

COMPUTER VISION: OBJECT DETECTION & FEATURE EXTRACTION

Technology Reply 2021 AI Thesis proposal

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You will have the opportunity to work on **real AI projects** @ Enterprise Level joining a Team of **Data Scientist & AI Experts** that will support you throughout your activities.

The Business Unit you will join works everyday on these topics:

A.I. & ML

ADVANCED ANALYTICS SOLUTIONS
MACHINE LEARNING & PREDICTIVE MODELS
DEEP LEARNING & COMPUTER VISION

PRESCRIPTIVE INTELLIGENCE
DATA ENRICHMENT
PROCESS AUTOMATION

Technology Reply Data Scientists & A.I. Experts work side by side with the business to guide them along the **Road To Data Science**.

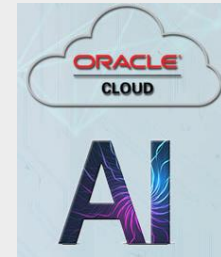
COMPETENCES

Oracle Data Science

Oracle Machine Learning

Oracle Stream Analytics

Computer Vision



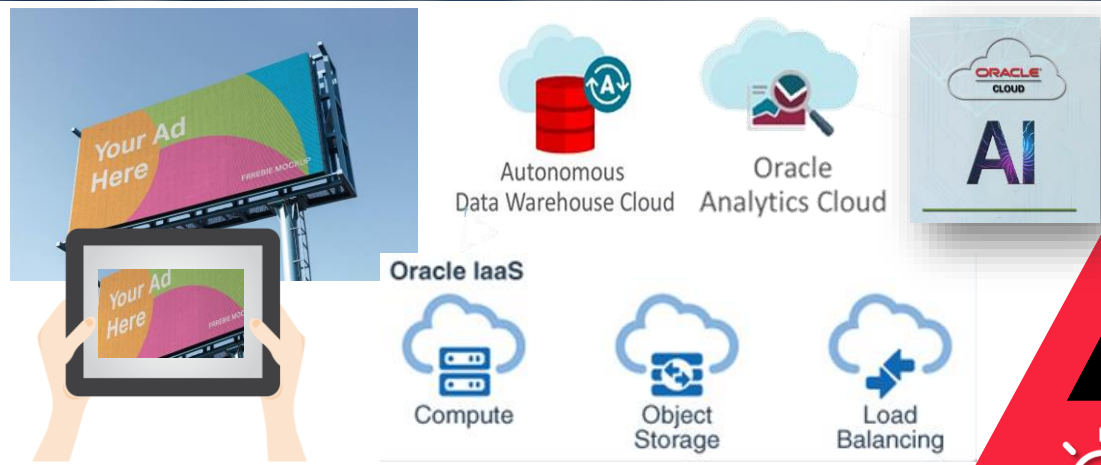
TEAM

Oracle Certified:
DATA SCIENTISTS
DATA ARCHITECTS
A.I. EXPERTS



THE PROJECT

A real Process Automation Project for an Italian outdoor advertising certification company.



KEY FACTS

- **Horizontal** scalability
- **Multi purpose** architecture
- **Cost effective** platform
- **Big Data** performance
- **Advanced Analytics & Reporting**
- **AI-powered** process automation



THE CHALLENGE

Semi-automatic collection and validation system for advertising images.

Detection control system, realized to provide a tool for the automatic collection and validation of information from advertising outdoor.



THE SOLUTION

- **IaaS + PaaS Cloud platform**
- It allows the user to analyze, process and validate data received from the field
- **Web Application + Analytics platform**



BUSINESS VALUE

- Speed up the Outdoor advertising certification process.
- Automation of the image validation
- Human-in-the-loop to train the AI module

USE CASE

Every two weeks, a huge collection (thousands) of pictures taken from the billposters is sent to our cloud platform to prove the correct position of the advertising posters.

Today the certification is manually performed by a user through a dedicated GUI.

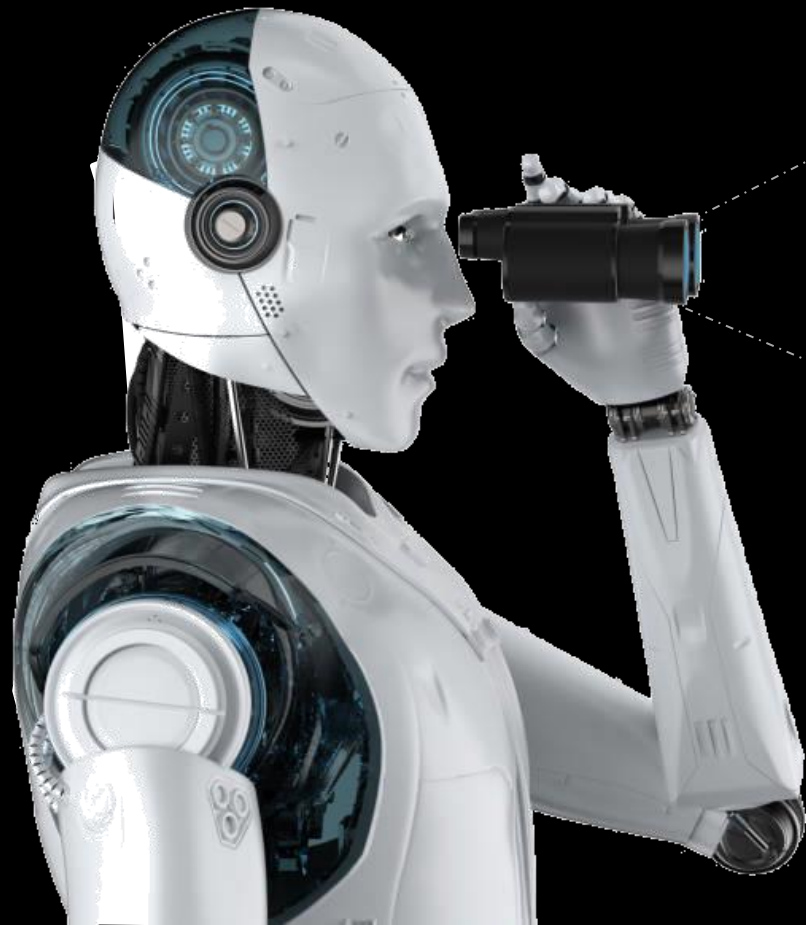
We are now developing the AI engine which will automate this certification process, detecting the poster inside the image and validating the subject of the poster.

The thesis projects will be part of this AI engine.



FOCUS ON AI MODELS

Different models will be engineered and trained in order to best address the solution for the use case.



180



2 AI models
(Detection & Validation)

Campaign Validation

Thesis #2

Poster Detection

Thesis #1

TRAINING DATA

The **SUCCESS** and **ACCURACY** of a machine learning algorithm is heavily dependent on what it learns from: **TRAINING DATA.**



Training Requirements

1k to 2k
correctly labelled images.



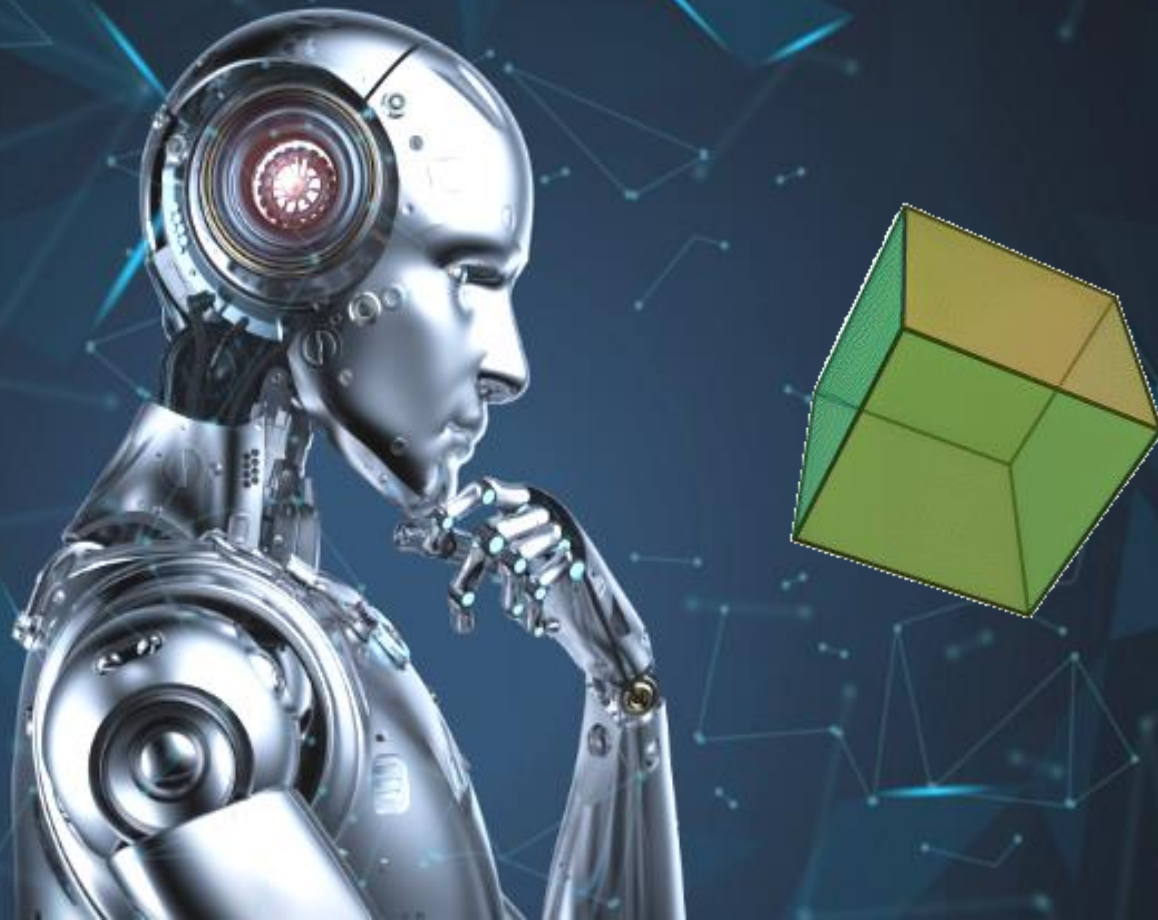
Knowledge Base

In order to maximise accuracy and to deal with the most critical aspects (occlusions, bad weather conditions, bad light conditions etc.), we require a **realistic** and **correctly labelled** training set.



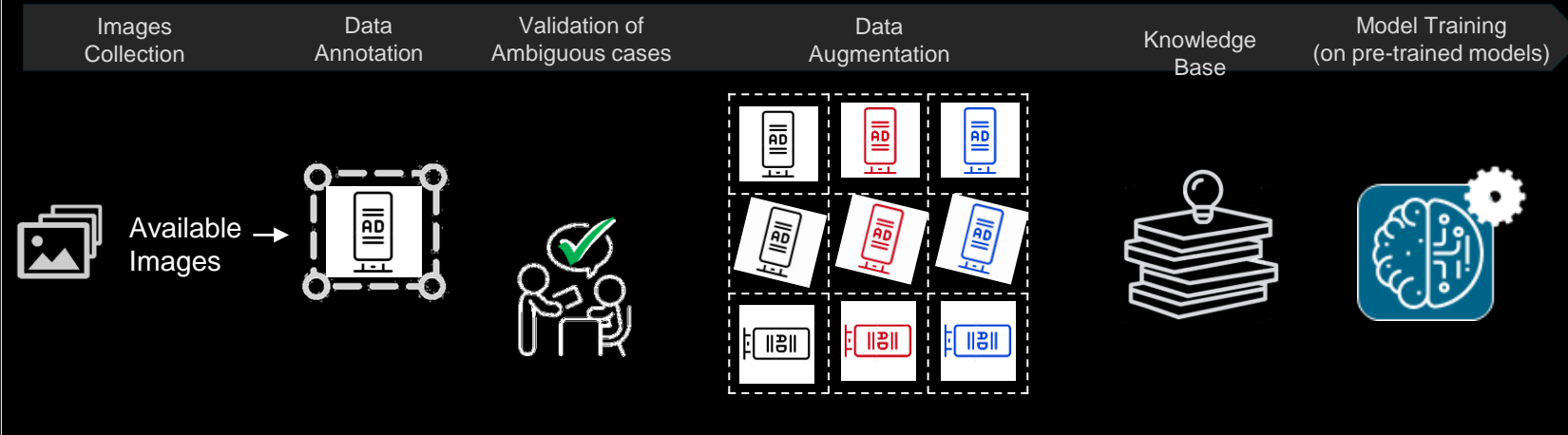
Image Annotation / Labelling

A dedicated cloud environment will be provided to speed up the labelling activity, leveraging on the **Oracle Data Annotation** platform among **Oracle Cloud Data Science**.



AI PIPELINE

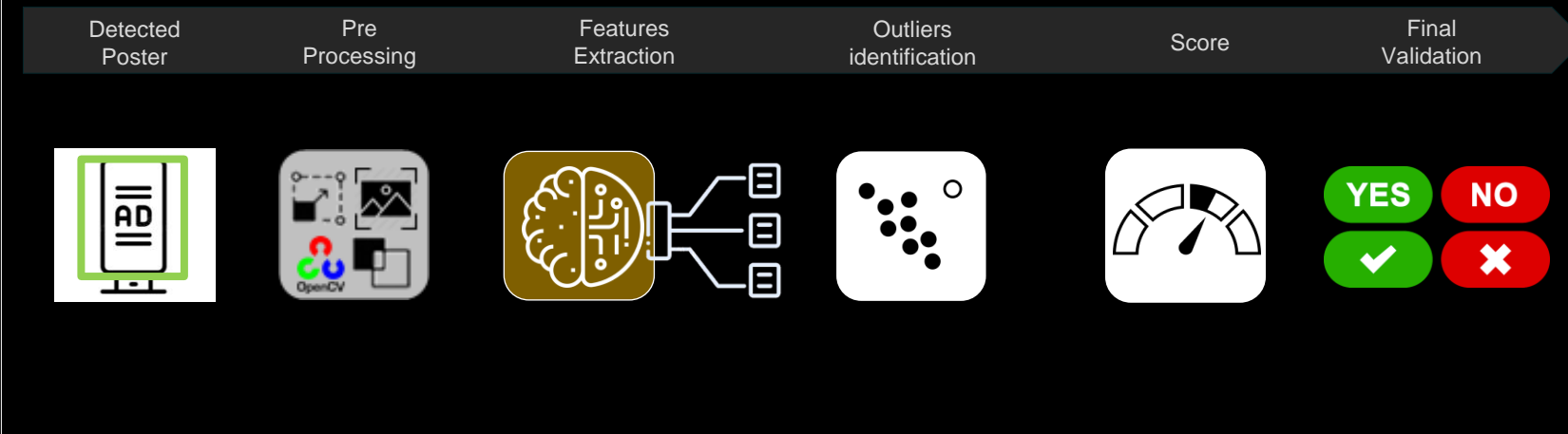
Object Detection



Thesis #1

Development and training of an object detection model. The model must detect the coordinates of a poster among a received image. Images will be taken by the bill posters "from the field" so quality may vary and sometimes could be poor.

Campaign Validation



Thesis #2

Development of a Feature Extraction Model to be applied to all detected poster for a specific Advertising Campaign in order to detect outliers (wrong subjects and possible errors in posting).

Are you ready to take the challenge?



CONTACT US NOW!!!

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