recognized expertise in applied AI. Leading academic and industry partners, including Expert.ai.

APPLIED RESEARCH

Every solution is verified through objective metrics addressing real issues prior to being presented to partners. No untested theories are involved.

MULTIDISCIPLINARY TEAM

PhD in AI, LLM engineering, computer vision and NLP, skills that cover the entire applied AI development stack.

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THE FUSION AI LABS APPLIED RESEARCH METHOD

Our approach ensures that every AI innovation is explored, tested, validated and transferred.

F

FAST

Rapid experimentation cycles: from idea to prototype in weeks, not months. AI evolves too quickly for fixed, multi-year plans.

L

LIQUID

Fluid and adaptive approach. No rigidity: solutions evolve with technology and the requirements of the real operating context.

U

UNCHARTED

Exploring new territory. We test emerging ideas before they become mainstream, ensuring a measurable competitive advantage.

X

eXPERIMENTAL

A culture of experimentation. Every claim is validated with real data and concrete metrics,not theoretical hypotheses or isolated demos.

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AI ACADEMY DIRECT

Traditional training progresses at the pace of the slowest participant.

In the field of AI, where skills evolve more rapidly than in other areas, this limitation is unsustainable.

COURSE TARGET

Professional coding experience is not required; a basic understanding of Python is sufficient.

Young Computer Scientists

You're finishing a degree in computer science or computer engineering. You have basic Python skills. You want to understand where the AI market will take you.

Analytical profiles with strong technical potential

Come from a quantitative path like mathematics, physics, economics, or a related discipline. You're comfortable with analytical thinking, but you're new to software engineering. Your analytical reasoning is exactly what's needed to evaluate models and build reliable AI systems.

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The Academy is the first structured response to AI gap: personalized for the individual, based on real research, continuously updated with the field.

01

CONTENT ALWAYS UP TO DATE

The materials showcase the most recent advancements in the field of AI, tested and validated through applied research rather than static curricula that are updated on an annual basis.

02

AI-SUPERVISED TECHNOLOGY

The entire process is AI-assisted: a learning analytics system monitors individual progress, helps identify any gaps in understanding, and supports the delivery of reinforcing content.

03

EXPERIENCE ON REAL PROBLEMS

We don't just do simulations: we design, implement, monitor, and test data pipelines for enterprise clients, with local deployment of ad hoc solutions.

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PROGRAM STRUCTURE

14 weeks, 180 hours of intensive training: the most rigorous and up-to-date path to train junior AI specialists ready for the workforce.

14 WEEKS

5 MODULES

180

HOURS

5

MODULES

4

CASE STUDY

- Foundation & Engineering Discipline Model
- Behaviour& Prompting Retrieval Systems & RAG
- Tools, Agents & Orchestration Production,
- Evaluation & Security

Active participation is a fundamental part of the learning experience. Participants are expected to maintain a minimum attendance rate of 90% and to notify the Academy in advance in case they are unable to attend a session.

HOUR DISTRIBUTION

90-hour — AI-assisted online

5 modules with learning analytics

90-hour —in presence

1 day/week × 3 months · Villa Quartara, Genoa

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HANDS ON PROGRAMME OVERVIEW

The program is built around two types of practical activities. At the end of the program, you will have the opportunity to present your final project to a panel of industry experts and receive personalized feedback on your work.

1 PROOF OF CONCEPT

9 weeks built around one core project, continuously developed and refined over the full 13-week journey.

By the conclusion of the final workshop, will have independently created a production-level LLM application. These workshops serve as the platform where theoretical concepts transform into practical engineering decisions.

4 REAL WORLD CASE STUDIES

The program includes four sessions, in the second part of the course, each based on real customer problems without pre-defined solutions.

You will analyze problems and assess their feasibility using various techniques. You will propose solutions and, if feasible, develop a working prototype. The focus will be on reasoning under uncertainty, identifying what is achievable, and providing well-supported recommendations.

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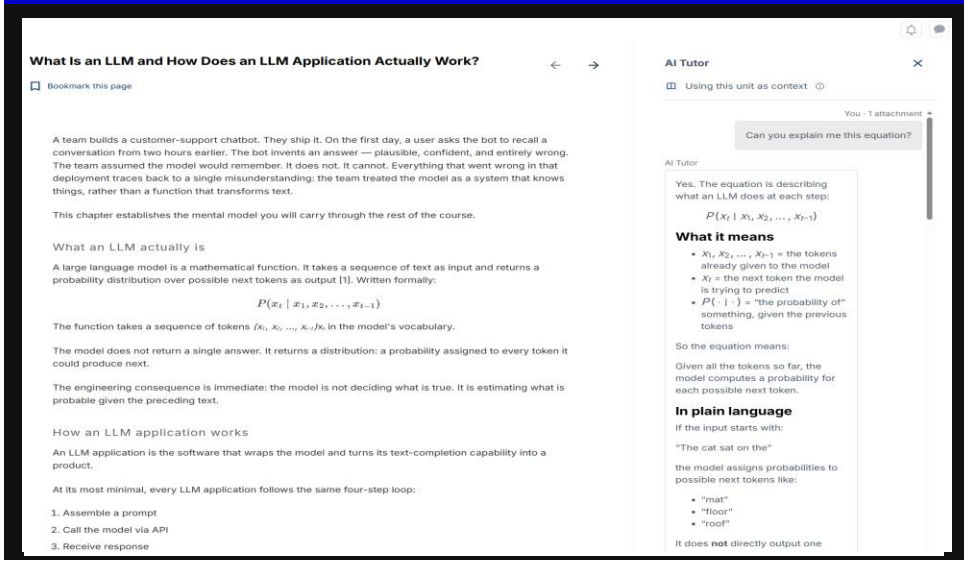
AI TEACHING ASSISTANT

The system responds in real time to yours questions, showing full awareness of the content.

LESSON IN PROGRESS



What Is an LLM and How Does an LLM Application Actually Work?

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A team builds a customer-support chatbot. They ship it. On the first day, a user asks the bot to recall a conversation from two hours earlier. The bot invents an answer — plausible, confident, and entirely wrong. The team assumed the model would remember. It does not. It cannot. Everything that went wrong in that deployment traces back to a single misunderstanding: the team treated the model as a system that knows things, rather than a function that transforms text.

This chapter establishes the mental model you will carry through the rest of the course.

What an LLM actually is

A large language model is a mathematical function. It takes a sequence of text as input and returns a probability distribution over possible next tokens as output [1]. Written formally:

$$P(x_t \mid x_1, x_2, \ldots, x_{t-1})$$

The function takes a sequence of tokens $(x_1, x_2, \ldots, x_{t-1})$ in the model's vocabulary.

The model does not return a single answer. It returns a distribution: a probability assigned to every token it could produce next.

The engineering consequence is immediate: the model is not deciding what is true. It is estimating what is probable given the preceding text.

How an LLM application works

An LLM application is the software that wraps the model and turns its text-completion capability into a product.

At its most minimal, every LLM application follows the same four-step loop:

1. Assemble a prompt
2. Call the model via API
3. Receive response

AI Tutor

Using this unit as context

You · 1 attachment

Can you explain me this equation?

AI Tutor

Yes. The equation is describing what an LLM does at each step:

$$P(x_t \mid x_1, x_2, \ldots, x_{t-1})$$

What it means

- $x_1, x_2, \ldots, x_{t-1}$ = the tokens already given to the model
- x_t = the next token the model is trying to predict
- $P(\cdot \mid \cdot)$ = "the probability of" something, given the previous tokens

So the equation means:

Given all the tokens so far, the model computes a probability for each possible next token.

In plain language

If the input starts with:

"The cat sat on the"

the model assigns probabilities to possible next tokens like:

- "mat"
- "floor"
- "roof"

It does **not** directly output one

Video awareness

Responds in context to the minute and to the exact concept

Chat — Ask a question about what you're watching

I didn't get how documents are treated in this context

1. **Indexing**: documents are divided into chunks, encoded in vectors and stored in a vector database.
2. **Retrieval**: the system retrieves the most relevant chunks via semantic similarity.
3. **Generation**: the chunks are combined with the original question to generate the final response.

Support always available

24/7, scaled across all 20 students in parallel

DETAILS OF THE MODULES

Five progressive modules featuring 26 lessons cover a range of topics, from prompt engineering to security and ad hoc local deployment.

M1	**Foundation & Engineering Discipline** Setup, LLM, prompt fundamentals, AI-assisted coding, evaluation loop	***5*** lessons
M2	**Model Behaviour & Prompting** How LLMs work, tokenization, decoding control, advanced prompting patterns	***4*** lessons
M3	**Retrieval Systems & RAG** RAG architectures, embeddings, data governance, ingestion and chunking, retrieval debugging, and reranking	***7*** lessons
M4	**Tools, Agents & Orchestration** Tool calling, Open AI Agents SDK, ReAct patterns, multi-agent systems, alternative frameworks	***5*** lessons
M5	**Production, Evaluation & Security** Security, prompt injection, release governance, serving and observability, system evaluation.	***5*** lessons

SKILLS - What you will learn

At the end of the program you will be qualified as junior AI Specialist with 6 verified operational skills, ready for enterprise roles from day one.

01
Prompt Engineering

Design and evaluate prompt-based systems with verifiable quality criteria and safe regression loops.

02
RAG Production Pipelines

Building complete RAG pipelines: from ingestion to retrieval, reordering, and scalable production synthesis.

03
Multi-Tool Agents

Architect and deploy tool-calling agents and multi-agent systems using the OpenAI Agents SDK.

04
LLM Operations

Operate distributed LLM systems with structured logging, monitoring, caching, and incident management.

05
When to Use Fine-Tuning

Informed decisions about build vs. train and evaluation of fine-tuning proposals versus rapid alternatives.

06
AI Security & Governance

Security discipline, prompt injection defense, release policies, and production of compliant audit artifacts.

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OUTPUT PROFILE

Upon completion of the Academy, you will be an AI Specialist who will start working immediately.

AI Specialist Junior

- Prompt engineering with verifiable quality criteria
- Complete RAG pipelines in production
- Multi-agent systems with OpenAI Agents SDK
- LLM Operations
- AI security and release governance
- Build/buy/train decisions based on data

AI Engineer

Design and maintain LLM systems in production

AI Product Manager

Translates business requirements into AI technical specifications

AI Quality & Validation Specialist

Evaluate the quality, reliability, and performance of AI systems

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SELECTION PROCESS

A structured tripartite agreement ensures alignment between you, the organization, and Fusion AI Labs. You start your journey with a professional opportunity already in place.

1 APPLICATION & PRE-SCREENING

Candidates submit their application.

Fusion AI Labs reviews the received profiles and completes an initial CV-based selection.

2 ASSESSMENT

Selected candidates are invited to an in-person assessment in Genoa, which may include technical and attitudinal tests, together with a short interview to evaluate skills, motivation and alignment with the Academy pathway.

3 COMPANY MATCHING & TRIPARTITE CONTRACT

Selected candidates meet 2–3 partner companies to explore mutual fit and identify the best professional match.

The partner company sponsors the training pathway and formalises a job offer.

4 DIPLOMA and PLACEMENT

The candidate begins the employment relationship with the partner organization and commits to staying for a minimum number of years or to reimburse the cost of the training.

The selection process may vary depending on the number and profile of applications received.

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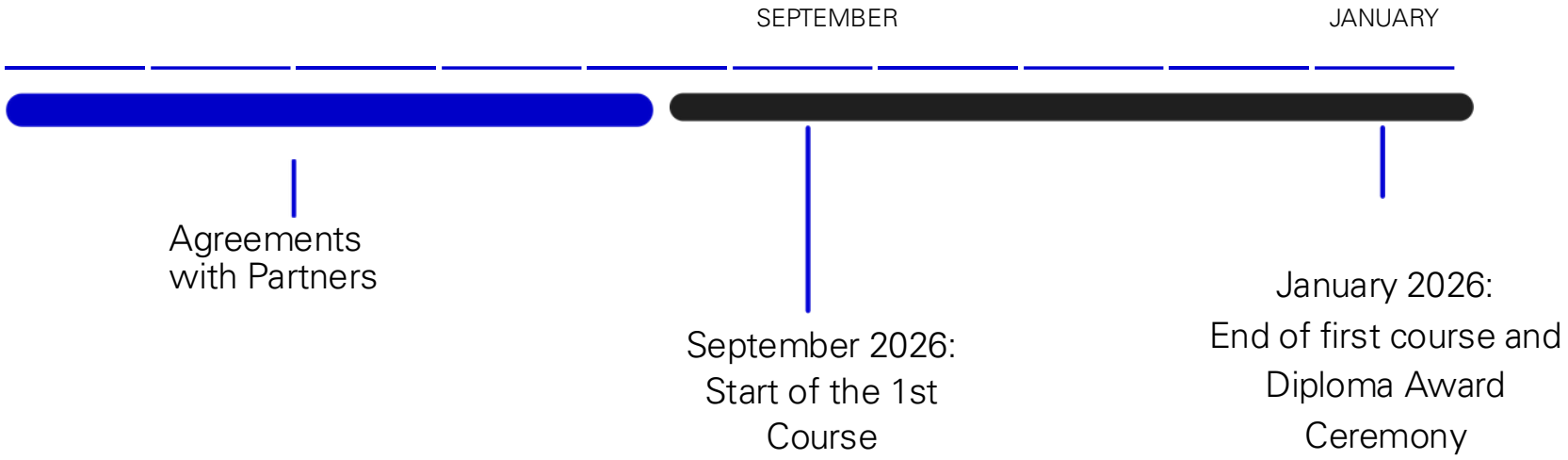
ROADMAP FOR ACADEMY DIRECT



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THE TEAM

An experienced international team combines cutting-edge academic research, entrepreneurial expertise, and applied engineering.

Andrea Pescino
CEO

Entrepreneur with over 30 years of experience in AI and digital transformation for large organizations and public administrations.

Antonello Scalmato
CTO

PhD and Startuper with 15+ years of experience in AI and cloud engineering. Architect of scalable enterprise AI systems.

Stefano Sedola
Chief Research & Learning

Entrepreneur with +7 years of experience in responsible AI, learning design, and specialized training program development.

Alessandro Carfi
AI/ML Engineer

PhD with 9 years of experience in applied AI, data-driven solutions in robotics, and machine learning.

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WHY NOW

The gap continues to expand with each passing day: those who take action now will secure the best talents and prepare the leading AI specialists before summer.

THE GAP IS WIDENING EXPONENTIALLY

AI skills are evolving 60% faster than any other industry. Every month of delay widens the gap with competitors moving forward today.

THE TOP TALENTS ARE NOW IN HIGH DEMAND.

Most European companies have already started AI upskilling in 2025. Early movers will attract the best professionals before competition intensifies in 2026.

20 PLACES, RIGOROUS SELECTION

The first Academy launches in June 2026 with 20 limited spots. Eight pre-registrations have already been received. Those who sign up now will secure their candidates' profiles before the deadline.

MEASURABLE ROI

13 weeks of intensive training = Junior AI Specialists operational by September 2026. The investment is measured in months, not years.

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WHERE

VIA ROMANA DELLA CASTAGNA, 11A, 16148 GENOVA GE

Contemporary Training Facilities in a 15th-Century Villa a Stone's Throw from the Sea

We have several training rooms available, along with dedicated teamworking spaces and networking areas.

Ideal Location

- Only 15 minutes from Genoa Airport
- 1.5 hours from Milan by train
- Easy access from the MOTORWAY exit

Opportunity for affordable accommodation nearby.

LET'S START.

The first Academy starts in September 2026.

CONTACTS

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