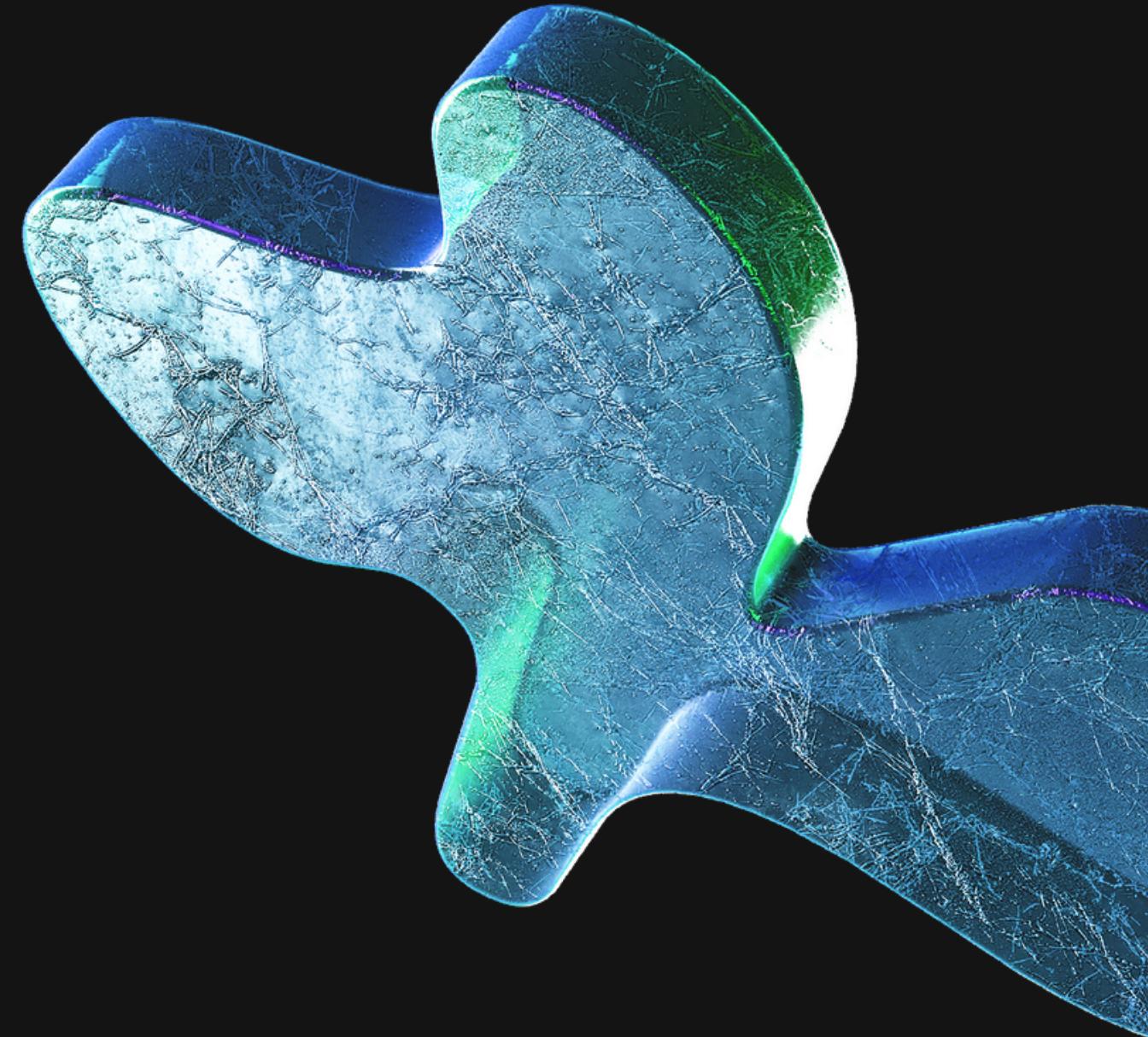


# Modular Framework for Data Acquisition and Annotation to Support Interaction Scenarios



Guilherme Claro nº 98432

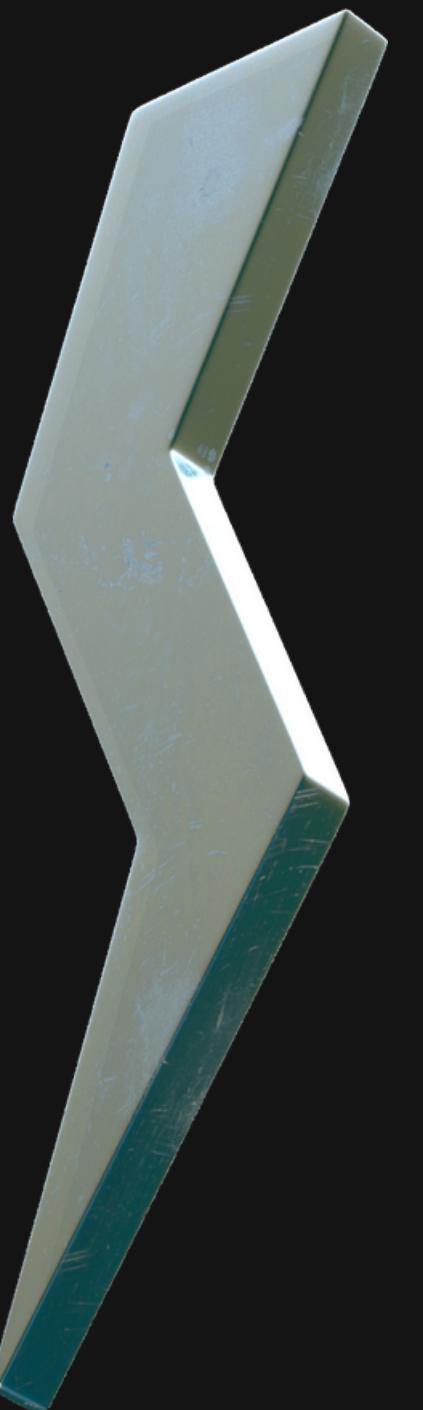
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João Afonso Ferreira nº 103037

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State of the Art(SOA) - Related Work

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Functional and non-functional requirements

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# **State of the Art (soA) Related Work**

## **GOOGLE ML KIT POSE DETECTION API**

Is a lightweight versatile solution for app developers to detect the pose of a subject's body in real time from a continuous video or static image (Movement Recognition using Machine Learning)

## **HAGRID**

One of the largest data sets for HGR (Hand Gesture Recognition) systems, this dataset contains 552,992 full HD RGB images, divided into 18 classes of gestures

## **SCIENTIFIC REPORT**

Besides these two, there is this article about Hand Gesture Recognition Based on Computer Vision that provides us a better idea about the concept of hci on the implementation of interactive computational systems

A photograph of four people dressed in medieval or renaissance-style clothing. A man in a blue tunic and red hose stands behind a table covered with a gold cloth, holding a small red object. To his right, a woman in a red dress holds a small woven basket. In the foreground, a woman in a green and orange dress is seated, looking down at her hands. Another woman in a green dress stands to the right, holding a long, thin object. The setting is a dimly lit room with a large painting of a peacock on the wall and a candelabra on the left.

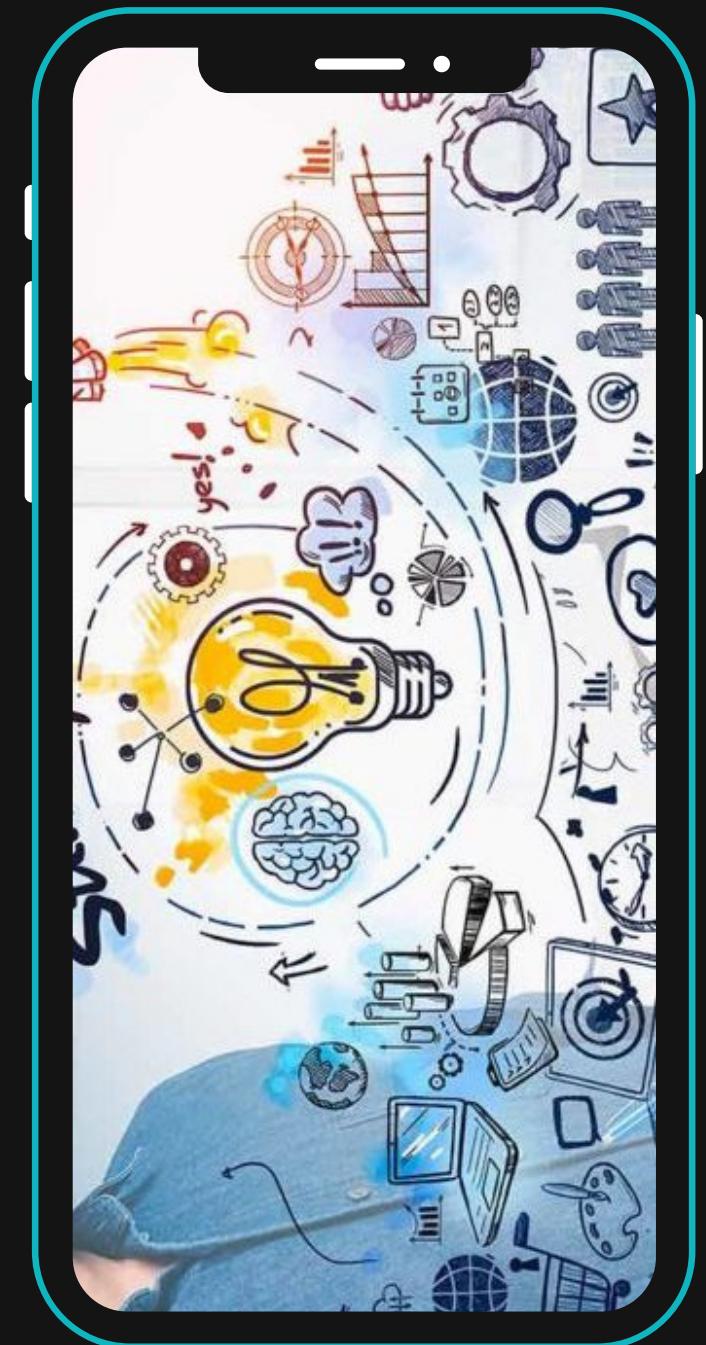
Actors and use cases

# Personas



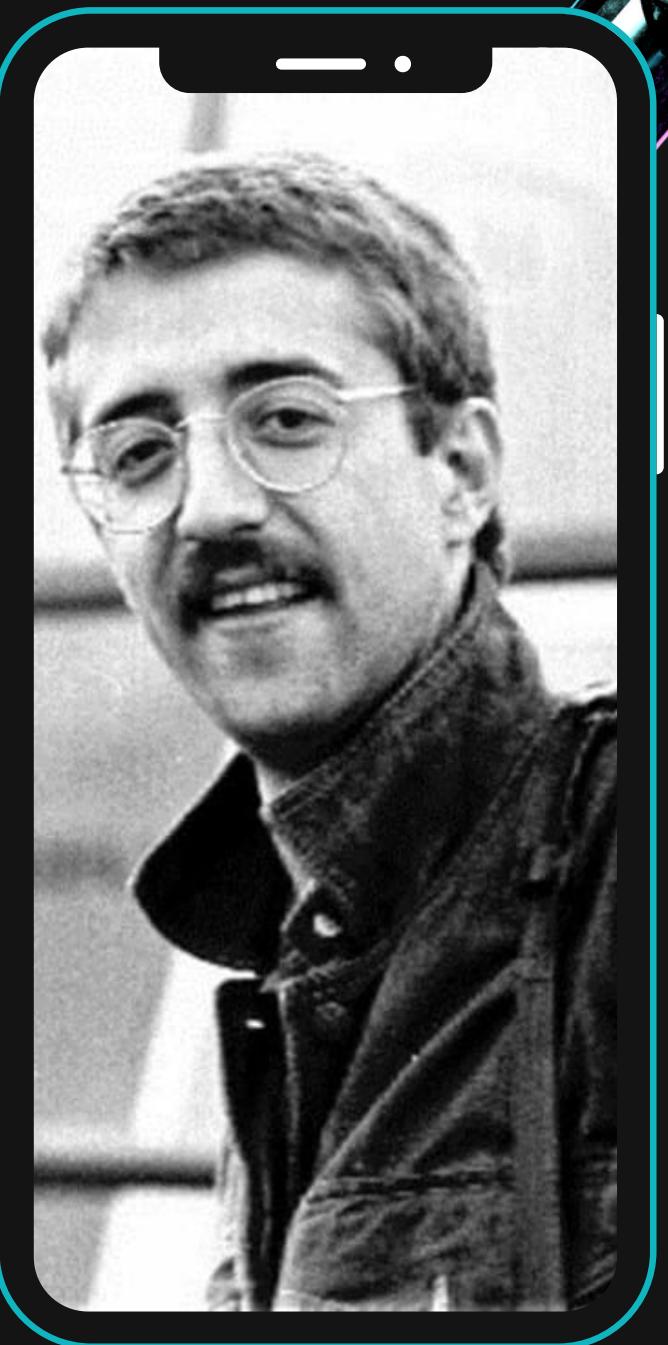
# Sérgio Paulo Creates DataSet

## 2 years old Researcher at University of Oxford



# DoTaSet Completes DataSet

## Start-Up



# Rui Veloso uses DataSet

## 21 years old engineering student at Universidade de OPorto



# Sérgio Paulo Creates DataSet

## PERSONA

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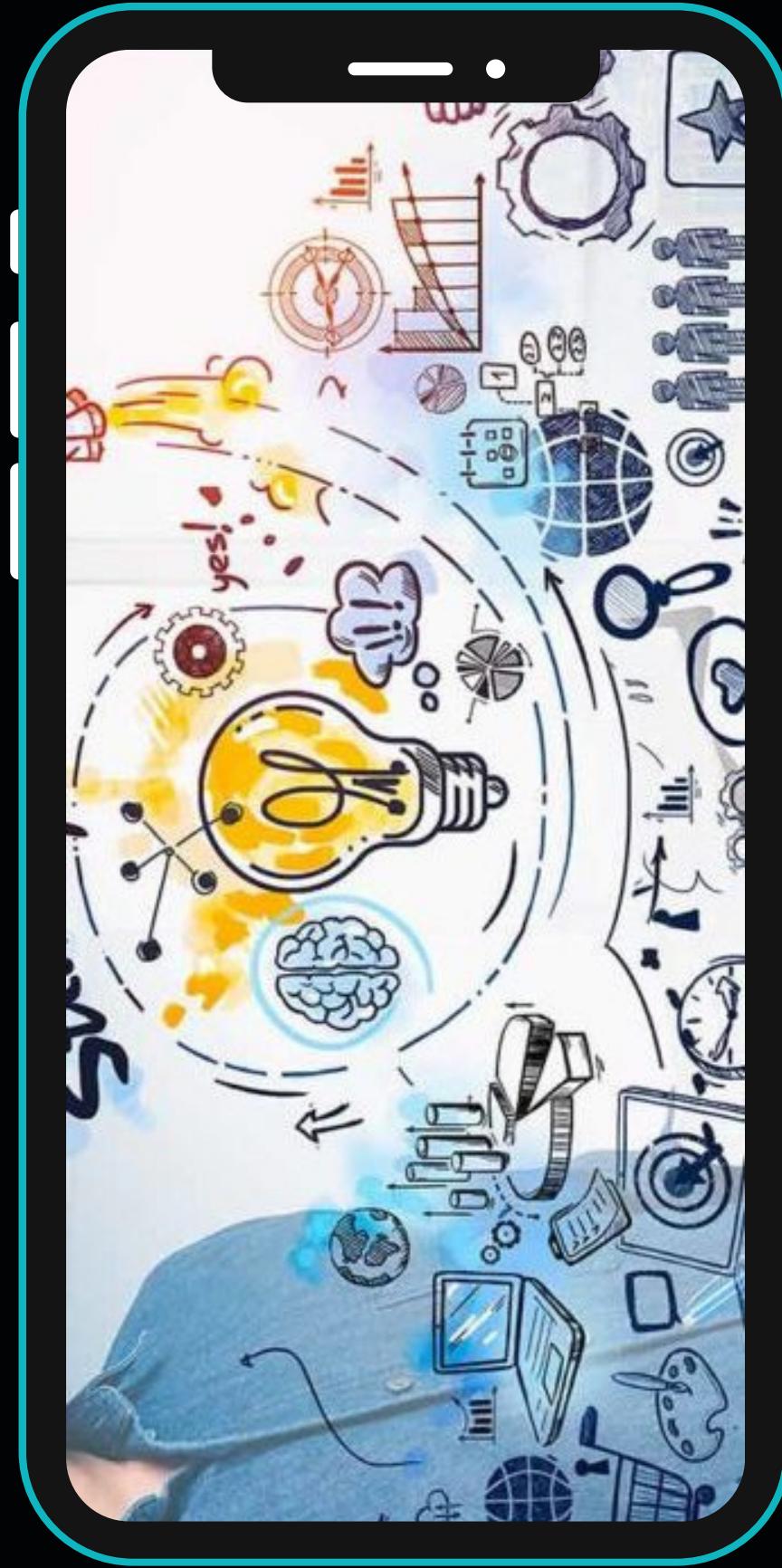
As a 32 years old Researcher at University of Oxford, coordinator of Human Computer Interaction Scientific Area, Sérgio Paulo, in which is working on this project called "Interactive Ways Through Technology" needs to create some specific DataSets that he desires to implement in his recent project, such as poses directly connected with human communication. So this researcher is looking for a framework that offers this kind of outcome.

## MOTIVATION

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Sérgio wants to contribute for the expansion of our DataBase since he intends to implement the purposes of this Modular Framework into his research.





# DoTaSet - Completes DataSet

## PERSONA

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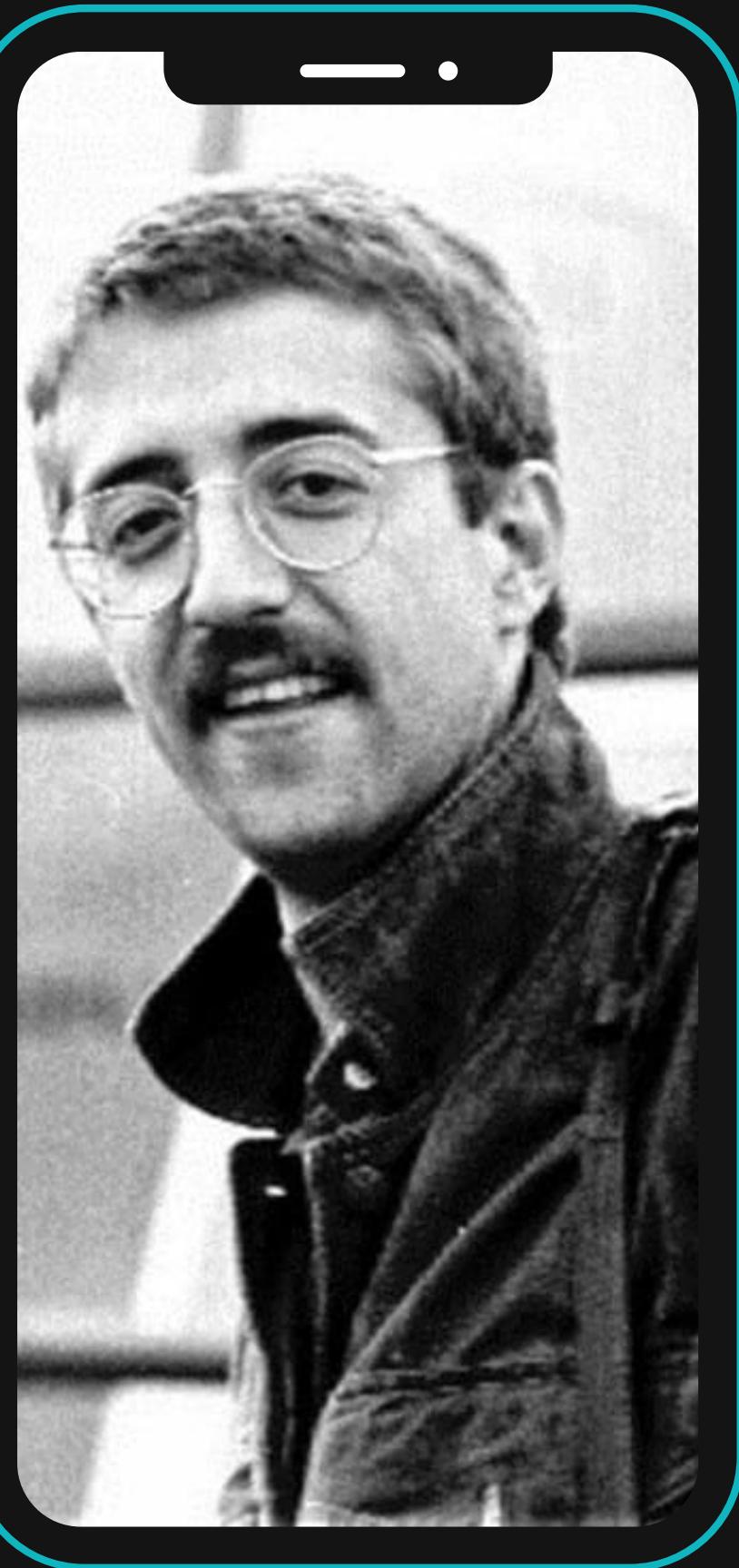
With our dataset, this start-up, can fulfil most of its needs, but they would like to expand some specific DataSet to check the rest of their client requests.

## MOTIVATION

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DoTaSet is looking for improvement in the worldwide market, so the intention is to develop complex projects and use a more complete DataSet than the one already available





# Rui Veloso - DataSet User

## PERSONA

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As an computer engineering student at University of Porto, Rui Veloso is always trying to improve himself and always striving to learn new things. Therefore, he needs to use a specific dataset of hand movement, in this case, the waving action, so that he can apply it as a feature on his newest new project he is developing for the subject Human-Centered Artificial Intelligence

## MOTIVATION

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Rui wants to implement 'waving dataset' for his latest project.

## USE CASE

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- Create a new DataSet
- Recording feauture
- Create tags
- Submission



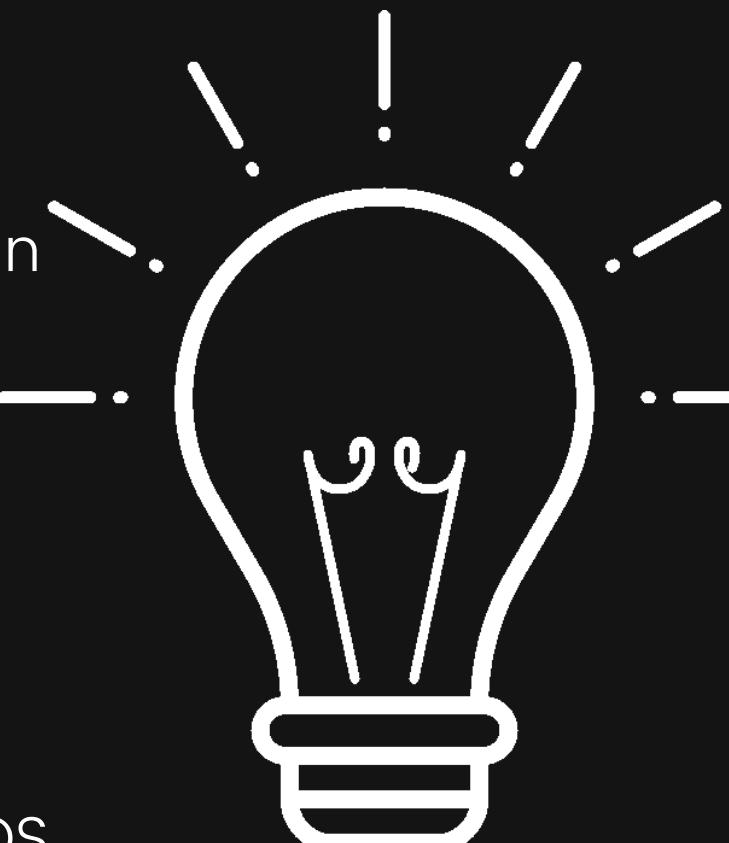
# Requirements elicitation



# Functional Requirements

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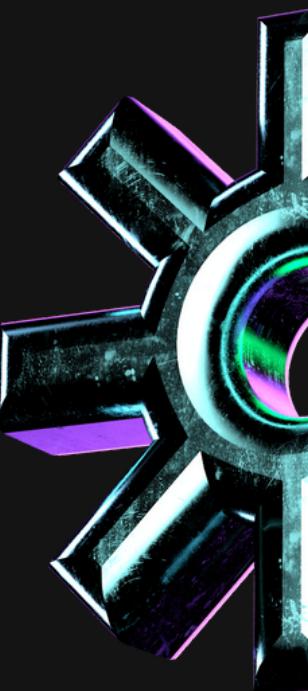
- Modular Framework must be able to capture relevant data for data acquisition, annotation and Machine Learning
- Framework must have a DataBase associated to, so that the users can create, use & complete DataSets
- Should support submission of contents
- System must be multi platform supporting Windows, Linux & macOS.



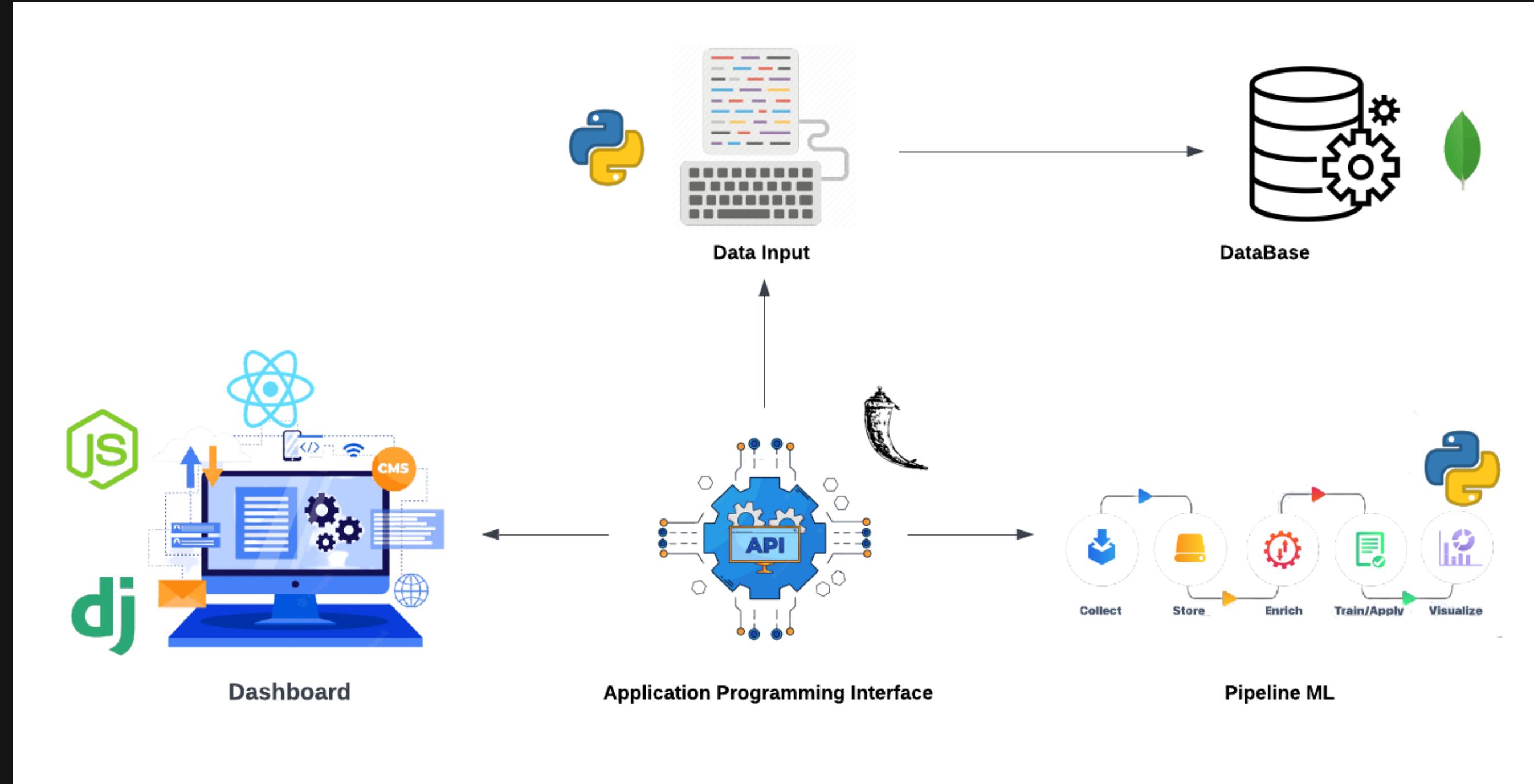
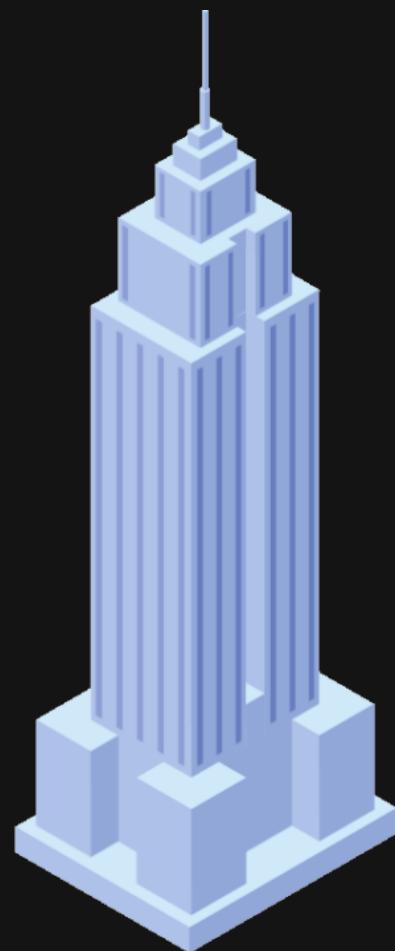
# Non-functional Requirements

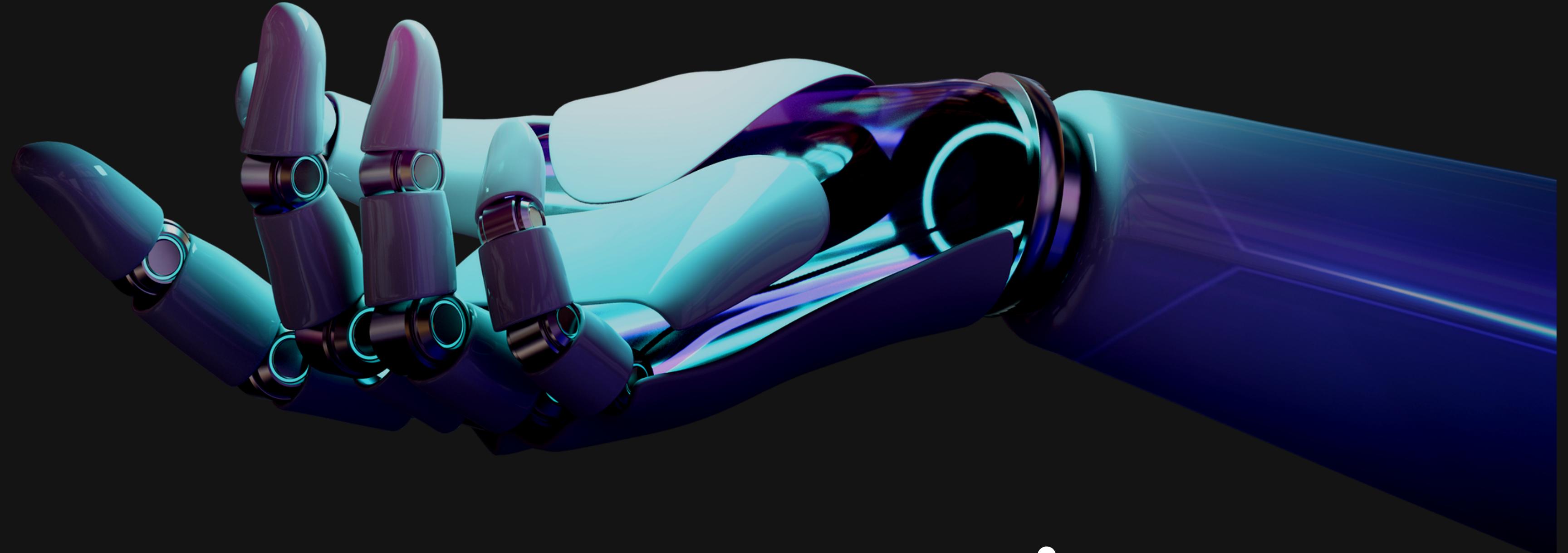
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- The processing of each request should be done within 5 seconds
- The site should load in 3 seconds when the number of users is less than 1000 & 5 seconds (maximum) when the number is higher than 1000
- The video recording should load within 4 seconds or less
- System must be protected and must provide confidentiality using encryption



# System Architecture





# Demonstration



# Any doubts left?

Speak now or be quiet forever