



RECONNAISSANCE FACIALE

Projet Image - Master 2 IMAGINE

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Reconnaissance faciale

- Détection
- Reconnaissance
- Fiabilité
- Rapidité



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Etat de l'art

Les difficultés

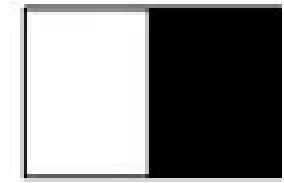
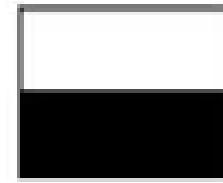
- Eclairage
- Pose
- Expression faciale
- Age
- Résolution

Les Méthodes

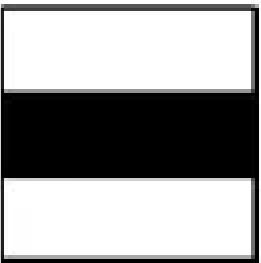
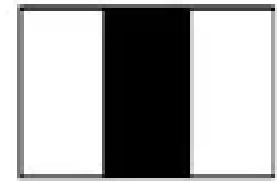
- Sans IA:
 - LBPH
 - EigenFace
- Avec IA:
 - VggFace
 - DeepFace



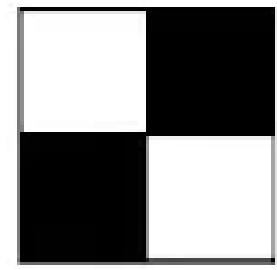
Détection Haarcascade



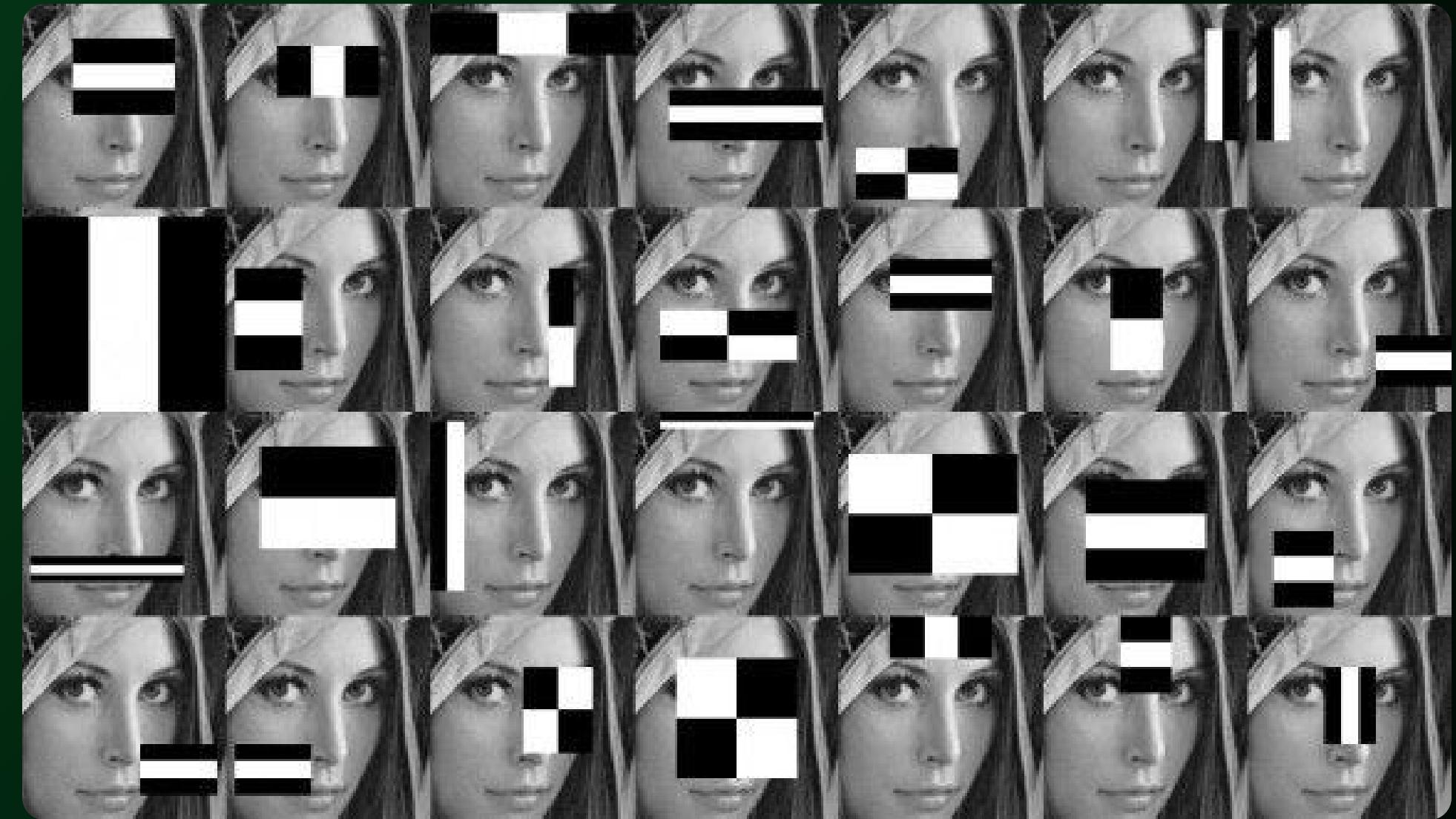
(a) Edge Features



(b) Line Features



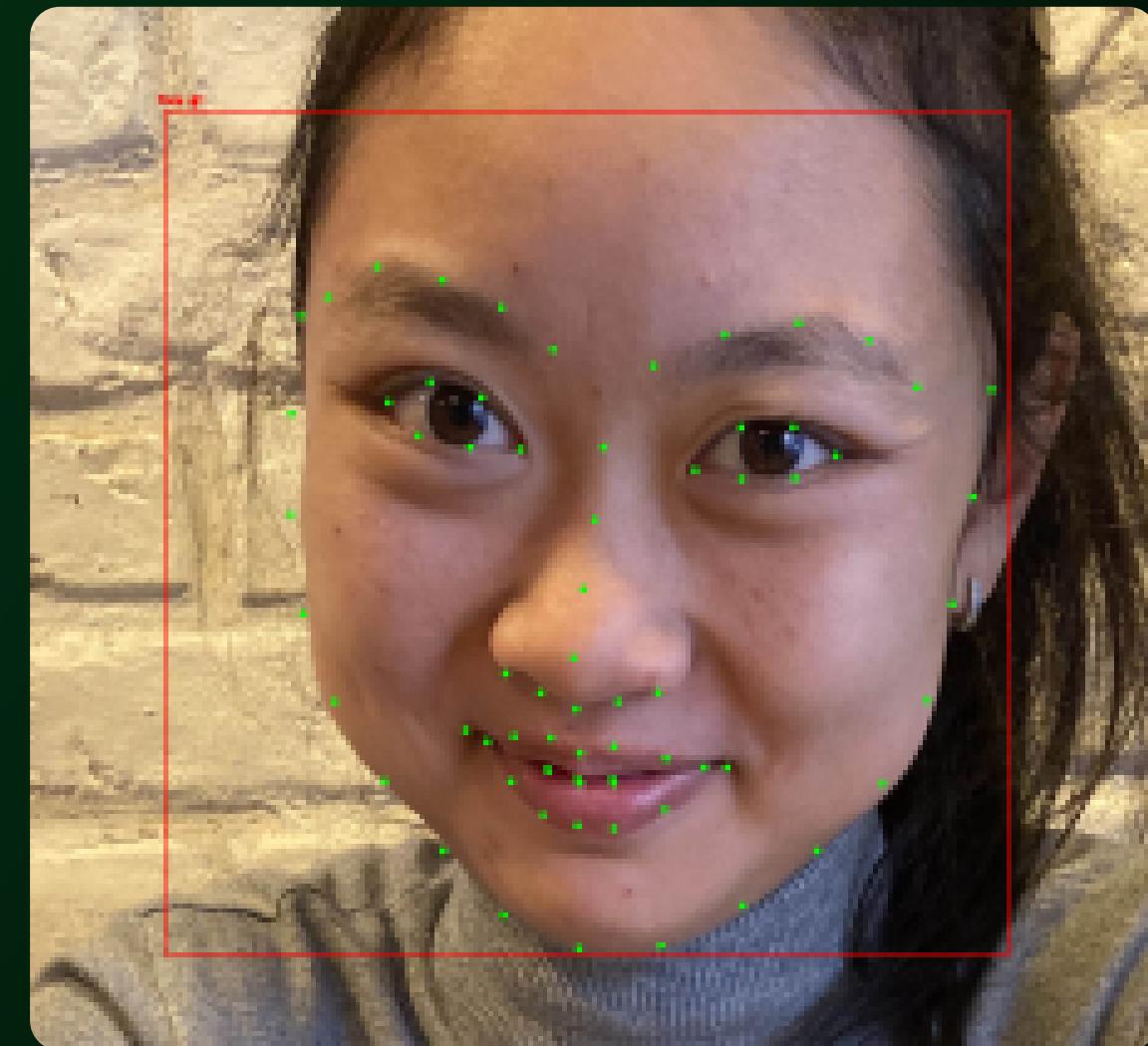
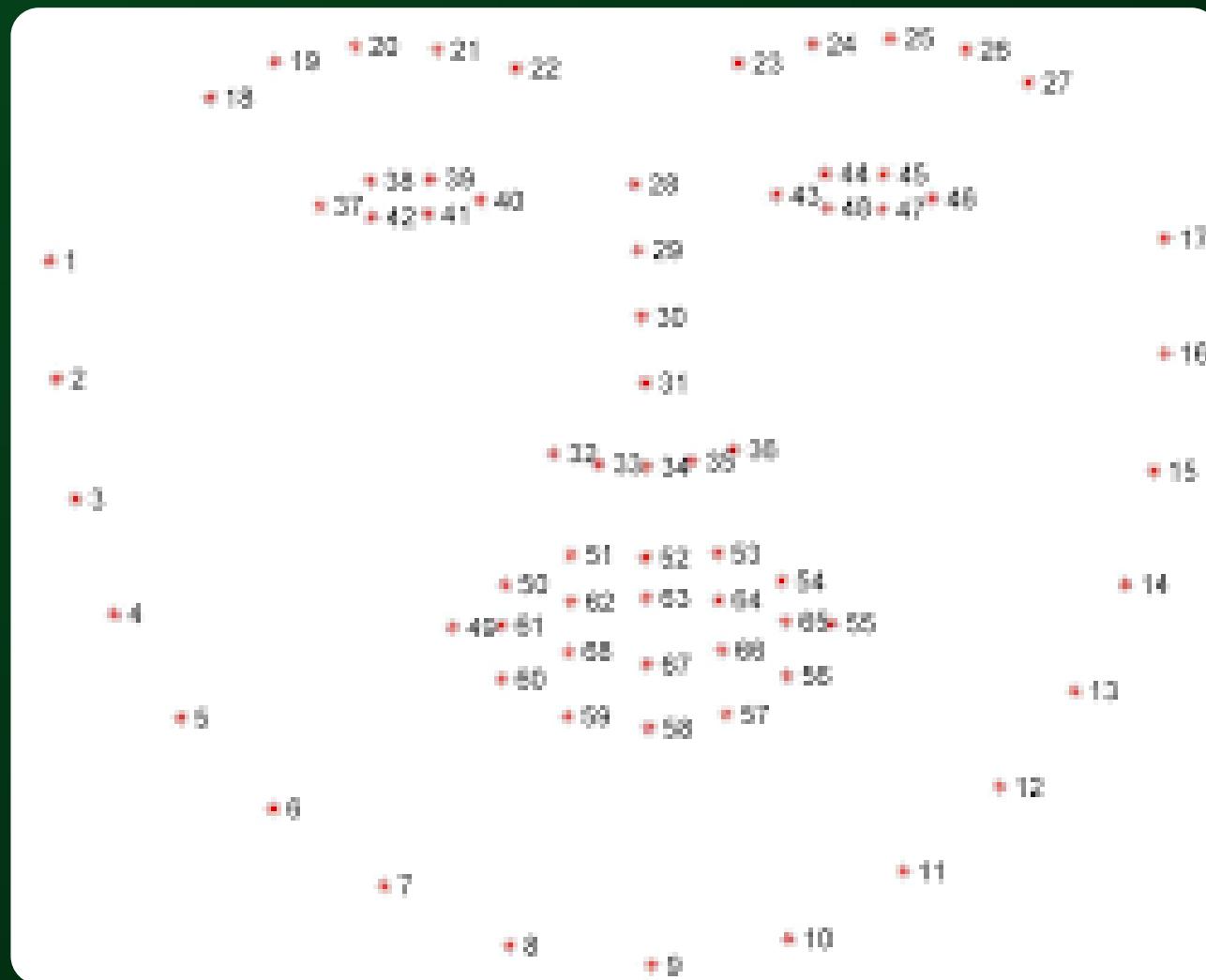
(c) Four-rectangle features





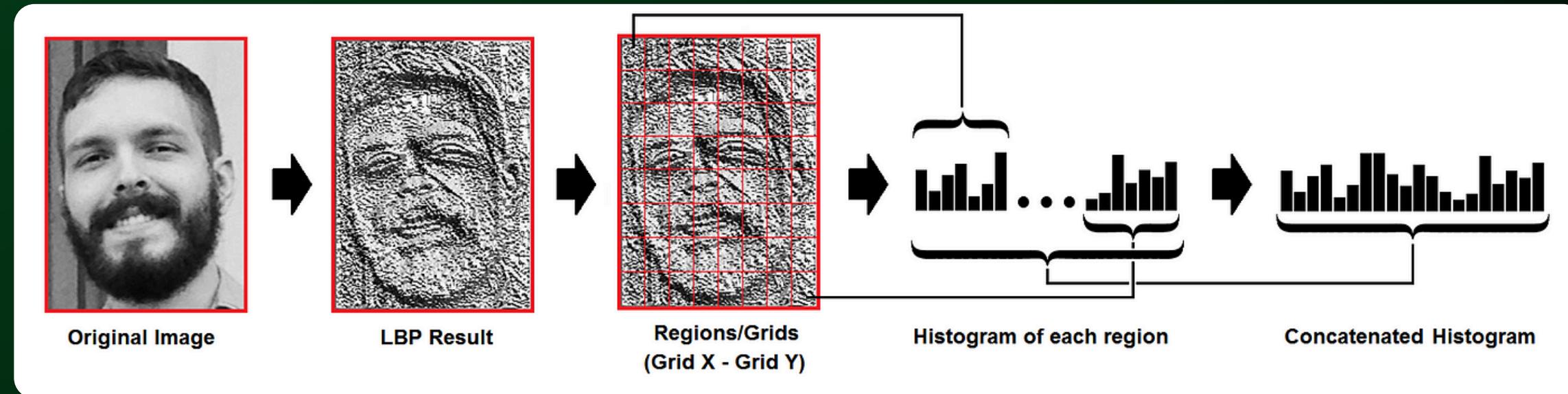
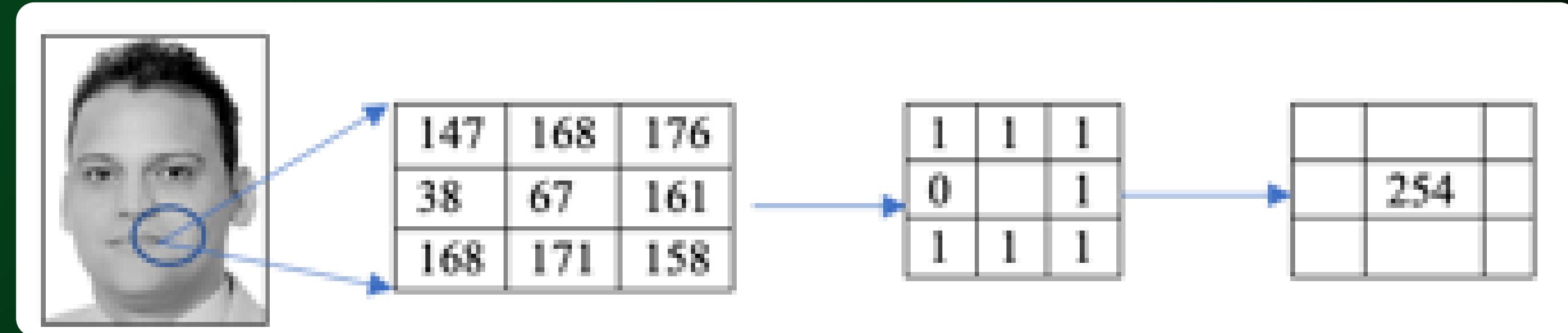
Détection

Dlib



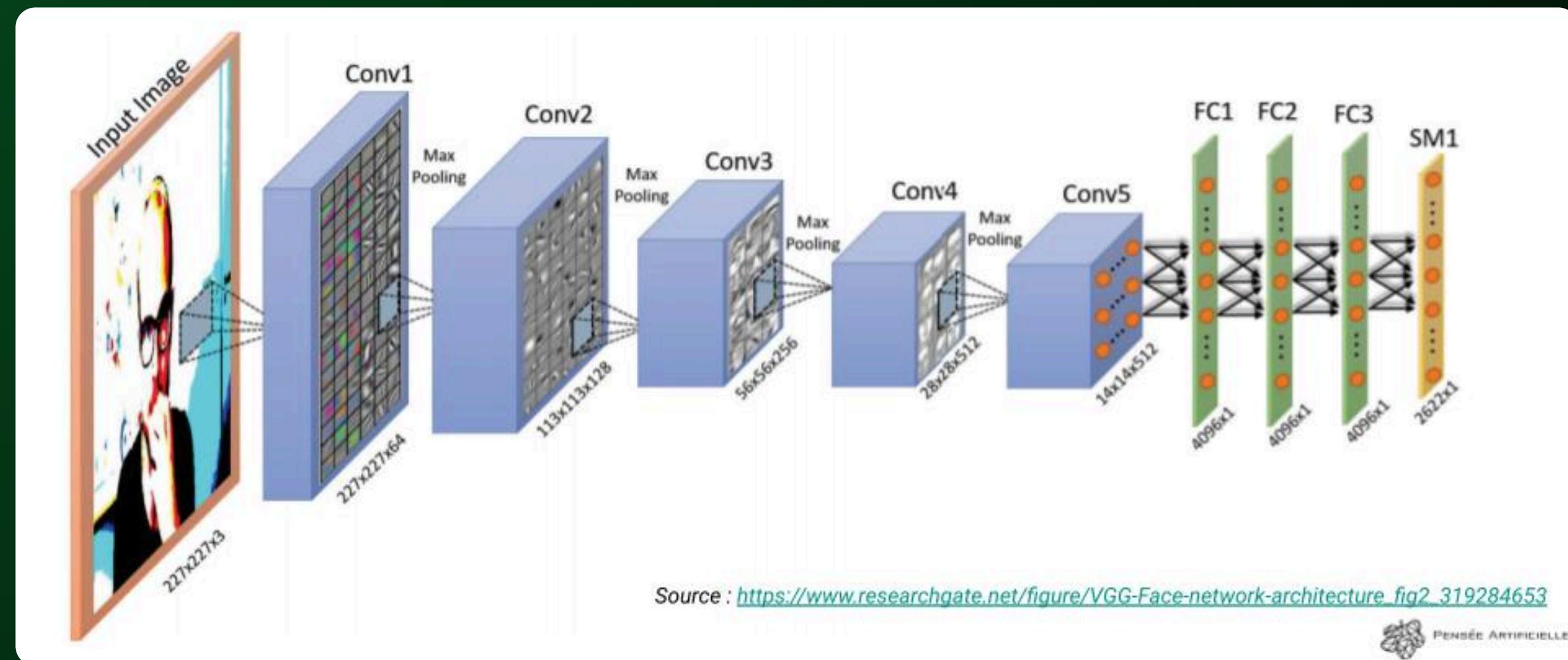


Reconnaissance LBPH



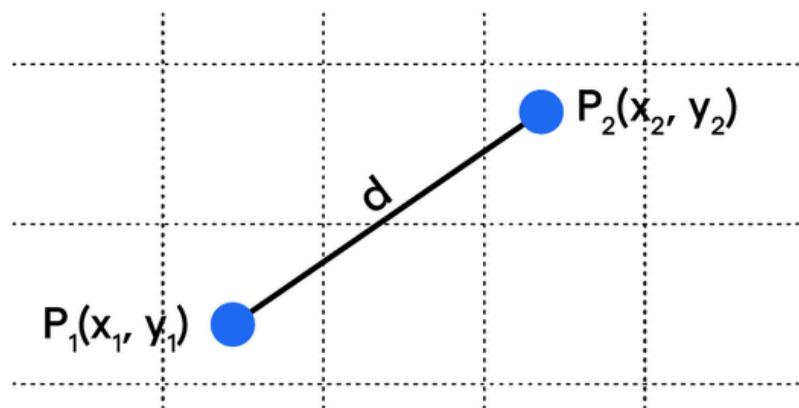


Reconnaissance VggFace

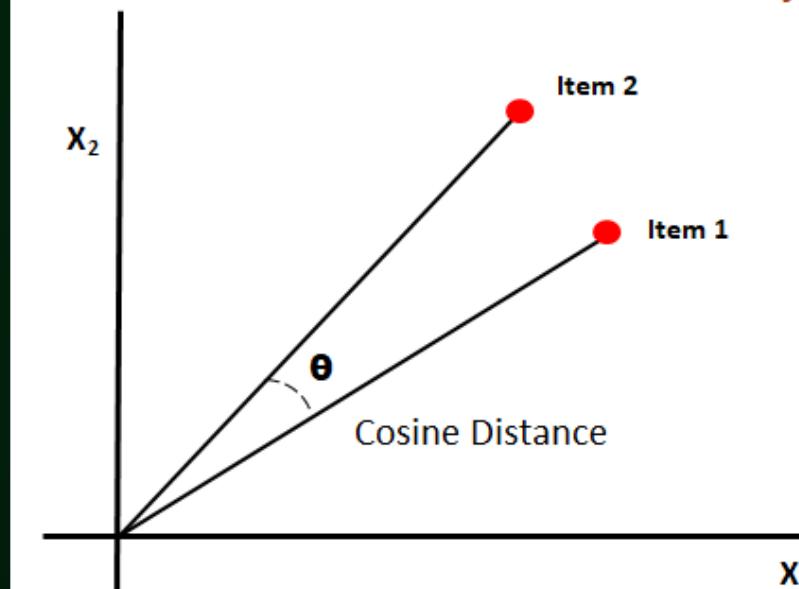


Reconnaissance Distance

Euclidean Distance



Cosine Distance/Similarity





Résultats

Haar cascade

- 80 visages dans la base de données
- 57 visages détectés (71.25%)
- Dont 19 artefacts (1/3 photos)





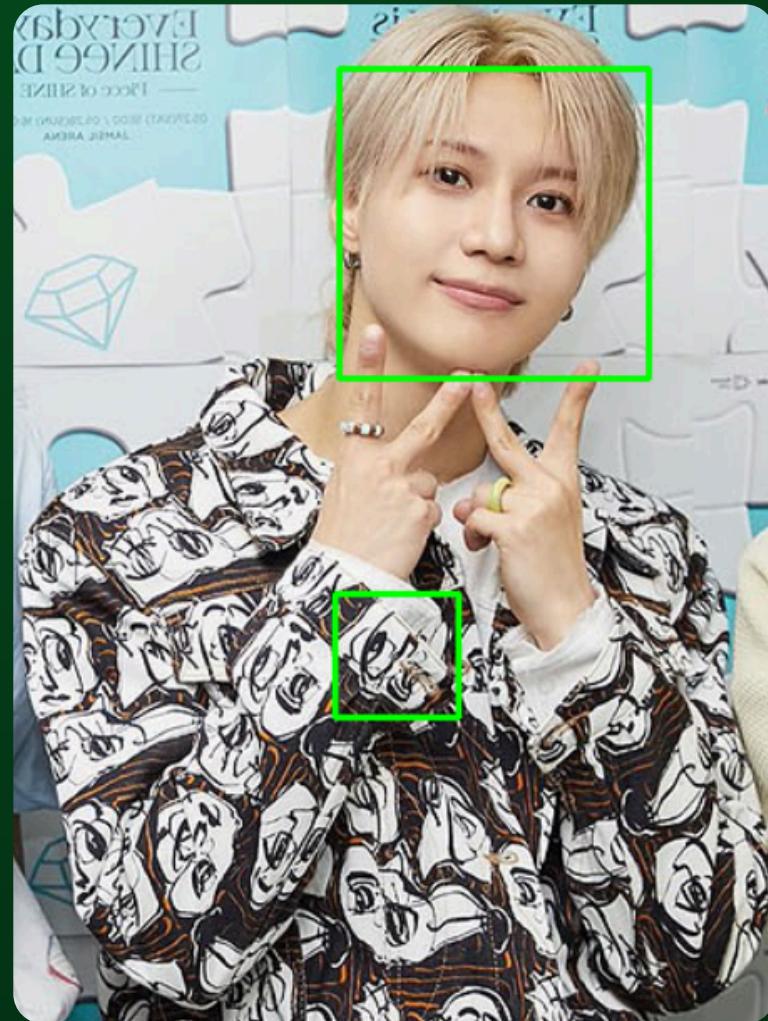
Résultats

Dlibcut

- 80 visages dans la base de données
- 68 visages détectés (85%)
- Aucun artéfact

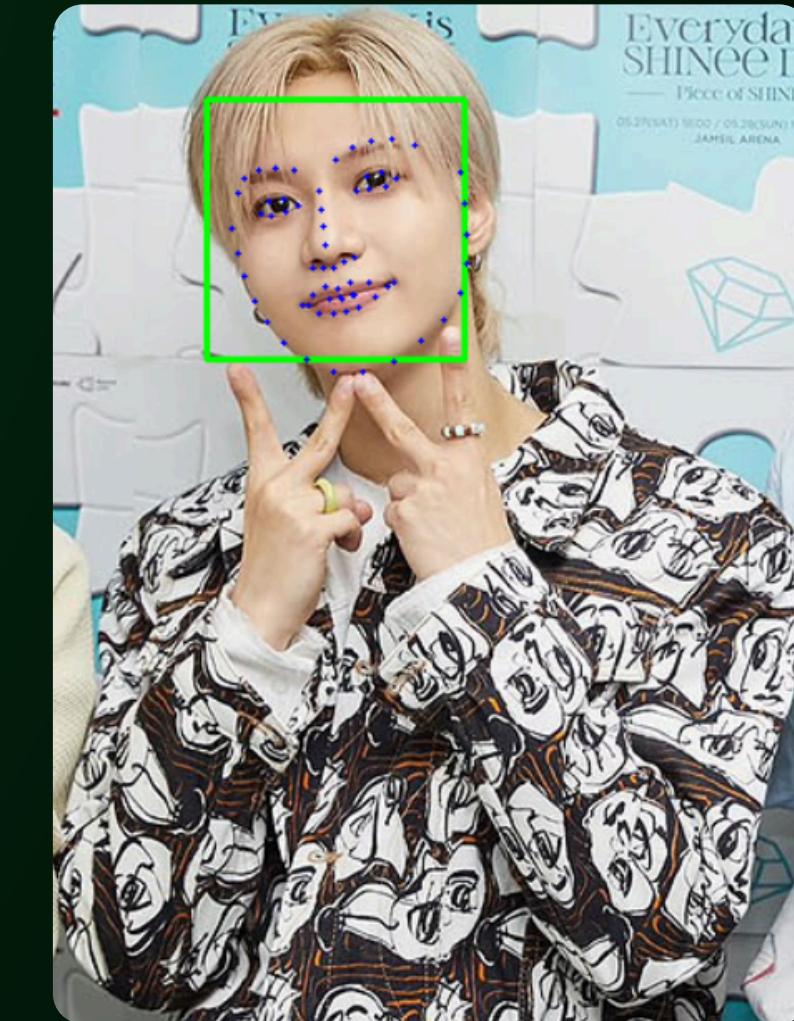


Comparaison Haarcascade - Dlib



Objet	Dlib (MAE)	Haar (MAE)
Pierre	40.8270	62.7189
Thi	58.6438	67.3004

	Dlib	Haar
Temps Moyen (secondes)	0.0469	0.0196



HaarCascade

Dlib



Résultats

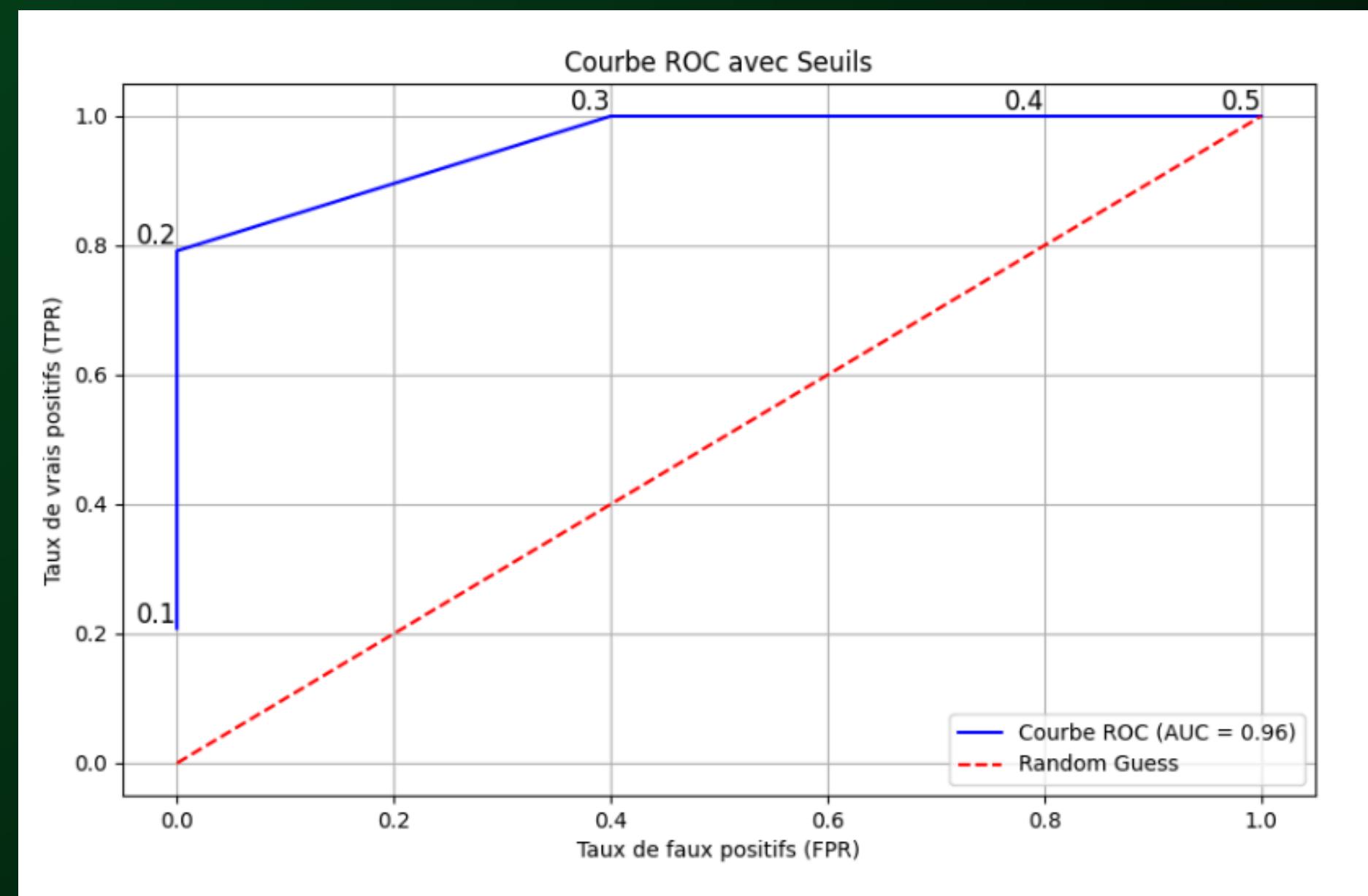
Reconnaissance

Avec ORL database



train data	train data per class	test data	LBPH right percent	VGGface right percent
360	9	40	95	95
320	8	80	96	90
280	7	120	94	90
240	6	160	94	92
200	5	200	92	88
160	4	240	91	82
120	3	280	85	80
80	2	320	81	78
40	1	360	68	61

Résultats seuil





DEMONSTRATION



Conclusion

- Détection et reconnaissance des visages
- DLib plus fiable
- VggFace plus robuste aux changements



Perspective

- Un portage mobile
- Utiliser des classifieurs
- Exploration d'autres méthodes



Merci de
m'avoir écouté