

Liora®















Syllabus

# Data Engineer



YOUR FUTURE, **DECODED**

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# Your future in tech starts here

We help **tomorrow's tech talent** take control of their future.

**Our mission:** to provide them with the tools, framework, and support they need to grow, acquire lifelong skills, and make a positive impact on the world.

Through a hybrid learning approach that combines **technological innovation** with **personal guidance**, we create a **unique experience** to prepare them for the challenges of tomorrow.

## Key figures

>70

Fortune 500 companies grow their teams with our training

93%

Satisfaction rate

93%

Success rate

91.6%

Employment rate after 6 months

50K

Alumni Liora

## They trust us

AIRBUS

AIRFRANCE

Allianz

amazon

arianeGROUP

AXA

BCG



BNP PARIBAS  
CARDIF

Capgemini



EDF

Google

MICHELIN

Microsoft

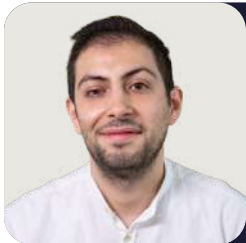
orange

STELLANTIS

TotalEnergies

# Expertise that actually gets you further

Our **teaching team** is made up exclusively of **in-house professors**, fully dedicated to teaching and research. Their commitment ensures a **high-level learning experience**, aligned with **market demands**.



## **Charles S.**

*CTO & Academic Director (9 years of experience)*

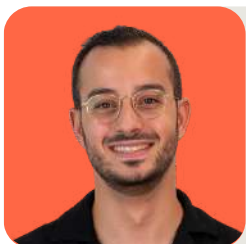
A graduate of École Polytechnique, Charles specializes in programming, Machine Learning, and Deep Learning.



## **Raphael K.**

*Academic Director*

With over 10 years of experience in data and instructional design, he holds a Master's degree in Statistical Learning and Data Science from Université Paris-Dauphine. He has contributed to the structuring and creation of leading Data curricula, leveraging advanced skills in programming, statistical analysis, and machine learning.



## **Dan C.**

*Training Lead for Data Engineers*

Holder of a Master's degree in Mathematical Engineering from Paris Descartes University and with several years of experience in consulting, Dan specialized in Big Data and now leads our Data Engineer training program.



## **Vincent L.**

*Data Engineer*

Vincent, a Data Engineer graduated from EFREI, worked on liver tumor prediction using AI in a research center. Certified in Azure (AZ-900, DP-100, DP-203), he combines technical expertise and teaching skills to train future Data Engineers.

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# Training that fits your rhythm

Liora offers a **fully remote training** experience in a hybrid format, combining **flexibility** with **hands-on learning** through a **Learning by Doing** approach.

You can choose the pace that fits your schedule:



## Bootcamp

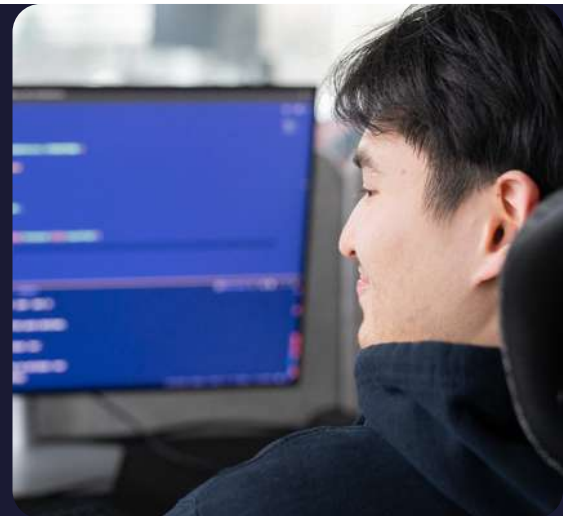
Fast-track your training with our intensive program

- Duration: **14 weeks**
- Pace: **35-40h/ week**
- Program length: **500h**

## Part time

Flexible: the format designed to allow you to work while you train

- Duration: **10 months**
- Pace: **10-12h/ week**
- Program length: **500h**



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# Training overview



## Candidates must have:

- Basic knowledge of coding — whatever the coding language, basic math skills
- English fluency is required
- A free placement test will assess your skills

*For candidates who do not meet the required qualification level, an exemption may be granted based on application and written test. Accessing the training requires a computer with internet connection and a webcam.*



Our Data Engineer training will provide you with a certificate from **La Sorbonne University**.



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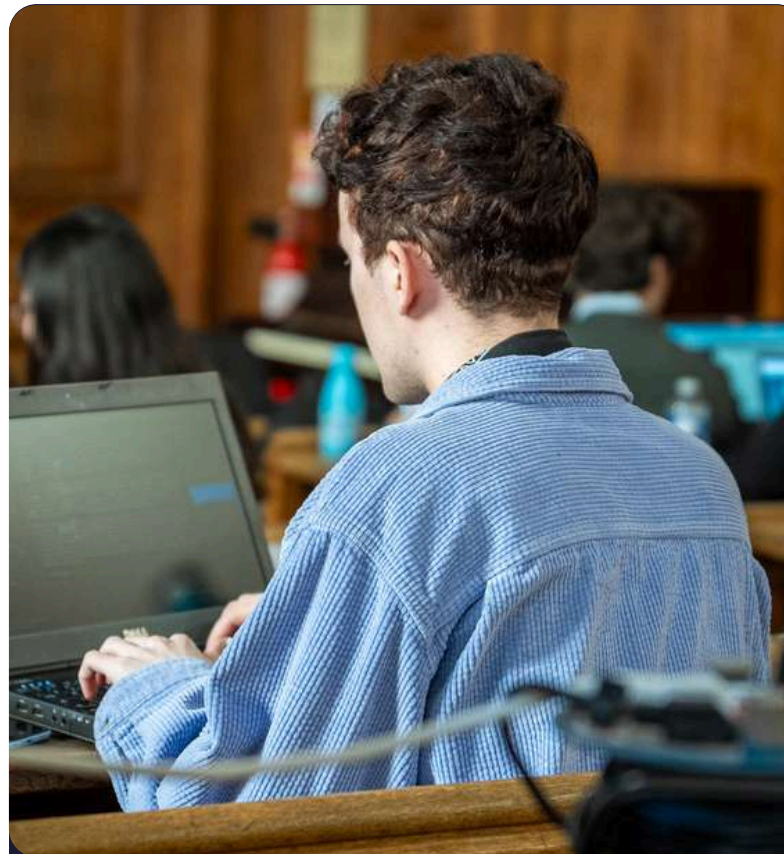
# Backbone Project

Throughout the program, learners complete a hands-on project of approximately 150 hours designed to progressively combine all the skills acquired during the training. Carried out in pairs or groups of three, the project can be selected from a catalog of topics updated monthly and inspired by real professional challenges, or proposed as a personal project, subject to pedagogical approval.

Learners work with real, uncleaned data and receive regular guidance from a project mentor to produce work that meets professional standards.

This project enables a smooth transition from theory to practice, enhances employability, and serves as tangible proof of skills during job interviews.

Projects developed by our learners are showcased every quarter during the Data Days, dedicated YouTube live sessions where participants present their work.



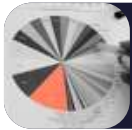
[Discover the Data Days](#)

# Your roadmap to becoming a Data Engineer



## Programming

Python, Advanced Python, Web Scraping



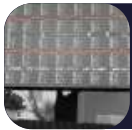
## Advanced tools

Bash, Git & Github



## Big Data Variety

SQL & NoSQL, MongoDB, ElasticSearch, Neo4j, Hbase



## Batch & Streaming

PySpark, Streaming with Spark, Kafka



## Data Warehousing

Snowflake, Transformation with DBT



## Cloud AWS

Ethics & Interpretability, Text Mining, Web Scraping



## Machine Learning

Statistics, Data Visualization, Machine Learning, MLFlow



## DevOps - Virtualization

Docker, API and Security, Kubernetes



## CI/CD and Monitoring

Prometheus & Grafana, Airflow, Gitlab

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# Programming

40 hours

## Python

Learn to work with variables, types, loops, functions, classes, and modules in Python.

Get introduced to decorators, multithreading, multiprocessing, and annotations with MyPy for robust and efficient code.



## Web Scraping

Get started with Web Scraping using BeautifulSoup.

Learn how to navigate an HTML document and identify the data on the page.

BeautifulSoup

# Advanced tools

20 hours

## Git & GitHub

Understand Git and GitHub: versioning, branches, merge, repository, push/pull.

Master key features like fork, pull request, and issues, and discover GitHub Actions to automate your workflows.



## Linux & Bash

Explore the basics of Linux: system functionality, essential commands, and terminal navigation.

Learn to create Bash scripts to automate your tasks and increase efficiency.



# Big Data Variety

50 hours

## SQL

Learn how to choose a database management system (DBMS) based on its intended use.

Understand how to query a DBMS using the SQL language.



## Data bases

Work with a document-oriented database like MongoDB.

Improve the searchability of your textual data using Elasticsearch.

Get introduced to graph and column-oriented databases.

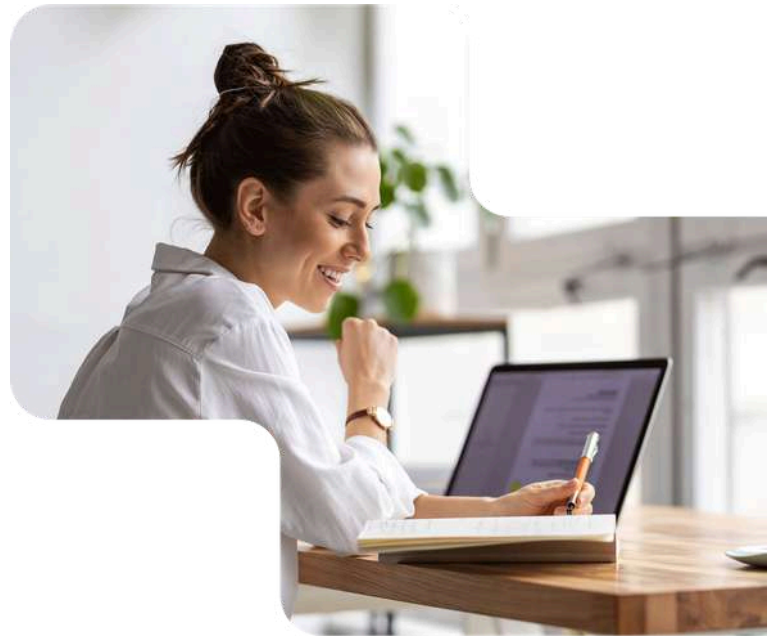
# Batch & Streaming

50 hours

## PySpark

Discover PySpark and distributed computing with Spark.

Work with the RDD and DataFrame APIs, build large-scale processing pipelines, and train models with Spark MLlib.



## Streaming

Explore Kafka and Spark Streaming to process data streams in real time.

Navigate Kafka's architecture, configure producers/ consumers, and create efficient pipelines with Structured Streaming.



# Data Warehousing

20 hours

## Snowflake

Learn to use a secure cloud data warehouse designed for large-scale SQL.

Take advantage of a modern architecture that separates storage and compute for better performance and cost control.



## DBT

Perform transformations from your data warehouse to produce reliable datasets.

Automate their execution and generate clear, maintainable documentation for your data teams.



# Cloud AWS

70 hours

## Basics & AWS Services

Discover AWS's global infrastructure and essential cloud services.

Learn to design reliable, highly available architectures tailored to the needs of data projects.



## Deployment & Automation

Learn to continuously deploy your cloud architectures using DevOps best practices.

Automate your deployments on AWS and improve your systems' resilience through observability.

# Machine Learning

60 hours

## Statistics & DataViz

Explore different variables and the relationships between them.

Get introduced to the various types of charts available with Matplotlib and create Dash applications.



## Machine Learning & MLflow

Prepare your data and apply the main Machine Learning algorithms: regression, classification, clustering.

Manage the full lifecycle of your projects using the tools provided by the MLflow platform.



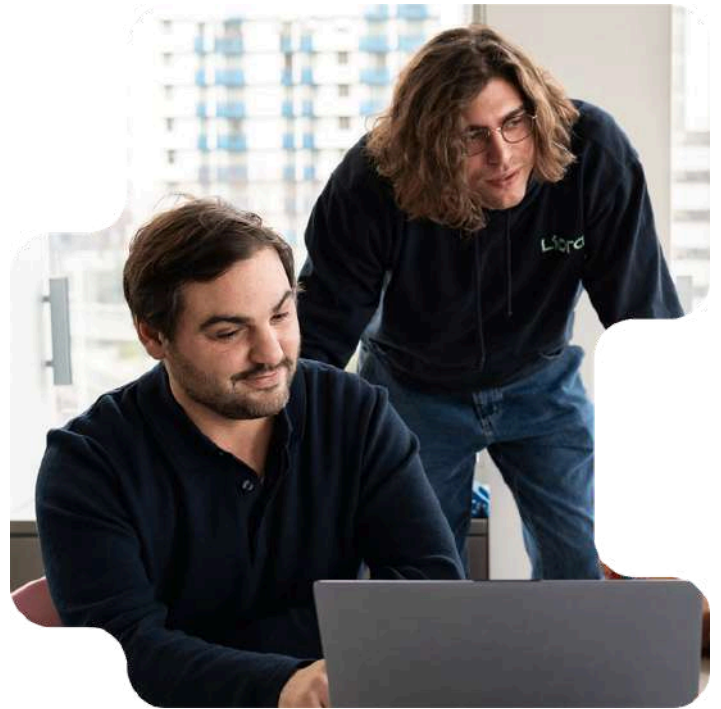
# DevOps - Virtualization

50 heures

## API

Learn to design robust REST APIs with FastAPI and Flask.

Discover HTTP methods, documentation with OpenAPI, error handling, performance optimization, and the basics of security (HTTPS, API Keys, JWT).



## Docker & Kubernetes

Master containerization with Docker: creating images, managing volumes, deploying with Docker Compose.

Get introduced to Kubernetes to orchestrate and deploy APIs in a distributed environment.



# CI/CD and Monitoring

40 hours

## Gitlab & Unit testing

Master GitLab: repository management, branches, tags, and conflict resolution.

Get introduced to unit and integration testing with Pytest to ensure the reliability of your code in a professional environment.



## Airflow

Discover Apache Airflow and the fundamentals of workflow orchestration.

Create DAGs, manage tasks using appropriate Operators, and monitor execution through the graphical interface.



## Prometheus & Grafana

Learn to monitor your systems in production.

Create clear dashboards, query your metrics, and integrate monitoring into your data projects.



# Become AWS Certified

## AWS Cloud Practitioner

As part of the Data Scientist track, Liora offers a dedicated training program for **the AWS Cloud Practitioner certification**, designed to help you acquire the fundamentals of AWS cloud computing and discover its core services.

**Delivered in one optional day, 100% online, by Amazon Authorized Instructors**, this training gives you the opportunity to take the official Amazon certification - an asset widely recognized by employers and a real advantage to stand out in the job market.



Familiarization with the Cloud



Introduction to AWS fundamentals

[Book a meeting](#)

# How to finance your training?

Before your registration, our admissions team will guide you to the most suitable training.

## Company funding

Support the upskilling of your teams through public funding.

In Germany, companies may benefit from the **Qualifizierungschancengesetz (Qualification Opportunities Act)**, which allows the Agentur für Arbeit to co-finance employee training programs.

Ask your HR department or contact us to explore available funding options.



Training fee: **7.490 €**

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# Strategic partners to boost your employability

Liora is recognized for the **excellence** of its data **training programs**, offering high-level **certified courses** and **prestigious partnerships** that reflect their quality.

## Liora is:

### Amazon Training Partner

#### Our AWS certifications:

- AWS Solutions Architect
- AWS Cloud Practitioner



### Microsoft Training Partner

#### Our Microsoft certifications:

- PL-900
- PL-300
- DP-203



### Official Partner of Université Paris 1 Panthéon-Sorbonne

Our data programs are certified by Université Paris 1 Panthéon-Sorbonne, ensuring academic quality and recognition.



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# Our alumni share their experience



**Steve NICOLE**

**Structural Engineer @Framatome**

*"I completed my training to become a Data Engineer at DataScientest. The training materials are high-quality, and the teaching team is dedicated, responsive, and genuinely concerned about the success of its learners. The Data Engineer program is very demanding but rewarding — I highly recommend it!!!"*

**Bachir ATMANI**

**Data Engineer @Mydral**

*"I took the Data Engineer training and I find that the two modules on Machine Learning and Data Visualization are well designed. The content is high-quality and allows you to quickly build up your skills!"*



**Sofian GAIDE**

**Data Engineer Intern @Ippon Technologies**

*"Three months of intense but extremely rewarding training! Covering Data from A to Z to be fully prepared to work with all types of data in a company! I highly recommend this training!"*

# Complete your Data Engineer training

## Our additional training courses



### Data Marketing and AI

Do you want to become a data analyst specialized in digital marketing? Then this training is for you! Learn how to track, collect, and analyze marketing data to boost your company's digital strategy – and take your career to the next level.

[Discover the training >](#)



### Power BI

Would you like to perform a complete analysis of a dataset and improve your dashboard creation skills? Then this training is for you! Learn to master Power BI and earn your official Microsoft certification by becoming a Power BI Data Analyst Associate.

[Discover the training >](#)

# Need more information? We answer everything here!

## Training objectives

- Sort, clean, and process data in order to analyze it
- Enhance the value of data, provide recommendations, and support decision-making
- Interpret results and create dashboards

## Teaching methods

- **Practical work:** All training modules are available on our personalized teaching platform Train and include online exercises that gradually allow learners to apply the concepts developed in the course.
- **Masterclass:** Live training sessions with an instructor make it possible to address current issues related to technologies, methods, and tools in the field.
- **Project-based learning:** Enables the learner to engage in real-world professional situations (active learning).

## Support and assistance

Every weekday from 9:00 a.m. to 5:00 p.m., our team of expert data trainers takes turns on a dedicated forum to provide **personalized technical support** to all learners. Numerous live Q&A sessions are also organized with our instructors.

# Frequently asked questions

## What salary can a Data Engineer expect?

Depending on the industry and the company, the starting salary for a junior Data Engineer in Germany is approximately €45,000 per year.

With two years of experience, this salary typically increases and can reach up to €55,000 annually.

## What is the AWS Solutions Architect certification?

An AWS training program teaches you how to use Amazon's Cloud platform, which is widely used in the fields of Data Science and Machine Learning. AWS is one of the most popular cloud platforms, with 95% of Fortune Global 500 companies using this technology.

Through this course, learners have the opportunity to explore various architectural solutions that can run on AWS. You will be able to make architectural decisions in line with best practices and principles recommended by AWS. By the end of the training, you will be prepared to take the official AWS Solutions Architect certification exam. You'll be equipped to design scalable infrastructure solutions that include security, authentication, and authorization features using AWS.

## What is the access time for the training?

The registration for a training program depends on the financing option you choose:

- **Personal or company funding:** You can register up to the day before the training starts (subject to availability of spots).
- **Bildungsgutschein:** Registration must be completed within 2 to 6 weeks before the start of the training.
- **Qualifizierungschancengesetz (QCG):** Registration should be made within 2 to 6 weeks before the start of the training.

## What career paths does the training open up?

What kinds of jobs are accessible after the training?

The following roles are commonly available:

- Data Engineer
- Data / Big Data Engineer
- Data Developer
- Machine Learning Engineer
- Big Data Development Engineer

After completing your training, if you'd like to further strengthen your skills, DataScientest offers a range of vendor certifications—such as Microsoft and AWS—to help you deepen your knowledge and specialize in key areas of Data.

Examples of certifications include:

- Analyzing Data with Microsoft Power BI (RS5445)
- Implementing DevOps for Microsoft Azure Cloud (RS5343)

These certifications are aligned with current industry needs and are highly valued by companies in Germany's data and tech landscape.

## Are you in a situation of disability?

Liora will analyze all possible accommodations (pedagogy, materials, technical and human resources) to compensate for your disability and enable you to follow the training under the best possible conditions.

You can contact our disability coordinator for any inquiries regarding your situation: [mathilde.v@datascientest.com](mailto:mathilde.v@datascientest.com).

To learn about the journey of a former student with hearing impairment who successfully obtained their diploma with Liora, feel free to click [here](#).

# Liora

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**+49 32 222003762**

[www.liora.io/en](http://www.liora.io/en)