

Certificate

We hereby confirm that

Karim Dabbouz

has completed the intensive program

Education and Training as Machine Learning Engineer

with 180 hours of practice
(corresponds to 240 lessons)

successfully.

Participation from 11.09.2023 until 09.10.2023.
Hamburg, the 10.10.2023



Dalia Das, Founder & CEO



Eike Rogall, Lead Coach

Curriculum

In 240 lessons the students have learned, discussed and practiced the following content in several tasks and projects:

m1: Software Engineering

Unix
Git (Github)
Python

- Object Oriented Python
- Numpy
- Pandas
- Pytest

Docker
APIs
Cloud
Unit Testing

m2: Data Engineering

Data Architecture
Orchestration
Data Pipelines

- SQL
- Data Modeling
- dbt
- Prefect

Streaming
Batch Processing
Feature Engineering
Cloud

m3: Machine Learning Algorithms

Basics of Machine Learning

- Evaluation Metrics
- Hyperparameter Tuning
- Bias-Variance Tradeoff

Testing

- Behavioural Testing
- Integration Testing

Deployment

- Strategies
- FastAPI
- Docker

Cloud

m4: Monitoring and Alerting

MLOps
CI/CD for ML
Metrics
Logging
Service Monitoring and Tracking

- Kibana
- Prometheus
- Grafana

Model Diagnosis

- Model Drift
- Data Drift

Dashboarding
Cloud

Collaborative Working & Social Learning

Pair Coding

- Driver & Navigator

Agile Workflow

- Daily Stand-Ups
- Scrum Project Board

Daily Class Review

- Team Work & Self-organization Skills
- Group Work, Individual Exercises
- Reversed Classroom (Presentations from Students)

Communication w/ Stakeholders

Scrum Board as Documentation
Run Books
Technical Documentation
Writing SLAs

Skills

Code Refactoring
Web Services
Deployment
CI/CD
Data Pipelines
Model Analysis
Performance Analysis
Tracking
Alerting
Stakeholder Management
Project Management