INSTITUT SUPERIEUR INFORMATIQUE ISI
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# Système de reconnaissance de la langue des signes

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Année universitaire: 2022 - 2023

# Plan

01 Etude préalable

02 Solution proposée

03 Architecture

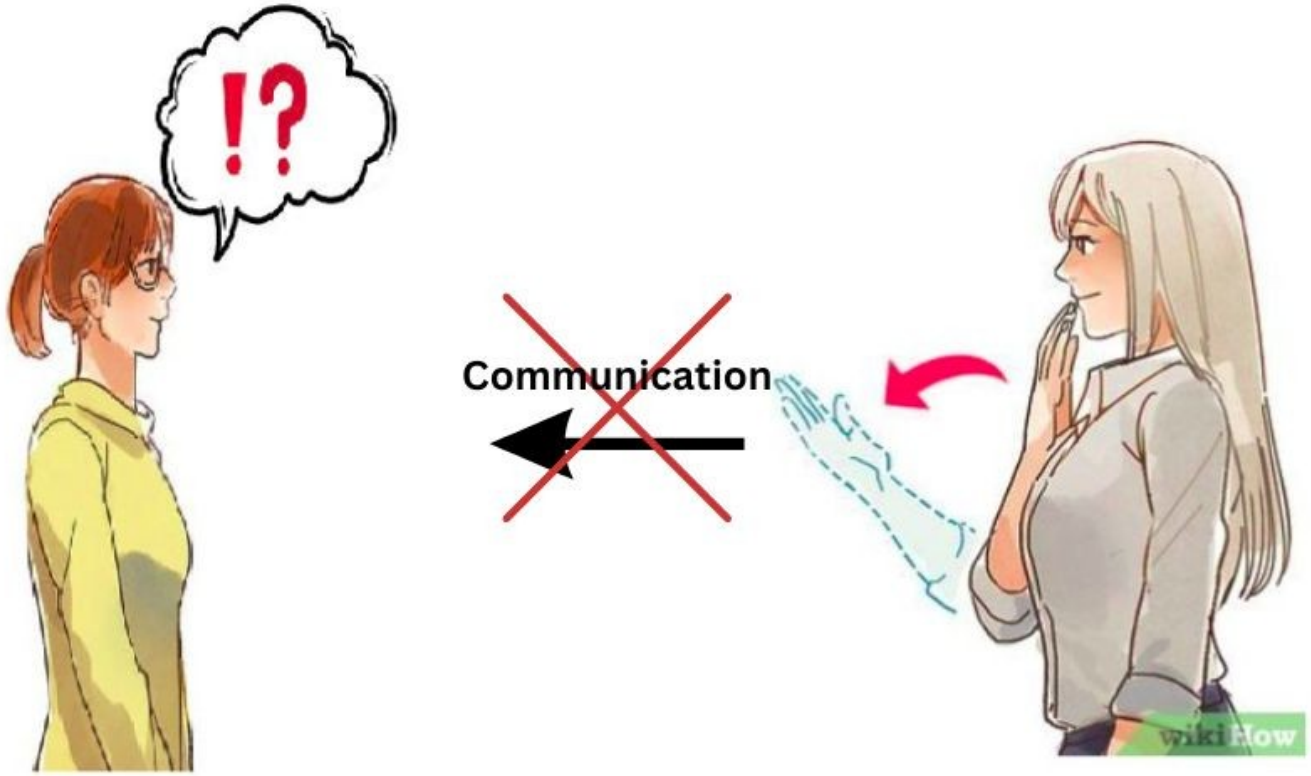
04 Etude théorique

05 Réalisation

06 Conclusion & perspectives

# Introduction

# Problématique




**Reconnaissance des signes**

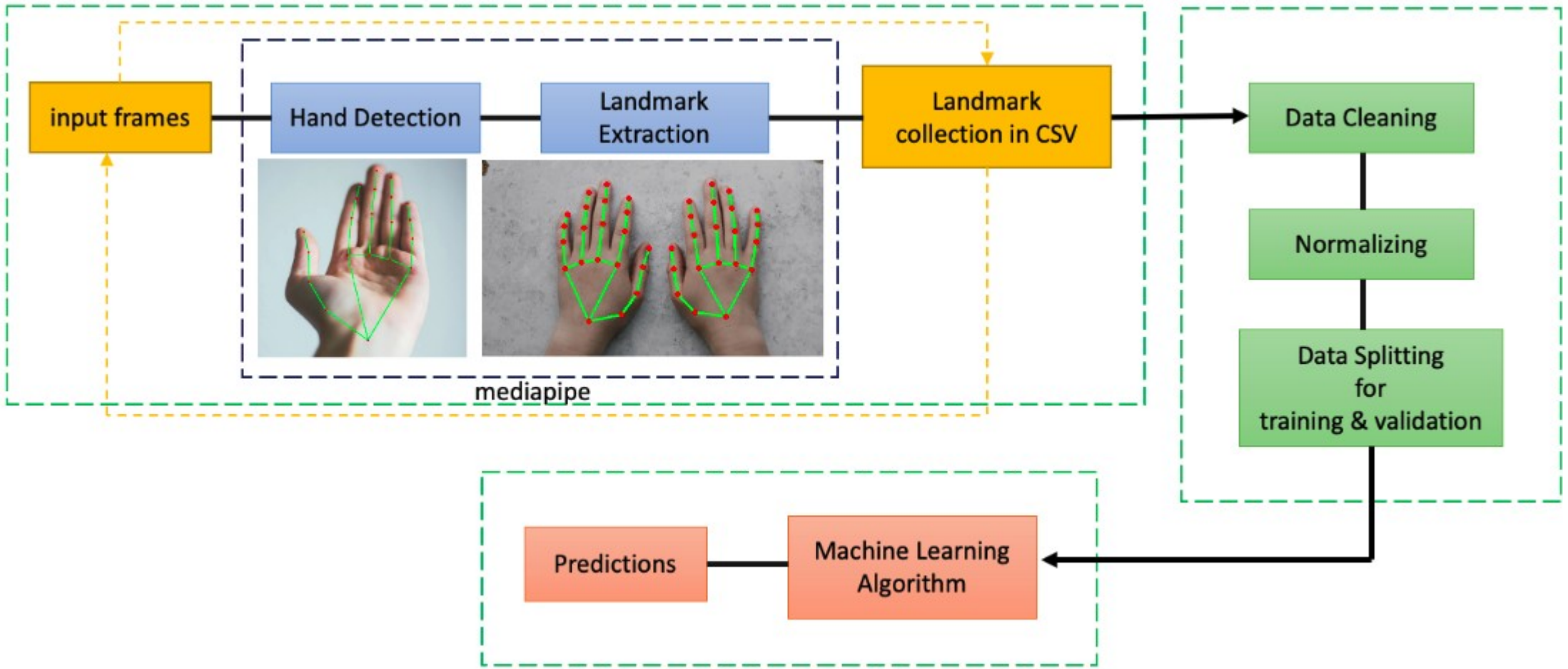
**Difficulté du langage**

**Problème de communication**

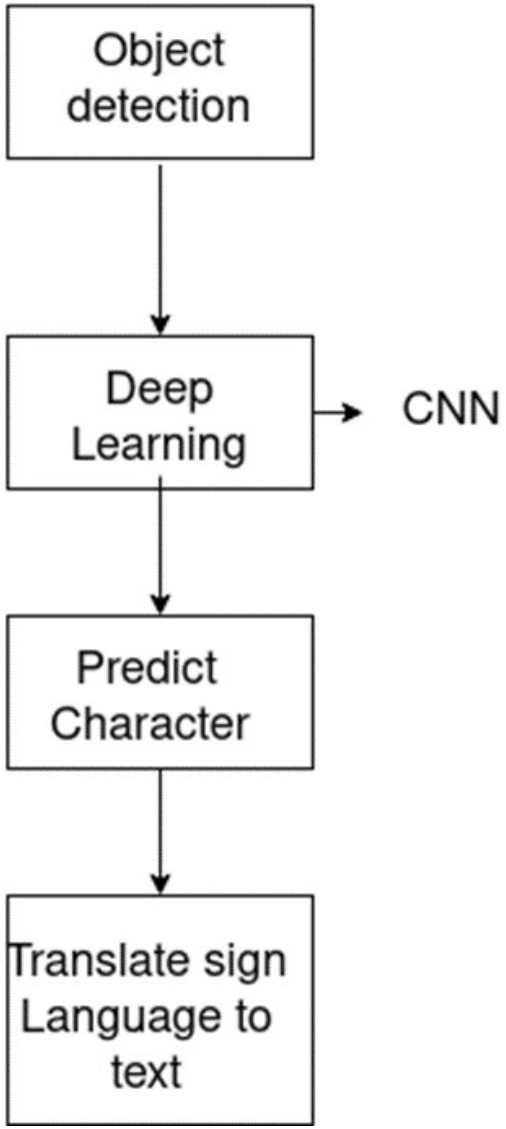
# Solution proposée



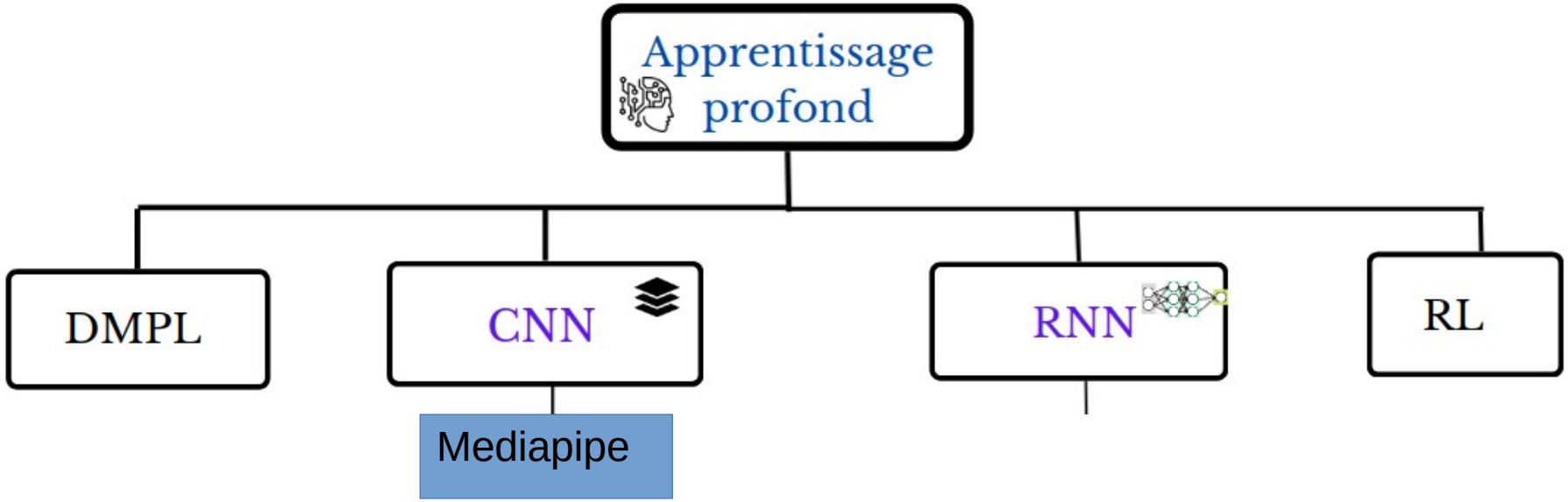

# Architecture globale du système



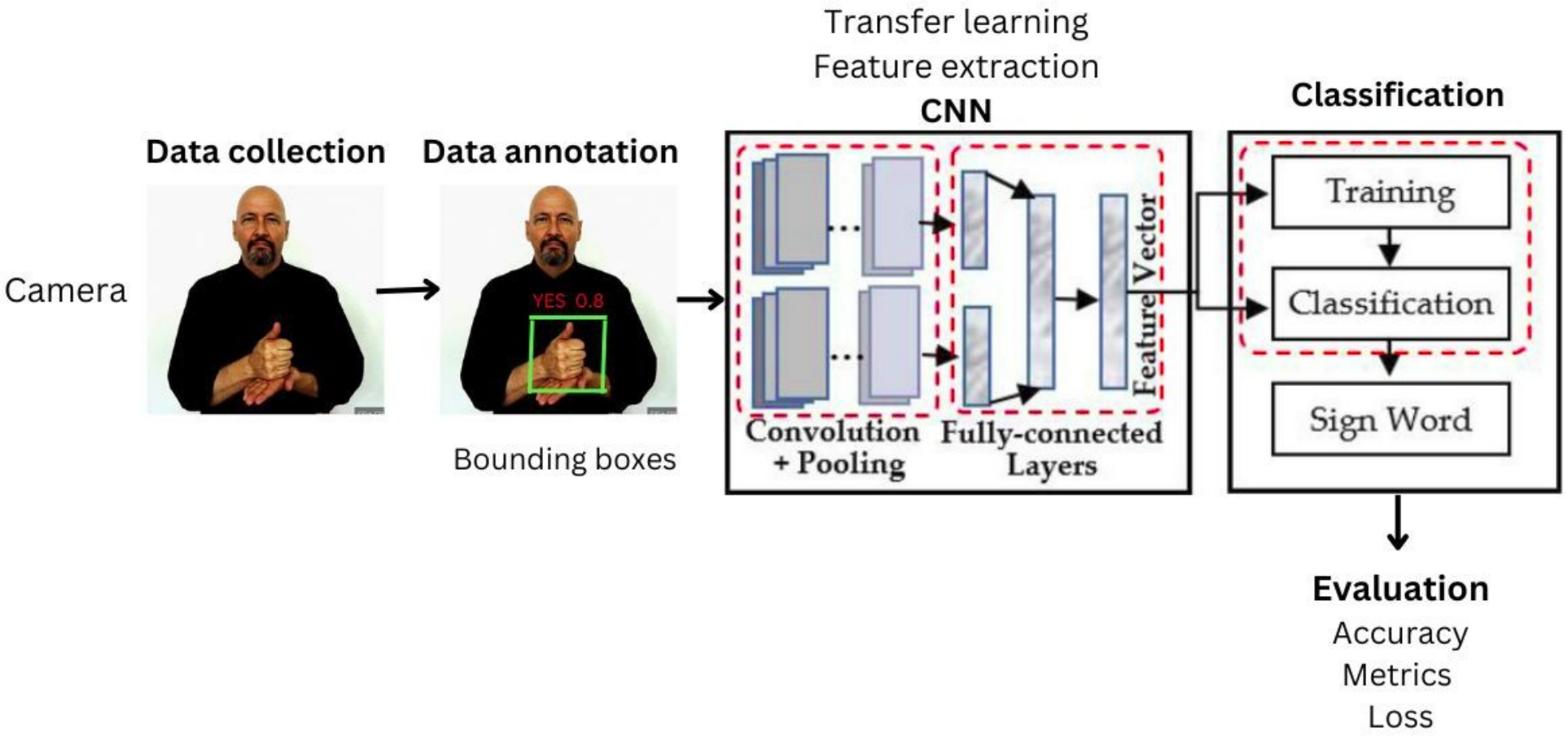
# Architecture de la solution proposée



# Les techniques de l'apprentissage profond



# Détection et reconnaissance des signes



# Choix technolgiques

matplotlib

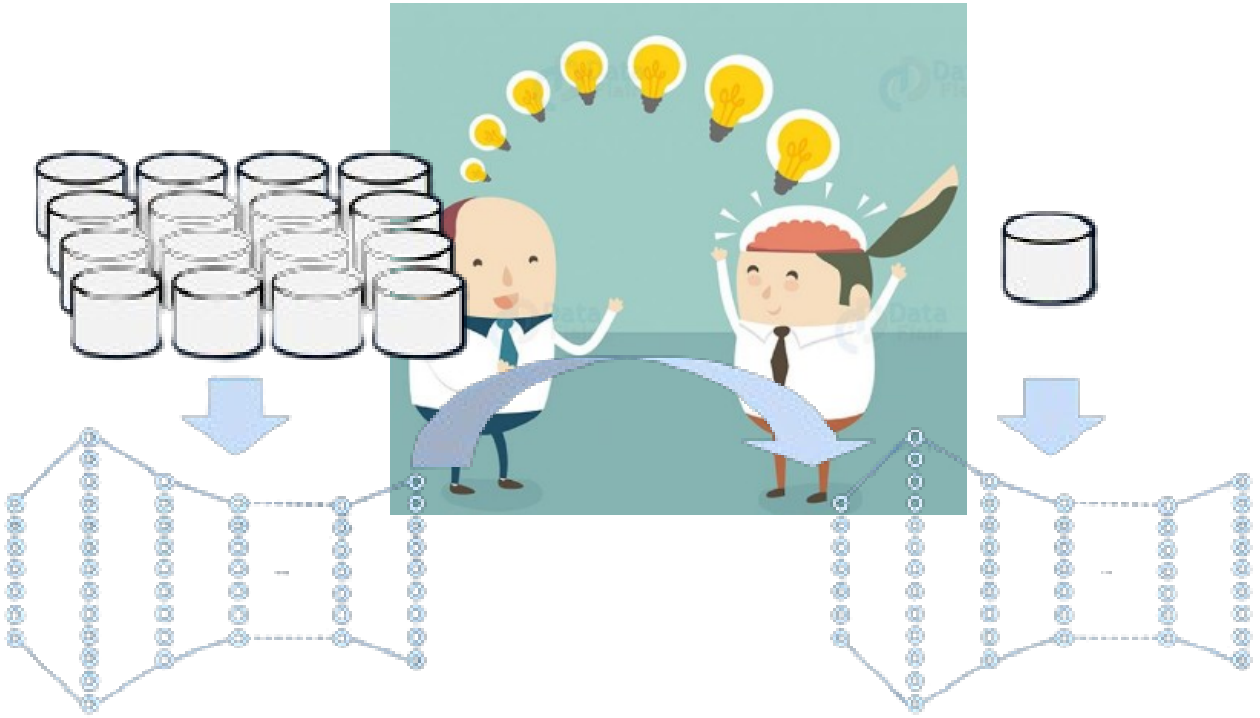
NumPy

TensorFlow

OpenCV

python™

# Apprentissage par transfert

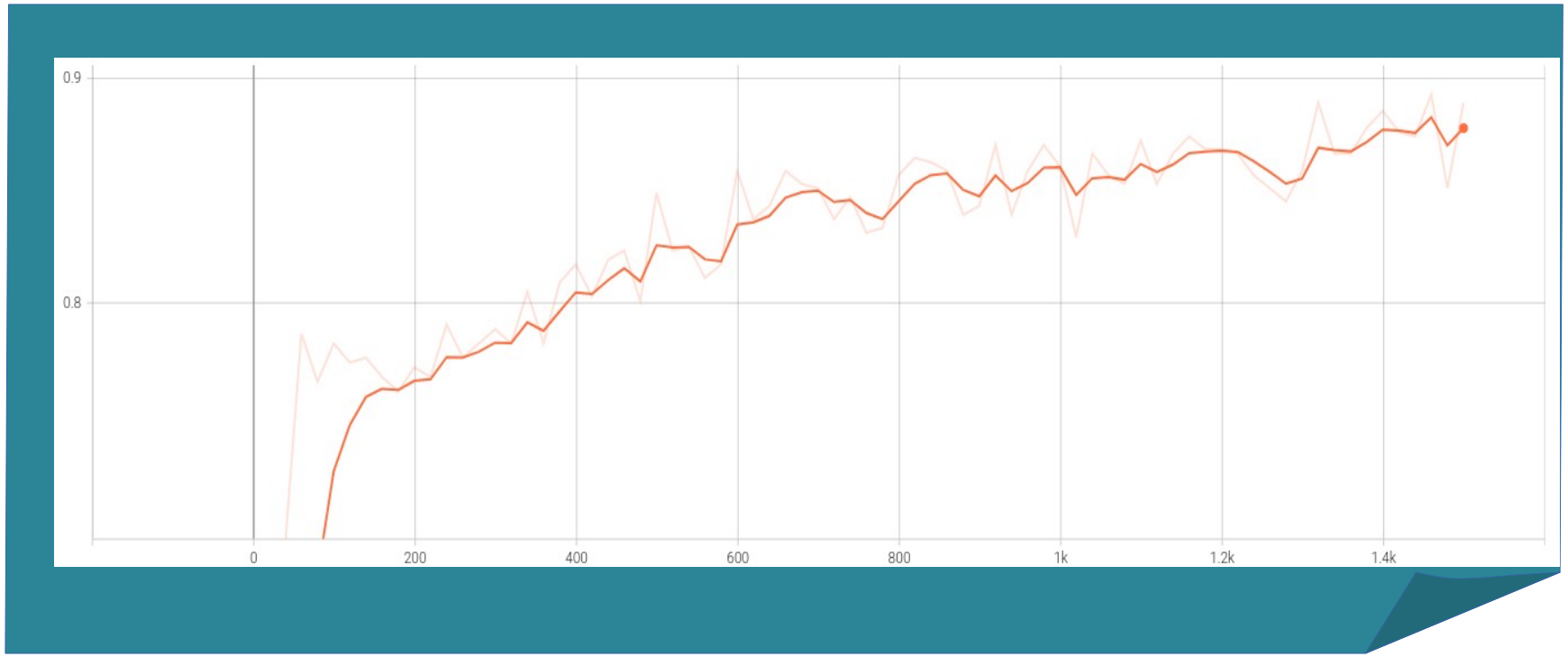


Pretrained model

Less training time

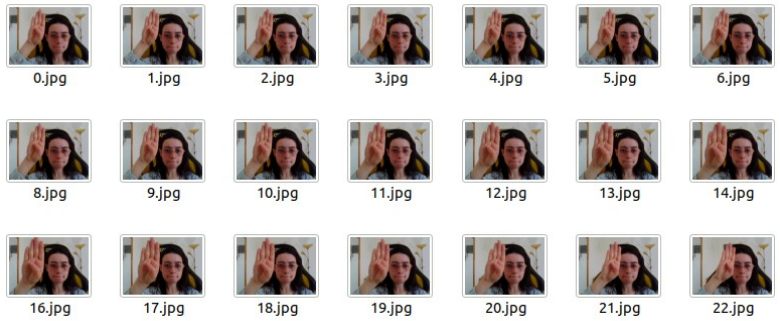
Small dataset

# Résultats du modèle

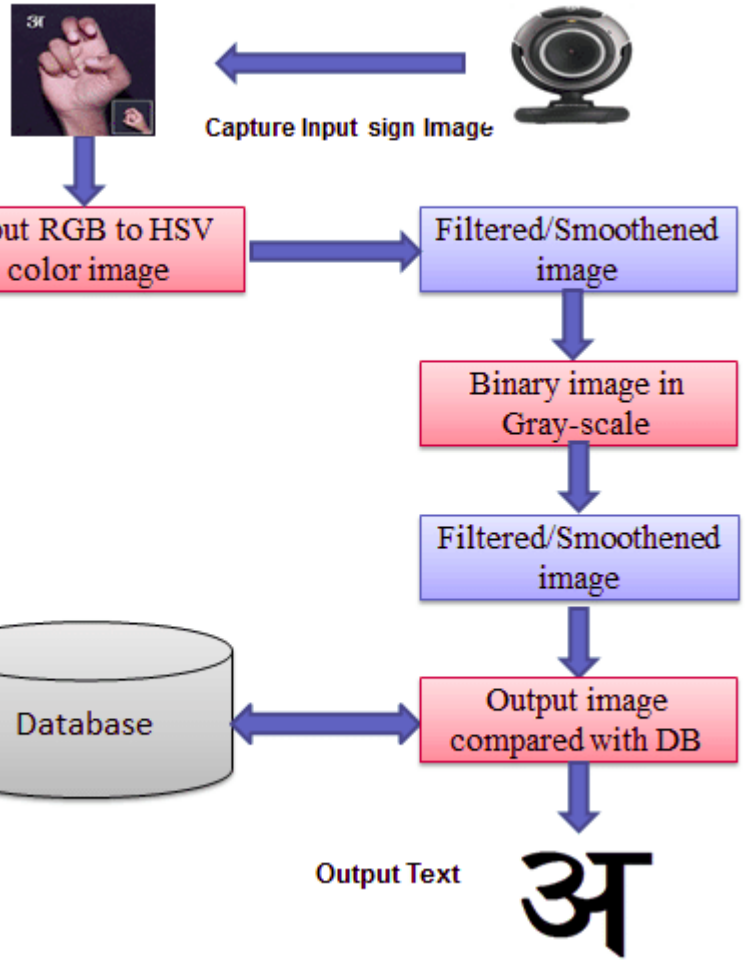



Performance et précision du modèle ==> atteint 85%

# Exemple résultats de la reconnaissance des signes




Dataset



inference_classifier.py - SLProj Final - Visual Studio Code

File Edit Selection View Go Run Terminal Help

EXPLORER

OPEN EDITORS
- inference_classi...

SLPROJ FINAL
- data
- collect_imgs.py
- create_dataset.py
- data.pickle
- inference_classifier.py
- License
- model.p
- README.md
- requirements.txt
- train_classifier.py
- Untitled Document 1

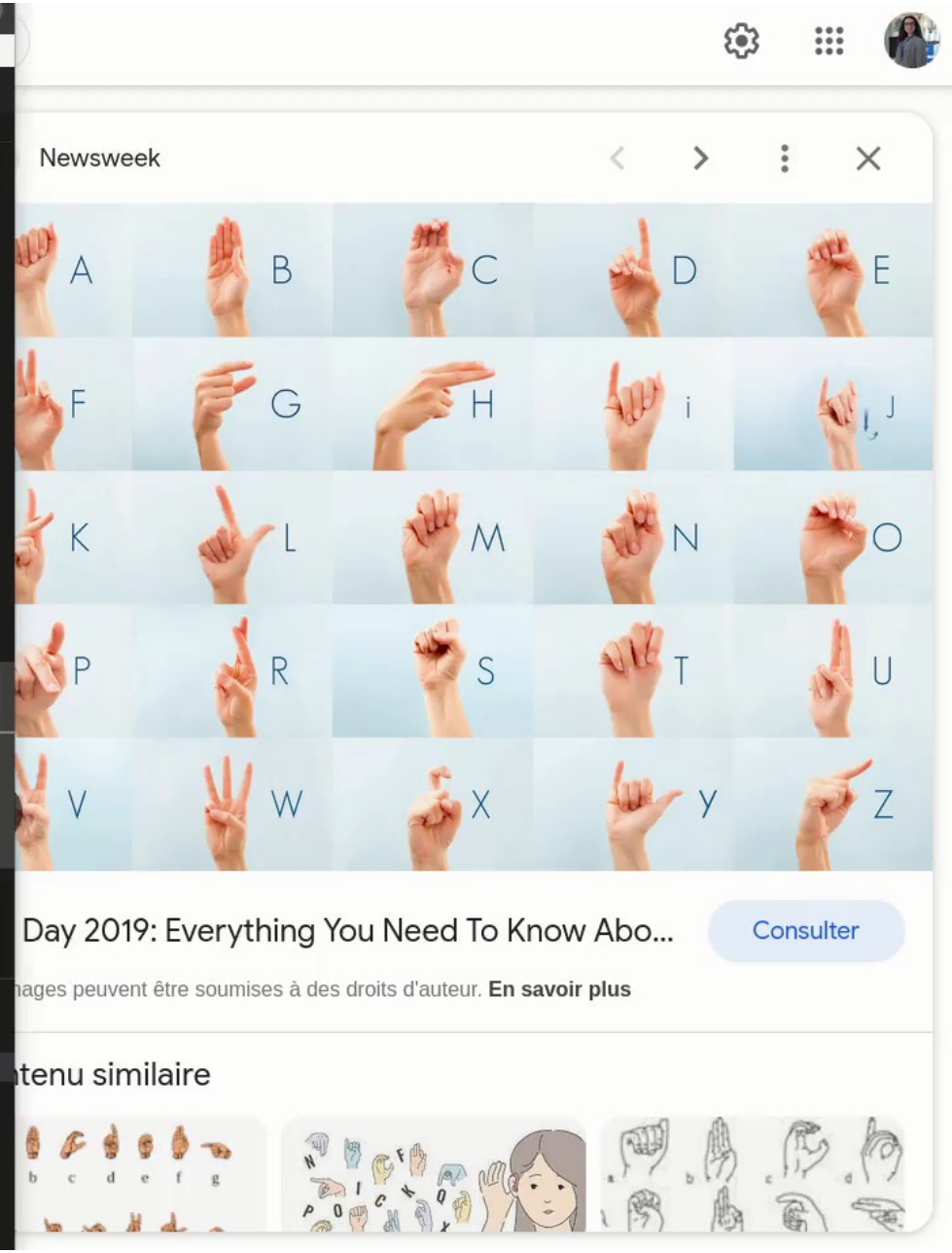
inference_classifier.py

```
85            x2 = int(max(x_) * W) - 10
86            y2 = int(max(y_) * H) - 10
87
88            prediction = model.predict([np.asarray(data_aux)])
89
90            predicted_character = labels_dict[int(prediction[0])]
91
92            cv2.rectangle(frame, (x1, y1), (x2, y2), (0, 0, 0), 4)
93            cv2.putText(frame, predicted_character, (x1, y1 - 10), cv2.FONT_HERSHEY_SIMPLE
94                        cv2.LINE_AA)
95
96        cv2.imshow('frame', frame)
97        cv2.waitKey(40)
98
99
100
101   cap.release()
102   cv2.destroyAllWindows()
103
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL

```
  File "/home/hadil/.local/lib/python3.8/site-packages/sklearn/ensemble/_forest.py", line 605, in _validate_X_predict
    X = self._validate_data(X, dtype=DTYPE, accept_sparse="csr", reset=False)
  File "/home/hadil/.local/lib/python3.8/site-packages/sklearn/base.py", line 600, in _validate_data
    self._check_n_features(X, reset=reset)
  File "/home/hadil/.local/lib/python3.8/site-packages/sklearn/base.py", line 400, in _check_n_features
    raise ValueError(
ValueError: X has 84 features, but RandomForestClassifier is expecting 42 features as input.
```

Python
Python



# Conclusion

Collecter des ensembles de données

Détecter et extraire les repères de la main

Entrainer notre modèle

Reconnaître les signes

# Perspectives

Entrainer le modèle avec des plus grands ensembles de données

traduire les signes en langage parlé ( audio)

Héberger notre modèle sur une plateforme

# Merci de votre attention