PROJECT REPORT

Team Id :PNT2022TMID39208

Project Title :Real-Time Communication System Powered By AI For Specially Abled .

Team Size :4

Team Leader :ELAKIYA.V

Team Member 1 :BHAVANI.S

Team Member 2 :RASIGA.S

Team Member 3 :AARTHY.E

Project Overview:

Artificial intelligence is **the simulation of human intelligence processes by machines, especially computer systems**. Specific applications of AI include expert systems, natural language processing, speech recognition and machine vision.

Data collection is **the process of gathering and measuring information from countless different sources**. In order to use the data we collect to develop practical artificial intelligence (AI) and machine learning solutions, it must be collected and stored in a way that makes sense for the business problem at hand.

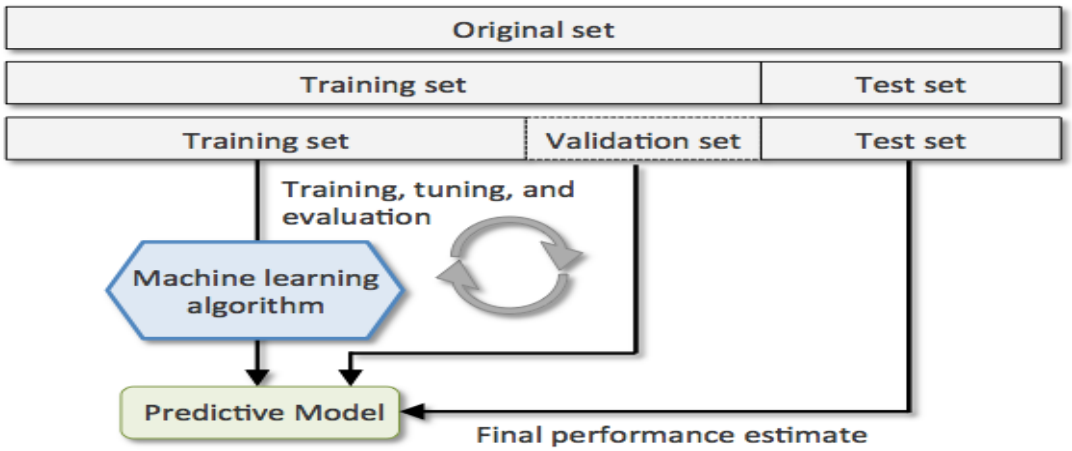


Image Processing:

In general terms, manipulating an image to amplify the same to generate information image Processing Phases

There are 8 phases for image processing which goes step-wise:

- **Image acquisition**:

  Captures the image with a sensor and converts it into a manageable entity

- **Image enhancement**

  The input image quality is improved and also extracts details hidden in it

- **Image restoration**

  Any possible corruption like blur, noise, or camera misfocsus is removed to get a cleaner vision on probabilistic and mathematical model basis

- **Color image processing**

The colored images and varied color spaces are processed with pseudo color or RGB processing way.

- **Image compression and decompression**

  This allows for changes in image resolution and size, be it for reduction or restoring images depending on the need.

- **Morphological processing**

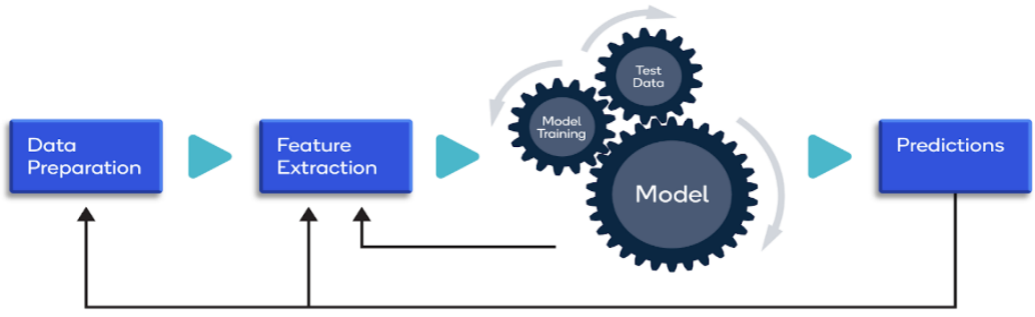
  Defines the object structure and shape in the image.

- **Image recognition**

  For a particular object, the specific features are identified in the image and techniques like object detection are used for the same.

- **Representation and description**

Is all about visualizing the processed data. it is called image processing.



What do AI architects do?

AI has a diverse range of **use cases** and deployment models, so AI architects need a wide array of capabilities:

- **Collaborate with data scientists and other AI professionals to augment digital transformation efforts** by identifying and piloting use cases. Discuss the feasibility of use cases along with architectural design with business teams and translate the vision of business leaders into realistic technical implementation. At the same time, bring attention to misaligned initiatives and impractical use cases.

- **Align technical implementation with existing and future requirements** by gathering inputs from multiple stakeholders — business users, data scientists, security professionals, data engineers and analysts, and those in IT operations — and developing processes and products based on the inputs.

- **Play a key role in defining the AI architecture and selecting appropriate technologies** from a pool of open-source and commercial offerings. Select cloud, on-premises or hybrid deployment models, and ensure new tools are well-integrated with existing data management and analytics tools.

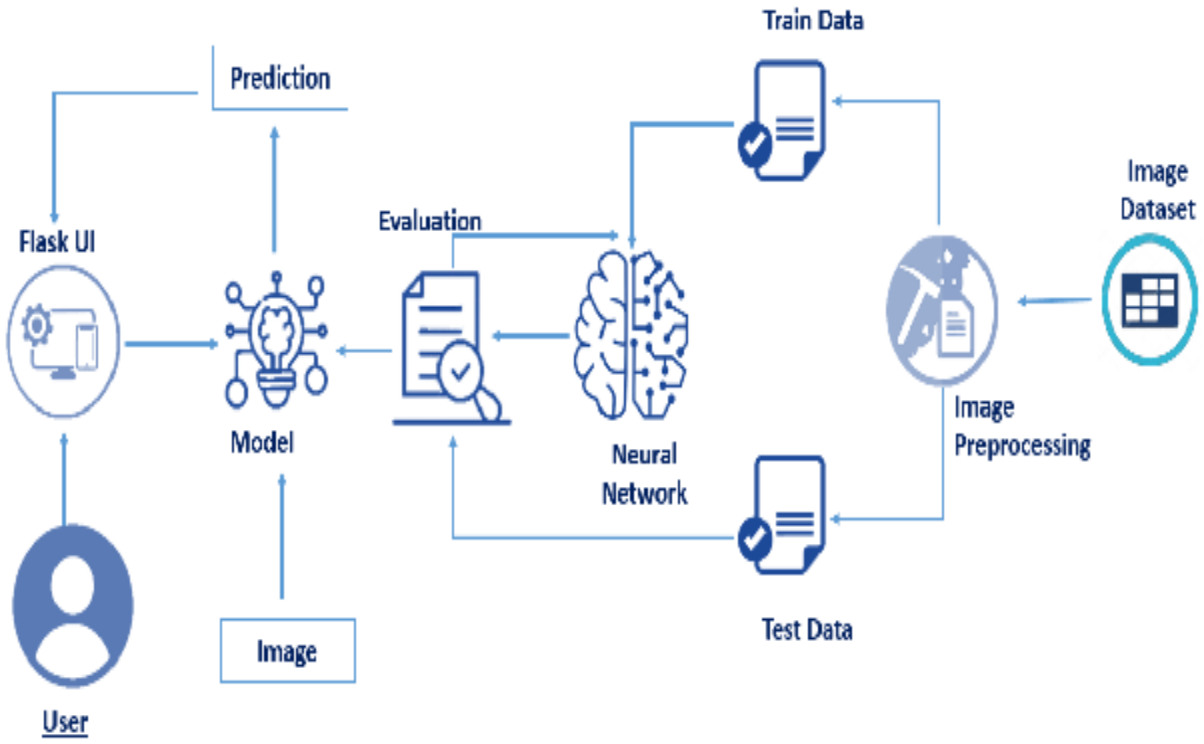
- **Audit AI tools and practices across data, models and software engineering** with a focus on continuous improvement. Ensure a feedback mechanism to assess AI services, support model recalibration and retrain models.

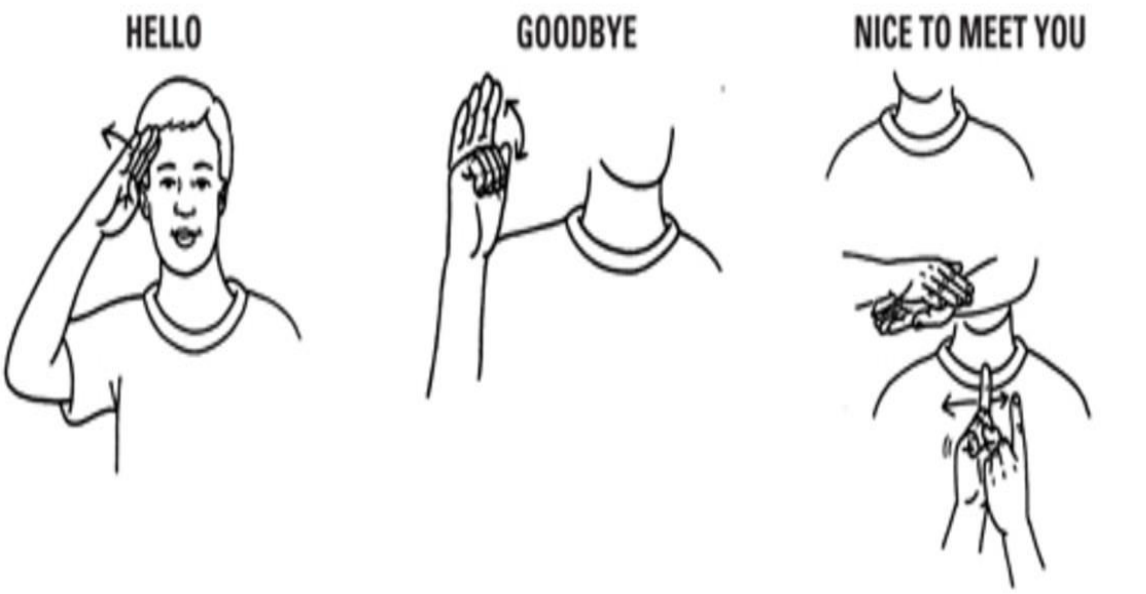
- **Work closely with security and risk leaders to foresee and overturn risks,** such as training data poisoning, AI model theft and adversarial

samples, ensuring **ethical AI** implementation and restoring trust in AI systems. Remain acquainted with upcoming regulations and map them to best practices.

PROJECT DESCRIPTION :

The project deals on building an application which helps the specially challenged people to communicate between them and the common people. Communication between a person with hearing/speech impairment and a normal person has always been a challenging task. This application tries to reduce the barrier of communication by developing an assistive application for specially challenged people.




HELLO
GOODBYE
NICE TO MEET YOU


YES
NO
PLEASE
THANKS


A B C D E F G H
I J K L M N O P
Q R S T U V W X Y Z


Sign Language Recognition using Python & OpenCV
FIVE

1.]IDEATION PHASES LINKS :

Empathy map link:

https://in.docworkspace.com/d/sIM7X4LmDAbWQ4psG?sa=00&st=0

Brain Storming link:

https://in.docworkspace.com/d/sIL3X4LmDAf6O4psG?sa=00&st=0

Literature survey:

https://in.docworkspace.com/d/sIIrX4LmDAeKR4psG?sa=00&st=0

Problem Statement:

https://in.docworkspace.com/d/sIPDX4LmDAbeS4psG?sa=00&st=0

2.]Assignment Link:

Assignment 1:

https://raw.githubusercontent.com/IBM-EPBL/IBM-Project-36691-1660297200/main/assignment/Bavani%20member%202/Assignment_1.ipynb

Assignment 2:

https://raw.githubusercontent.com/IBM-EPBL/IBM-Project-36691-1660297200/main/assignment/Aarthhi%20member%201/_assignment_2.ipynb

Assignment 3:

https://raw.githubusercontent.com/IBM-EPBL/IBM-Project-36691-1660297200/main/assignment/Rasiga%20member%203/Assignment%203.ipynb