OROBIX

WE MAKE AI HAPPEN

AI gets to work
OUR SOLUTIONS

1

AI solutions

Ready-to-use AI solutions with a shorter and consolidated time-to value.
Flexible, but focused on solving well-identified problems.

Data solutions

detectiv.ai®
Real-time AI solution for anomaly detection

Vision solutions

AI-go
Vision inspection stuite: classification, segmentation, OCR

2

AI engineering

Tailor-made AI models, solving a wider variety of problems.
Leverage a team of experts in cross-industry AI applications. Wider range of applications (e.g. Vision inspection and Deep learning, Time series, Bayesian models, Reinforcement learning).

3

AI managed services*

We take care of all the AI of a company ensuring trust, compliance and reliability once in production.
We take care of: putting models in production, keeping them monitored, introducing the procedures to accelerate AI adoption, for continuous improvement and compliance.

invariant.ai®

Platform for the deployment, governance, monitoring and lifecycle management of AI systems in critical processes.

invariant.ai® EDGE

invariant.ai® CLOUD

*Oròbix named in the **2021 Gartner "Market Guide for Artificial Intelligence Service Providers"** - 26 July 2021 - ID G00732756

AI-go

Artificial Intelligence vision inspection suite.

Ready to use AI solution to automate and scale vision inspection tasks (like classification, segmentation and optical character recognition), making **AI performance accessible to everybody.** Solving complex **industrial problems** and **improving quality control processes.**
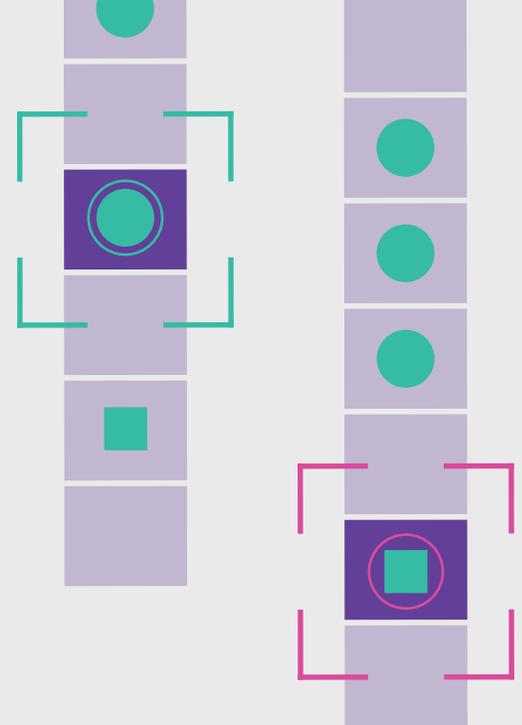
1 SOLVE CHALLENGING INDUSTRIAL APPLICATIONS

AI-go suite allows clients to **develop on their own AI models** for a wide variety of computer vision problems, learning all the variability directly in production:

- **Classification involves predicting which class an item belongs to**, both binary (e.g. good vs bad) and multi-class (e.g. defect 1 vs difect 2 vs difect 3). AI-go supports both **full-image** classification models and **in patch-based classification** models. Classification is used to solve problems like defect identification, anomaly detection, presence / absence, object detection, assembly verification, etc.
- **Segmentation involves dividing images into segments representing objects, their parts, or the shape of a defect** (e.g. to get its size). Image segmentation is used to defect sorting / qualification, shape analysis, etc.
- **OCR is the recognition of printed characters** even in case of curved and uneven surfaces (e.g. vials, flasks, bottles, jars, bags, blister and tubes) or irregular print quality, or embossed writings (e.g. dotted and industrial fonts).

2 INCREASE ACCESS TO AI

Automatically select the most suitable pre-trained model for solving the specific problem, s**pecialize it on a few examples** (about 10 - 40 images) and **put it into production** in complete safety, dramatically reducing the set-up effort (time, money and skills needed).
More intuitive configuration and setup, thanks also to the user friendly interface, less experience and time is needed to achieve good performance.
Run models even on devices with reduced computing power (IIoT, edge computing).
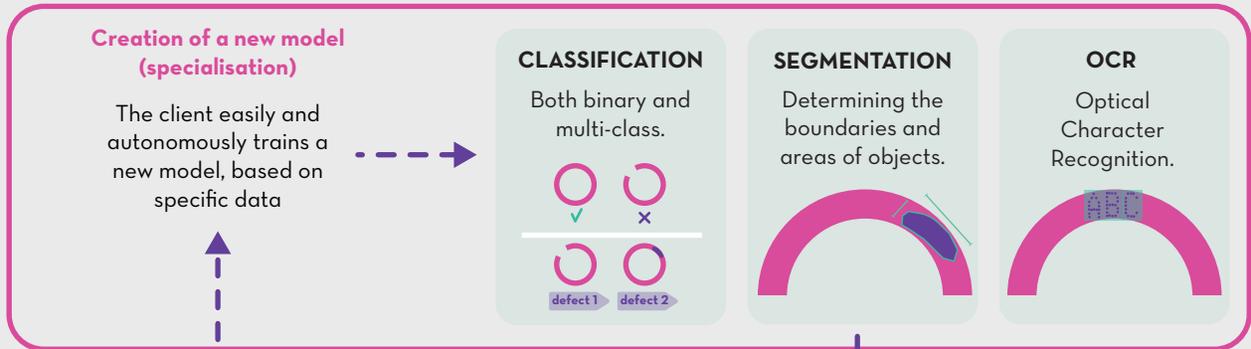
3 ENSURE INDUSTRIAL RELIABILITY

Have a solution designed to **operate in industrial contexts**, considering the aspects left out by generalist solutions (e.g. cycle times, inference speed, reliability, unstable connectivity in production sites, employee training on the line) and easily integrated into pre-existing vision systems.
Remotely check the models to ensure they are working correctly and **start automatic re-training** to improve their performance over time.
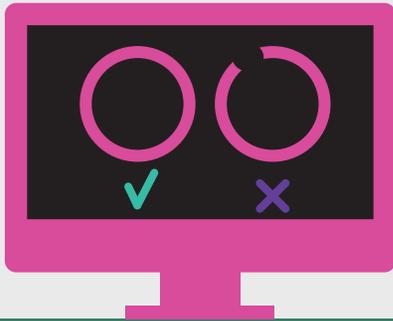**Manage the validation** of new models before putting them into production, to ensure that the performance is always in line with the business expectations.

Vision Inspection

OFF LINE

Creation of a new model (specialisation)

The client easily and autonomously trains a new model, based on specific data

CLASSIFICATION
Both binary and multi-class.

defect 1   defect 2

SEGMENTATION
Determining the boundaries and areas of objects.

OCR
Optical Character Recognition.

The client collects a few (10-40) examples of good/bad parts.

The specialized model is downloaded and made available for installation.
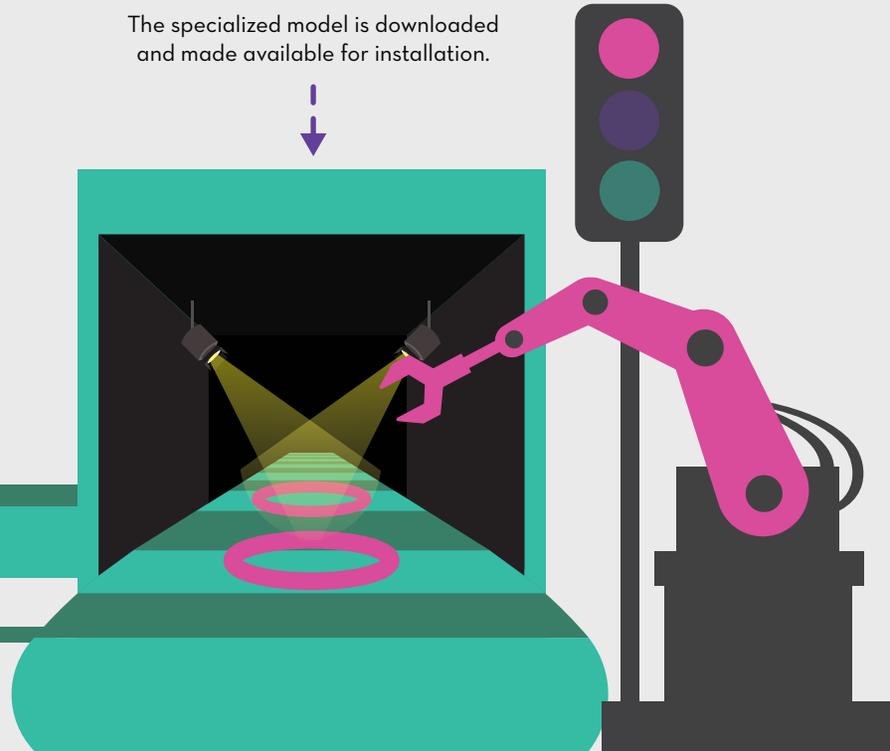
AI-go suite

The AI-go suite consists of two components:

AI-go STUDIO

A **cloud platform** with an easy-to-use graphical interface that provides a **simple model creation** for the following tasks:

- **classification:** both binary (good vs bad) and multi-class (defect 1 vs defect 2 vs defect 3)
- **segmentation** (highlighting defects and their shape in an image)
- **OCR** (optical character recognition)

AI-go RUNTIME

An **edge component** (installed on the production line and which can also work without internet connectivity) **for high-performance model serving**.

This is where the AI models can be installed and the prediction easily generated.
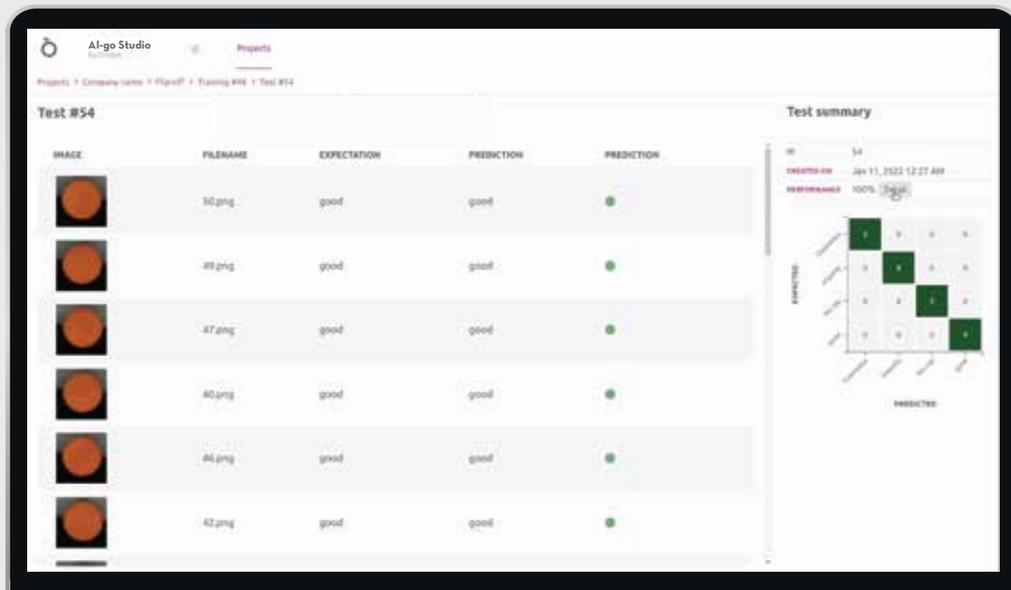
WORKFLOW

1 - MODEL CREATION / SPECIALISATION - AI-go Studio

1_ Collect images from the production line: 10-40 images per class
2_ Upload and label images: add tag to images (e.g good / bad or defect1 / difect2 / difect3...)
3_ Train model autonomously: just press one button!

2 - TEST AND VALIDATION - AI-go Studio

4_ Test and validation: check the robustness of your model on new set of images and make sure of the performance before going to the production line.
5_ Download trained and validated model from AI-go Studio.

3 - PRODUCTION - AI-go Runtime

6_ Load trained and validated model from AI-go Studio to AI-go Runtime and deploy on edge device.
7_ Inference: process real time incoming data to predict the image result.
8_ Production statistics: real time extended diagnostic.

AI SERVICES

INVARIANT.AI
Designed to ensure the success of your AI applications throughout their entire life cycle.
- Monitoring: continuously extract information about the performance of your models in production, get dashboarding and alerting at any level and set up your remote «control room»
- Governance / compliance: expands the monitoring through a constant advice service from Oròbix experts. Guided retraining and scheduled reporting to keep the performance of your production at the maximum level
- On-demand: with direct contact to Oròbix you can access on demand to:
- custom backbones
- model fine-tuning
- test and validation

NeuralOCR

AI solution for Optical Character Recognition.

A new generation of **faster and more efficient OCR, solving complex industrial problems** and improving quality control processes.

1 PERFORMANCE IMPROVEMENT

Address problems which cannot be tackled using traditional OCR technologies (or outperform the existing solutions) in case of:
- texts on **curved surfaces** (vials, flasks, bottles, jars);
- texts on **uneven surfaces** (bags, blister after application of the film, tubes);
- **unregular print quality;**
- embossed writings (on cases or blisters);
- texts on pads;
- dotted and industrial.

2 INDUSTRIAL RELIABILITY

Have a solution designed to **operate in industrial contexts**, considering the aspects left out by generalist solutions (e.g. **cycle times, inference speed, reliability, unstable connectivity in production sites, employee training on the line**). More intuitive configuration and setup, **less experience and time is needed to achieve good performance**.
Easily integrated into pre existing systems it does not require the use of a specific camera.

3 SIMPLIFIED MODELS CUSTOMIZATION

Achieve a **simple, easy to configure solution** that removes current barriers to OCR adoption.
Create **customized models with only few examples (about 10-40 images),** reducing the time required to configure a new format. With a single model it is possible to: **manage a large number of formats** with little effort, add a new format in few time and be completely autonomous in configuring new models.
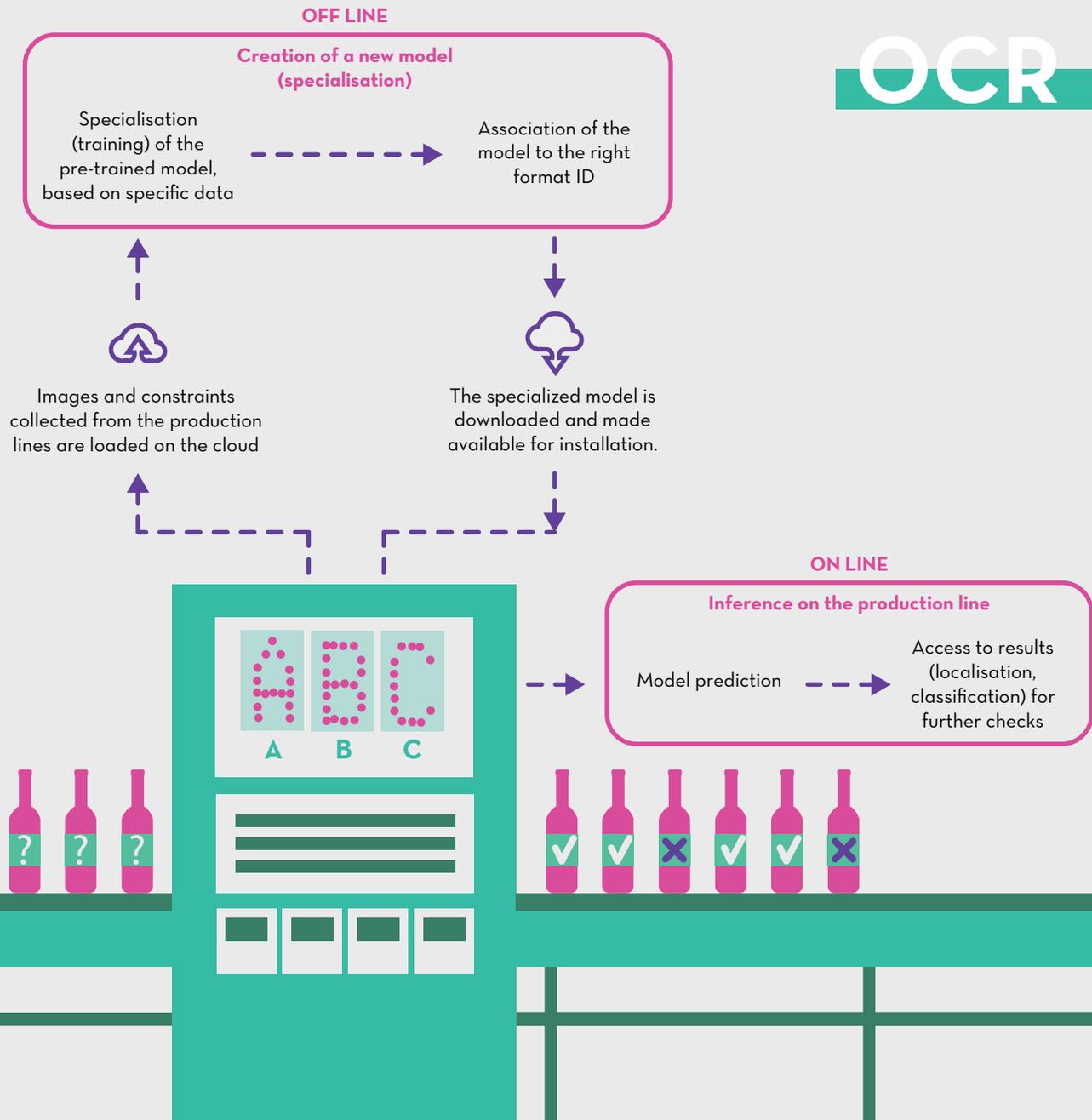
4 ADDITIONAL QUALITY CONTROL

Access to characters segmentation (position) and classification (identification) information, making it **easy to integrate additional quality controls** (e.g. OCV).
Configure the sensitivity of the quality control system to align inspection logic with production needs.
Manage the validation of new models before putting them into production, to ensure that the performance is always in line with the business expectations.

OCR

OFF LINE

Creation of a new model (specialisation)

Specialisation (training) of the pre-trained model, based on specific data ----> Association of the model to the right format ID

Images and constraints collected from the production lines are loaded on the cloud

The specialized model is downloaded and made available for installation.

A   B   C

ON LINE

Inference on the production line

Model prediction ----> Access to results (localisation, classification) for further checks

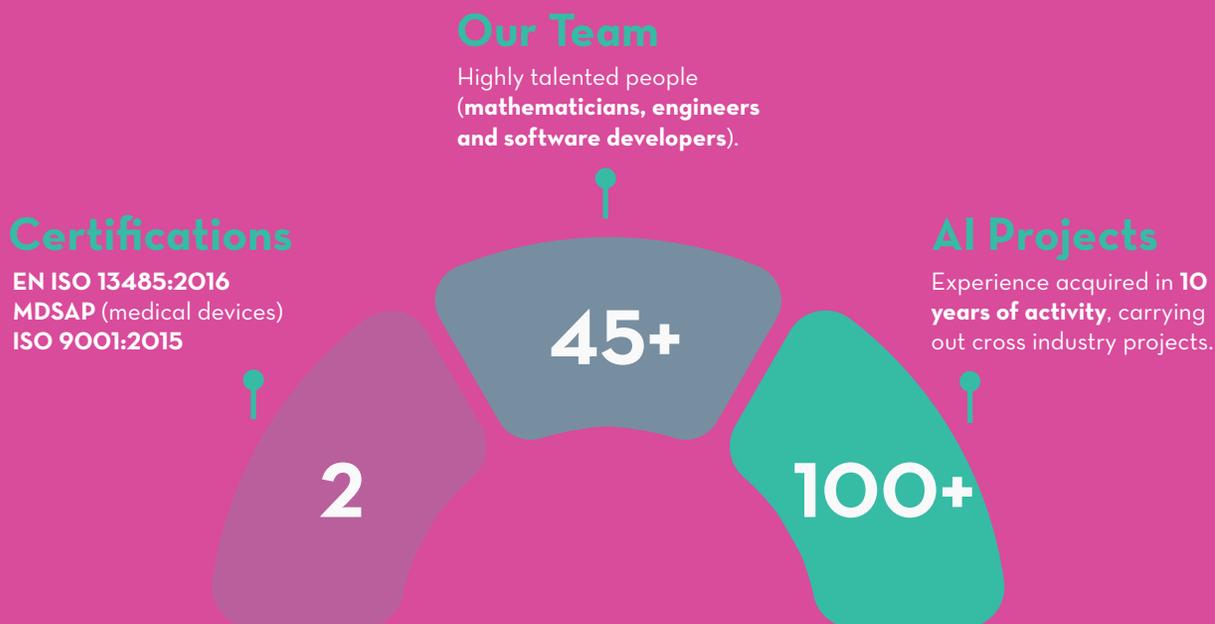# The AI Service Company
WHO WE ARE

At Oròbix, **we implement and manage the lifecycle of artificial intelligence (AI) solutions**.
They can be newly designed or integrated into existing systems, spanning a wide range of industries from healthcare to manufacturing, from gaming to energy.

As an AI service company*, we can accompany our clients throughout the entire AI lifecycle, end-to-end, from problem set-up to deployment and monitoring in production.
We have learned from our extensive experience that this integrated approach ensures optimized timelines and a quick return on investment (ROI).

Our Team
Highly talented people (**mathematicians, engineers and software developers**).

Certifications
EN ISO 13485:2016
MDSAP (medical devices)
ISO 9001:2015

AI Projects
Experience acquired in **10 years of activity**, carrying out cross industry projects.

45+

2

100+

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3 reasons to choose us:

1

AI gets to work

We manage risks deriving from the adoption of automated decision systems through an organic approach in which AI solutions are integrated into operational processes through tools for traceability and interpretability on all decision-making levels.

2

Don't say AI until you productionize

We promote early deployment of AI in production, verification of results with production data, and immediate creation of value. We manage the lifecycle of artificial intelligence (AI) solutions through **invariant.ai®, our deployment, monitoring and governance platform for AI systems.**

3

We make AI happen

We design and develop **AI solutions** ready-to-install, with a shorter and consolidated time-to value. Flexible, but focused on solving a well-identified problems:
- **detectiv.ai: anomaly detection** for predictive maintenance;
- **AI-go: AI classifier platform** from limited examples in minutes.

Founded in 2009 in Bergamo, Italy. **R&D company focused on the analysis of medical images** and software development for medical device. From 2014, **engineer cross-industry AI solutions.** Goal of being the **"last mile" AI company**.

2009

2019
AI gets to work

Co-founded Tensorwerk in NYC, develops **infrastructure for data-defined software development.** Partnership with Antares Vision Spa, **world-wide leader in inspection track and trace and smart data.**

While still proving engineering solutions, the new goal is to be **"the AI Service Company"**, managing AI in mission critical processes. With the launch of **Invariant.ai®**, Oròbix wants to go even beyond the "last mile" AI company.

2020
Don't say AI until you productionize

2021
We make AI happen

The **AI solutions portfolio expands: "ready-to-install" solutions** with a shorter time-to value, solving specific needs, with the possibility to scale up to complex problems.
Founded **OròbixLIFE** with the aim of specializing Oròbix offering to **Life Science industry.**

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WE BELIEVE, WE LEARN, WE SHARE.

01.
WE WORK passionately every day to create value and shared well-being.

02.
WE IMAGINE a better collective future through AI.

03.
WE BELIEVE that AI is a tool humans can leverage to foster life, work, wealth and individual progress.

WE CODE for people, not for machines.

04.
WE ARE at our best together, when we share visions and circulate knowledge.

05.
WE VALUE the power of open-source, of collective and shared intelligence.

06.
WE LEARN by doing, we search for practical solutions to challenging problems and grow from our mistakes.

07.
WE STRIVE to make AI reliable, safe, performant and capable to operate on the field.

08.
WE INVEST in daring ideas, building upon the shoulders of those who preceded us.

09.
WE FOSTER change, growth and innovation, by constantly challenging the status quo.

10.
WE BELIEVE in changing the world BIT BY BIT, together with those who will join us along this journey.

WE MAKE AI HAPPEN.