



# PFE INTERNSHIP CATALOGUE 2023

## Leading IoT solutions and products provider

machinestalk will help businesses making money in this field of highly advanced technology without the need of starting from scratch or going through the hassle world of technology and computing.

We are successfully building a complete and solid ecosystem that will relieve our customers from the suffer of dealing with the standards-lacking and fragmented regional IoT Market.

### In numbers

**11**

Years in KSA

**+40**

IT Engineers

**+600**

Technicians  
for Megaprojects

**+30**

Technology  
Partners

**6**

Competency  
Centers

**+100K**

Connected  
Things

# About us

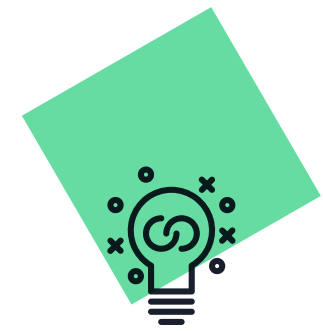
## Our mission

Provide our customers with the deep industry functionality and scientific insight needed to manage complex operations. We deliver the best best-of-breed IoT solutions and products, designed to be efficient, safe and sustainable.

## Our vision

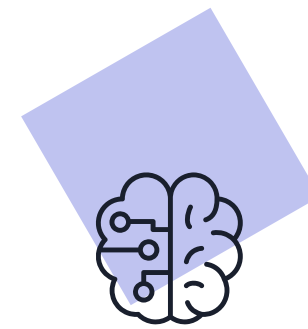
Establishing machinestalk the power of technology and help humanity thrive by delivering the best **IoT solutions and products**.

# We stand for



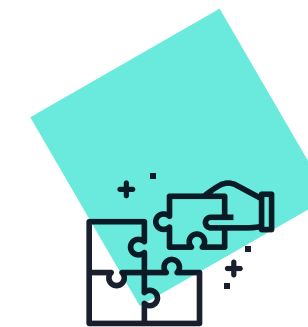
## Creativity

- ◇ Every team member has the freedom to explore and encouraged to continuously innovate in delivering sustained outcomes.



## Continuous learning

- ◇ We keep pushing ourselves to become masters of the parts we play, inspiring each other, and making sure our team is always building new skills.



## Sharing knowledge

- ◇ Believing in lifting each other and in the power of collaboration, sharing knowledge is at the core of our culture.



# Our solutions

## Smart Buildings

- Building operational management
- Energy management
- Cloud building management system
- Asset management
- Indoor services

## Smart Industrial

- Supply Chain 2.0 - Oil & Gaz
- Industrial equipment monitoring

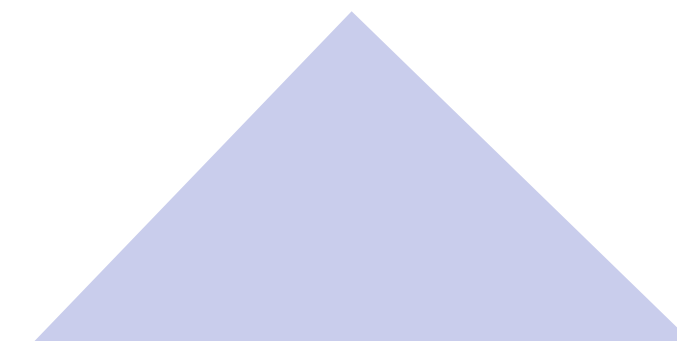


## Smart Cities & Communities

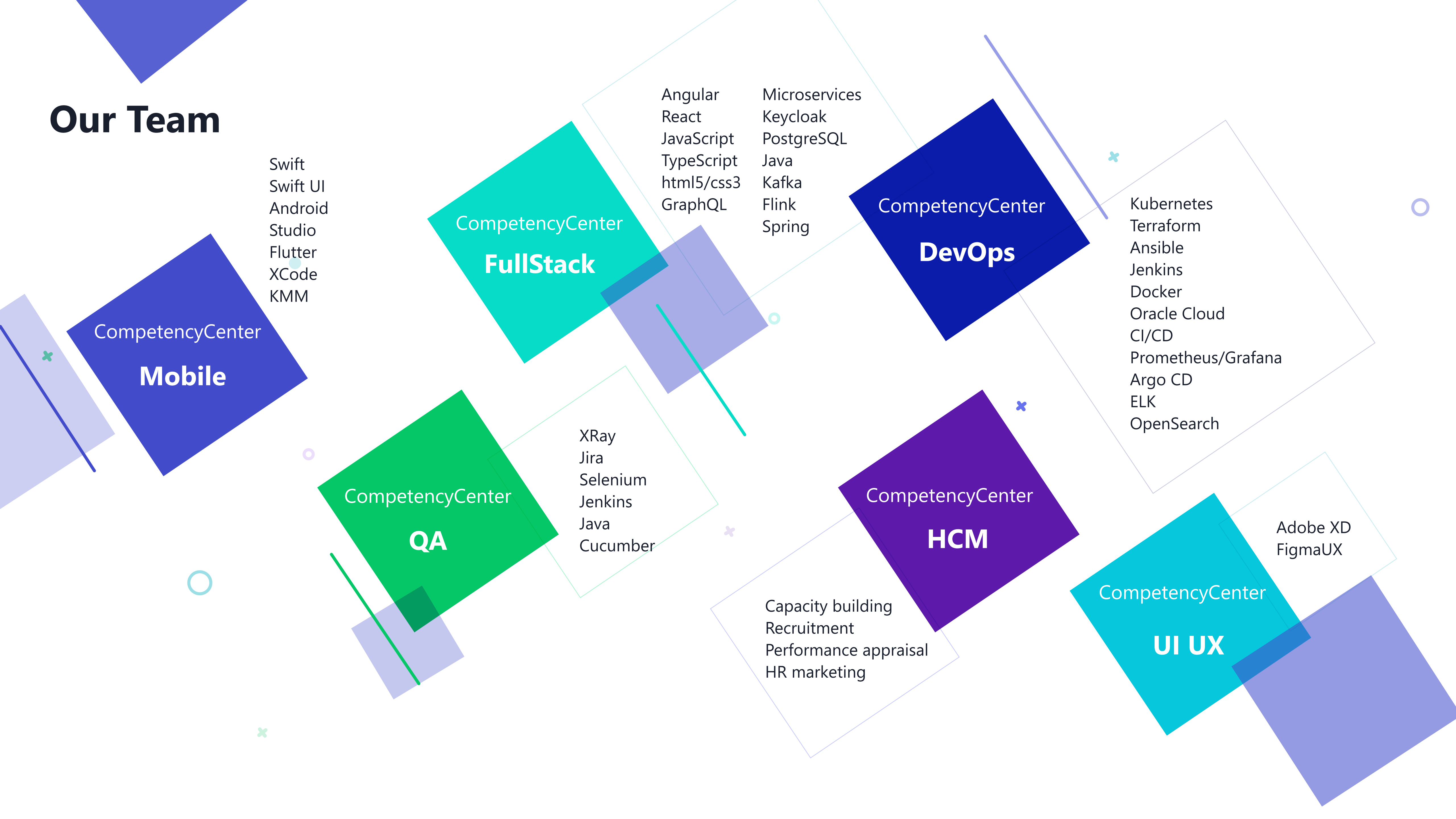
- Smart parking
- Smart security
- Smart enviromental
- Smart waste management
- Smart metering

## Smart Transportation

- FleetTalk
- Logisti
- Safelease
- Carshare
- Consumer connected car “Motorna”



# Our Team



# Perks & Benefits

- Competitive pay and an inspiring work environment in a fast growing company.
- ✕ ○ Professional development & skills training.
- Office events and networking activities.
- Continuous learning, Knowledge sharing, recognition, career growth and life balance components.



# Internship Training

01



Training

02



Mentoring

03



Develop skills

04



Communication

05



Goals

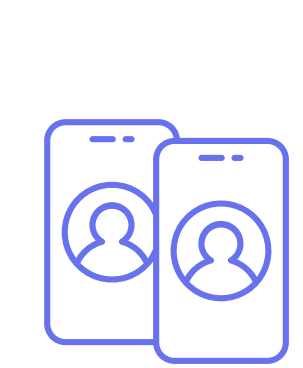
06



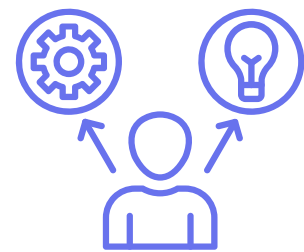
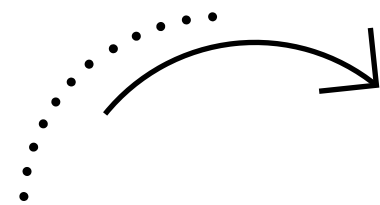
Potential



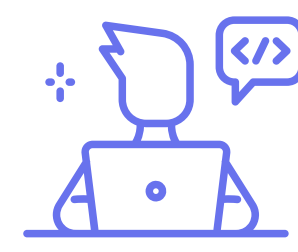
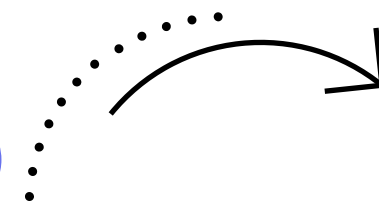
# Interview Process



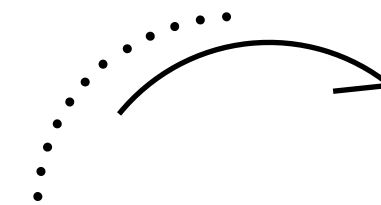
**Phone  
interview**



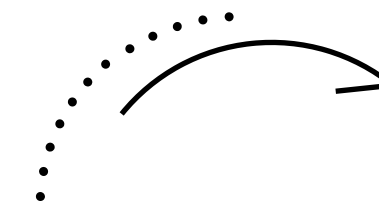
**Skills Test**



**Technical  
interview**



**HCM  
interview**



**is the  
internship  
yours?**

# How to apply?

**01**

Apply directly via the internships page

<https://tunisia.machinestalk.com/en/intern-jobs/>

**Or**

**01**

Submit your application to our email  
[internship@machinestalk.com](mailto:internship@machinestalk.com)

**02**

Attach your updated **CV**

**03**

Indicate the **project code** in the email subject

# From intern to Employee in machinestalk

**2021** 100% of interns are hired

**2020** 25% of interns are hired

**2019** 50% of interns are hired



**Fullstack**

# GraphQL Statement Generator Engine

## Description

The objective of this project is to design and implement a GraphQL statements generator as microservice.

- The Statement Generator Engine will enable the end user to make requests for retrieving and updating the database via an ergonomic interface.
- The retrieved data would be displayed in a real-time dashboard in accordance with the predefined requirements.
- Advanced GraphQL enablement with machinestalk IoT platform.
- Enable GraphQL as Microservice for all use cases.

## Gain for intern

- Hands-on experience in microservice architecture.
- Hands-on experience in GraphQL.
- Hands-on experience in Angular.
- Hands-on experience in IoT domain.
- Hands-on experience in Regular Expression Generator.

## Needed interns

**1**

## Internship duration

**6 months**

Project code  
**TRAININT2301**

**Fullstack**

## Technologies

Java, Angular, SQL, Microservices architecture.

**Apply here**

# Complex Event Processing for IoT

## Description

Fullstack

The objective of this project is to migrate the data processing layer to complex event processing engine and increase the processing time of machinestalk IoT platform.

- Enable complex event processing in machinestalk IoT platform using Microservices and implementing the following use cases:
  - Geofences processing.
  - Route optimization.
  - Real-time anomaly detection.

## Gain for intern

- Hands-on experience in microservice architecture.
- Hands-on experience in Complex Event Processing.
- Gain advanced knowledge in Flink.

## Needed interns

2

## Internship duration

6 months

Project code  
**TRAININT2302**

## Technologies

Java, Spring, Angular,  
microservices architecture, Flink, Kafka,  
Scala, Docker.

[Apply here](#)

# Events Scheduler Engine

Fullstack

## Description

The objective of this project is to implement a Scheduler Engine to automate repetitive manual actions within machinestalk IoT platform.

- Integrate Scheduler Engine as a Microservice.
- Enable actions based on timer.
- Enable scheduling to trigger events by time:
  - RPC Calls,
  - OTA updates,
  - Reports generation,
  - Notification.

## Gain for intern

- Hands-on experience in microservice architecture.
- Hands-on experience in scheduling various types of events and processes.
- Hands-on experience in Quartz.

## Needed interns

1

Project code  
**TRAININT2303**

## Internship duration

6 months

## Technologies

Java, Angular, Quartz, Spring, Docker, microservices architecture.

[Apply here](#)

# Automatic Generator for IoT Platform Operations

Fullstack

## Description

The objective of this project is to build an engine that will allow the Quality and Client Operations teams to simulate machinestalk IoT platform in operation mode.

- The engine will give the opportunity to design and simulate IoT platform behavior under production constraints.
- All failures reported by the engine must be displayed in callgraphs showing the call paths of the requests coming from and going to the different microservices.

## Gain for intern

- Hands-on experience in microservices architecture.
  - Hands-on experience in monitoring and analyzing Microservices log traces.
  - Hands-on experience in ELK.
- Hands-on experience in communication on interservices.

## Needed interns

1

## Internship duration

6 months

Project code  
**TRAININT2304**

## Technologies

Spring boot, Angular, Spring AOP , Spring Cloud Sleuth, Kafka, Zipkin, ELk, Java, Angular, Quartz, Spring, microservices architecture.

[Apply here](#)

# Technical Test Platform

Fullstack

## Description

The objective of this project is to build a technical test platform to automate the technical tests of machinestalk.

- Build ready-to-use platform for recruitment to:
  - Track the time of test realization
  - Automatic scoring of candidates.
  - Boost the quality of candidate evaluation.

## Gain for intern

- Hands-on experience in microservice architecture.
- Hands-on experience in Springboot.
- Hands-on experience in Angular.

## Technologies

Spring boot, Angular

[Apply here](#)

## Needed interns

1

## Internship duration

6 months

Project code  
**TRAININT2305**

# E-Contracting Project

Fullstack

## Description

The objective of this project is to digitalize municipality business processes including waste management, contracting and geofencing.

Implementing a Business Process Management Designer allowing the beneficiary to contract a service supplier and follow up the ongoing process via notifications and automatic feedback.

## Gain for intern

- Hands-on experience in microservice architecture.
- Hands-on experience in Springboot and Angular.
- Hands-on experience in E-Contracting domain.
- Hands-on experience in Jasper reporting engine.
- Hands-on experience in geofencing.

## Needed interns

4

## Internship duration

6 months

Project code  
**TRAININT2306**

## Technologies

Spring boot, Angular, Microservices architecture, BPM, CI/CD, keycloak technology 15.

[Apply here](#)

# AOP Enablement & Integration in IoT Platform

Fullstack

## Description

The objective of this project is to implement an aspect programming paradigm in machinestalk IoT platform by introducing a hybrid Database Cassandra as NoSQL database for client business documentation and PostgreSQL for cross-cutting concerns implementation and treatment performance.

## Gain for intern

- Hands-on experience in SQL and NoSQL database.
- Hands-on experience in GraphQL.
- Hands-on experience in IoT.

## Needed interns

1

## Internship duration

6 months

Project code  
**TRAININT2307**

## Technologies

cassandra, postgres, Haskell , Java , GraphQL , NoSQL, SQL, hybrid APIS REST, Spring AOP.

[Apply here](#)



QA

# Mobile App Automation & Maintenance

QA

## Description

The objective of this project is to build a test automation platform for machinestalk mobile applications.

- Utilize the automation tool of choice to implement the script execution environment.
- Scenarios will include API and tests for mobile applications.

## Gain for intern

- Hands-on experience in test automation.
- Hands-on experience in test automation of Mobile App (different from Platform automation technologies).
- Hands-on experience in QA for software testing.
- Hands-on experience in Mobile app deployment.
- Hands-on experience in Jenkins.

## Needed interns

1

## Internship duration

6 months

Project code  
**TRAININT2208**

## Technologies

Appium,BDD,Java,Test NG, Allure

[Apply here](#)



**DevOps**

# CI/CD Pipeline with Jenkins X

DevOps

## Description

The objective of this project is to build a complete continuous integration and continuous deployment pipeline for a microservices application using cloud-ready tools.

The implemented solution will improve machinestalk automation pipeline technologies for the build and deployment of microservice applications.

## Gain for intern

- Hands-on experience in DevOps technologies.
- Hands-on experience in microservice architecture.
- Hands-on experience in Kubernetes Cluster.

## Needed interns

1

## Internship duration

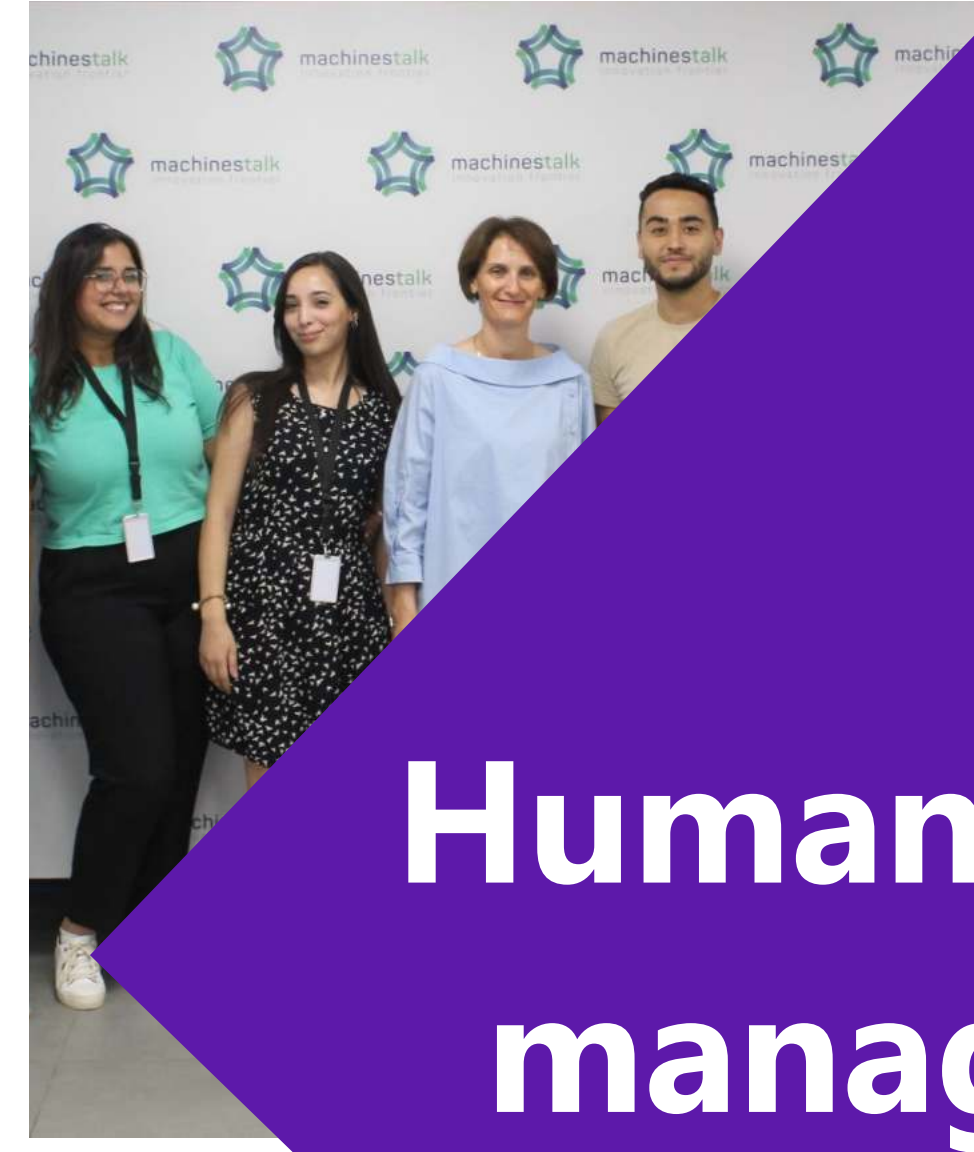
6 months

Project code  
**TRAININT2309**

## Technologies

Kubernetes, Container, CI/CD, helm  
Cloud infrastructure, GitOps, Jenkins X,  
Build/Deployment automation, Docker,  
microservices architecture.

[Apply here](#)



# Human Capital management



# Marketing Specialist

HCM

## Description

The objective of this project is to reinforce machinestalk online presence, which will include helping execute a variety of events campaigns, writing and editing related content and communications material.

## Gain for intern

- Co-create digital creative that captures attention on social and reflects company values and work environment.
- Research social media trends, new opportunities and best practices.
- Assist in the development and execution of marketing strategies including company website, blogs and presentations.
- Engage in development opportunities, networking events and social activities.

## Needed interns

1

## Internship duration

6 months

Project code  
**TRAININT2310**

## Technologies

Digital mindset,  
Advanced level in English,  
Design editing tools: canva, Figma, or adobe.  
Analytical skills,  
Positive attitude,  
Passion for photography is desired.  
MS Office Package: PowerPoint and Excel.

[Apply here](#)

# Conducting Change Management & Communication

HCM

## Description

- Engage individual employees with the change communication plan.
- Identify the needs of communication and the possible risks.
- Embed Changes Within Company Culture and Practices
- Design a communication strategy that acknowledges the importance of effective communication during organizational change.

## Gain for intern

- Hands-on experience in Human Capital Management.
- A unique experience in developing Professional skills.

## Needed interns

**1**

## Internship duration

**6 months**

Project code  
**TRAININT2311**

## Technologies

Management and HR  
knowledge,  
Organizational skills,  
Attention to detail,  
Teamwork skills.

**Apply here**

# The Influence of Work Environment on Employee Attraction

HCM

## Description

The objective of this project is to create, analyze and develop the work environment of machinestalk to better attract employees.

- Analyze the current work environment.
- Identify strengths and areas for improvement.
- Propose areas for improvement.

## Gain for intern

- Hands-on experience in Human Capital Management.
- A unique experience to develop Professional skills.

## Technologies

Management and HR knowledge,  
Communication skills.

[Apply here](#)

## Needed interns

1

## Internship duration

6 months

Project code  
**TRAININT2312**