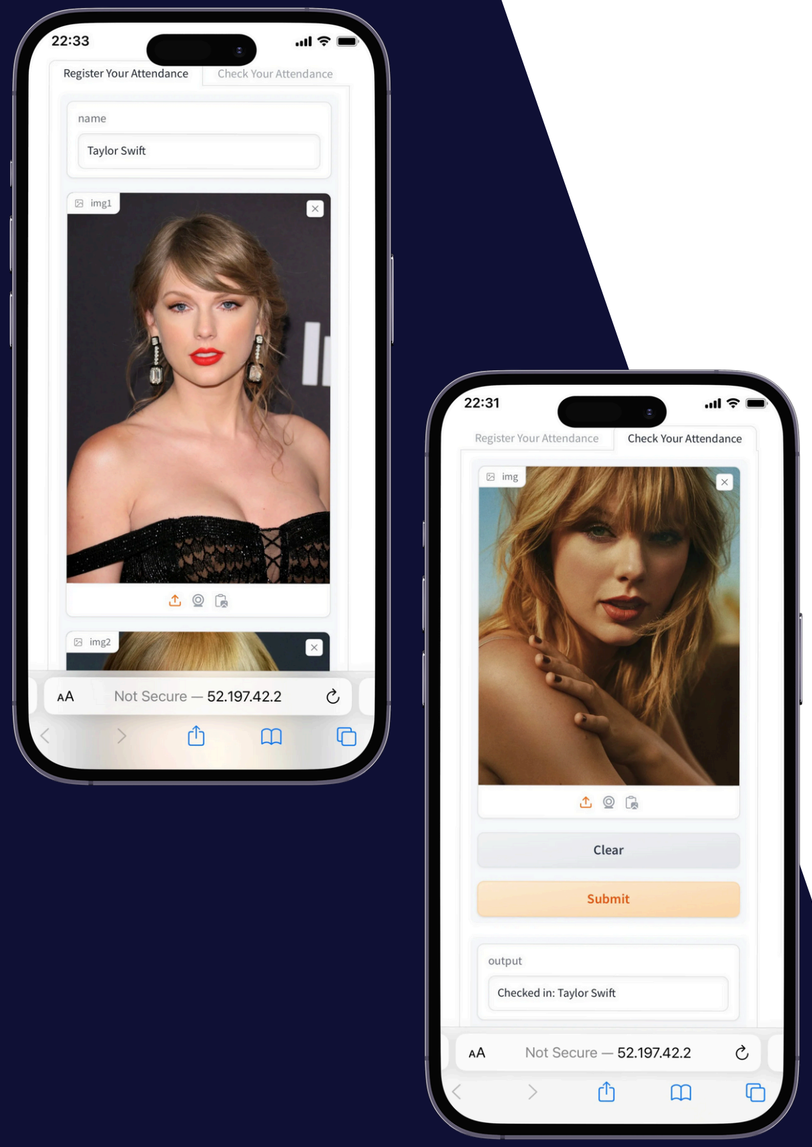


PRESENTED BY FACEAPP GROUP

MULTI-EDGE CAPABLE ATTENDANCE SYSTEM

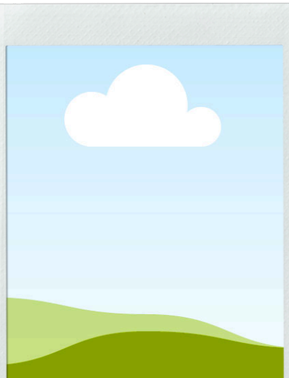
17 MAY, 2024

TEAM MEMBERS

Mr. Eric Le
Mentor

Khai Vinh Han
Team Leader

Bui Thanh Ngan Pham
Member



Phan Le
Member

Trung Hieu Nguyen
Member

Thanh Thao Bui
Member

PROBLEM STATEMENT

- Manual attendance: time-consuming + labor-intensive.
- Manual attendance processes can lead to inaccuracies.
- Meanwhile: attendance is crucial for maintaining academic standards.
- This can lead to loss of interaction, attention, and time.

OUR SOLUTION

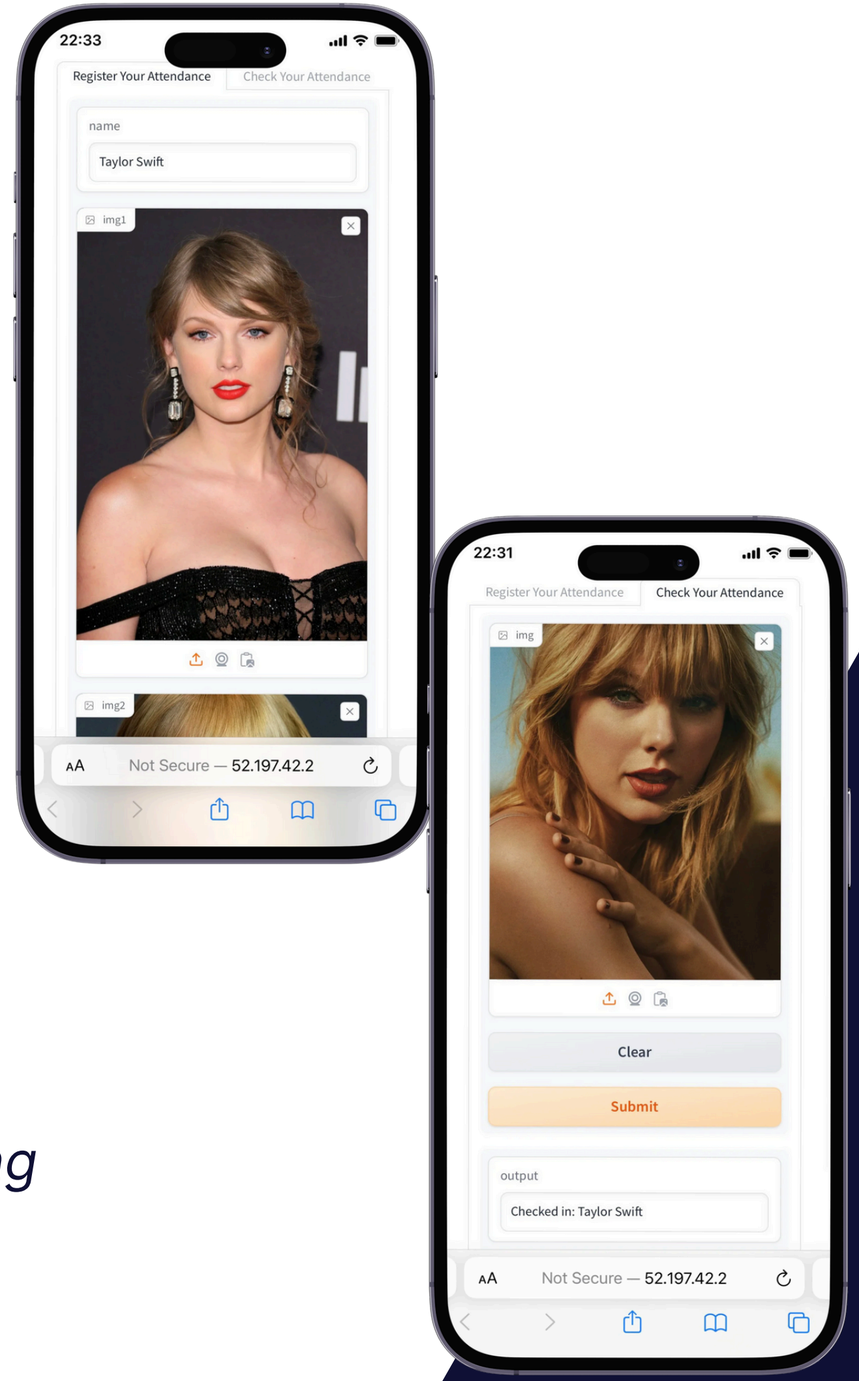
FaceApp: AI Attendance

AI-powered attendance system using face recognition.

Benefits:

- Time save.
- Security Improvement.
- High Efficiency.

Solution eliminates manual attendance's time-consuming nature, promoting ease of use and self-awareness.



METHODOLOGY

Why choose GhostFaceNet?

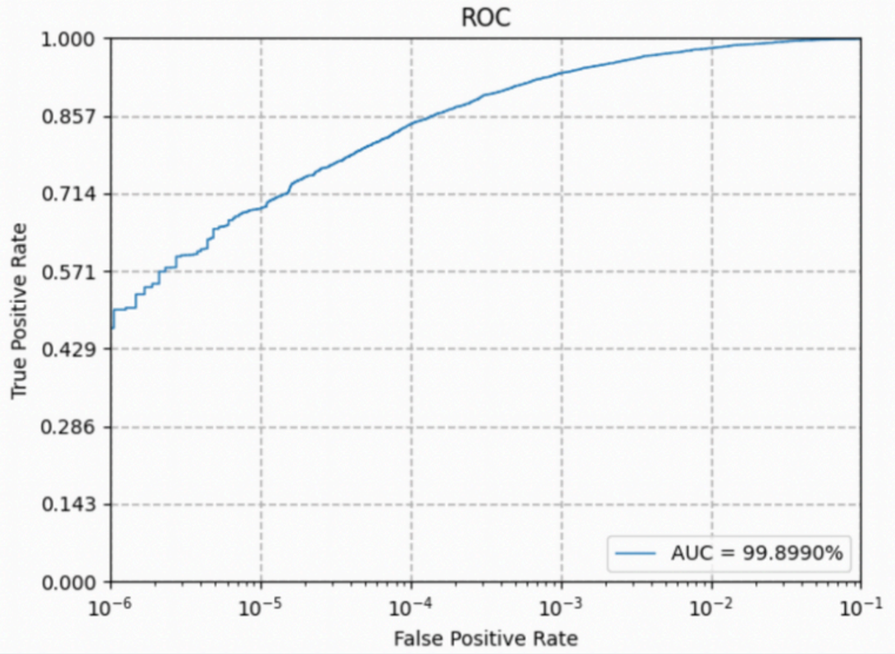
- Lightweight
- High Efficiency
- Speed and Accuracy

ANALYSIS

The True Postitive rate of the model is larger than ***98%***.

```
plot_tpr_far(score, label, new_figure=True, label_prefix="")
```

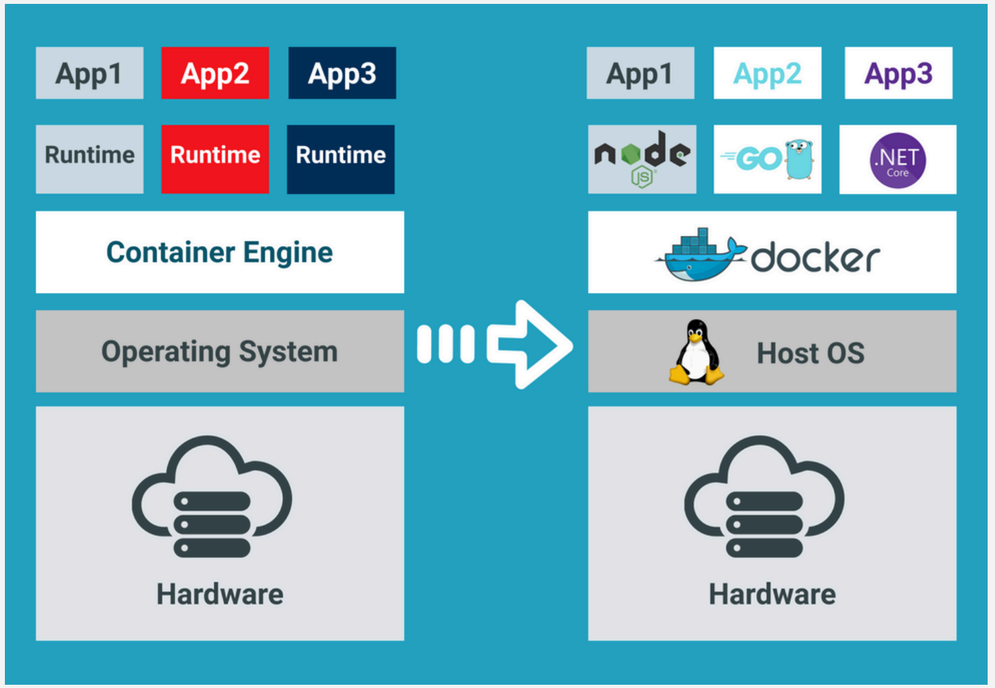
	1e-06	1e-05	0.0001	0.001	0.01	0.1
TPR	0.500212	0.686017	0.841314	0.935593	0.98178	0.998517



METHODOLOGY

Why Docker?

- Highly extensible
- Ease of Use
- Solves “Works on my PC”

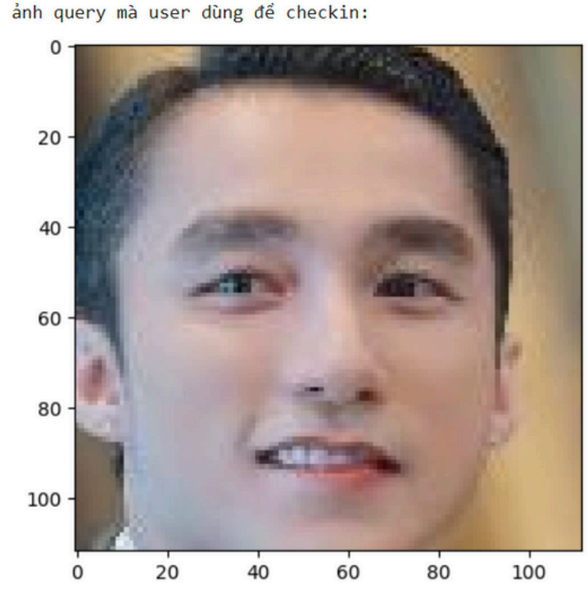


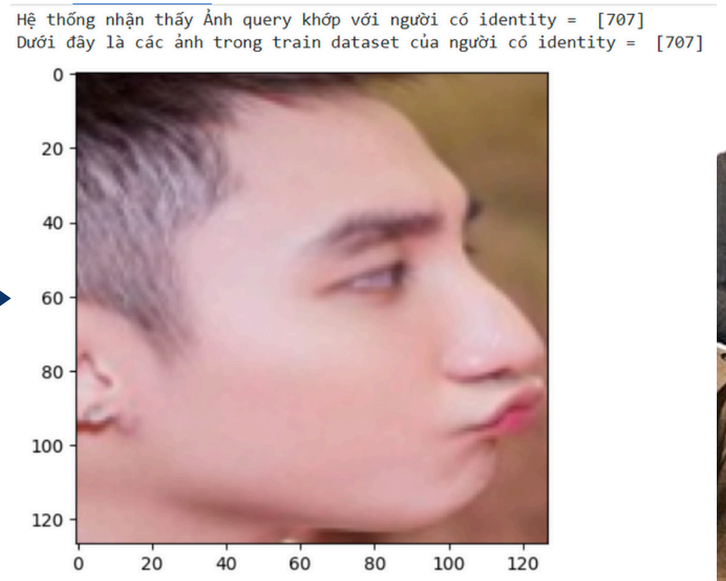
EVALUATION DATASET

- The VN-Celeb dataset:

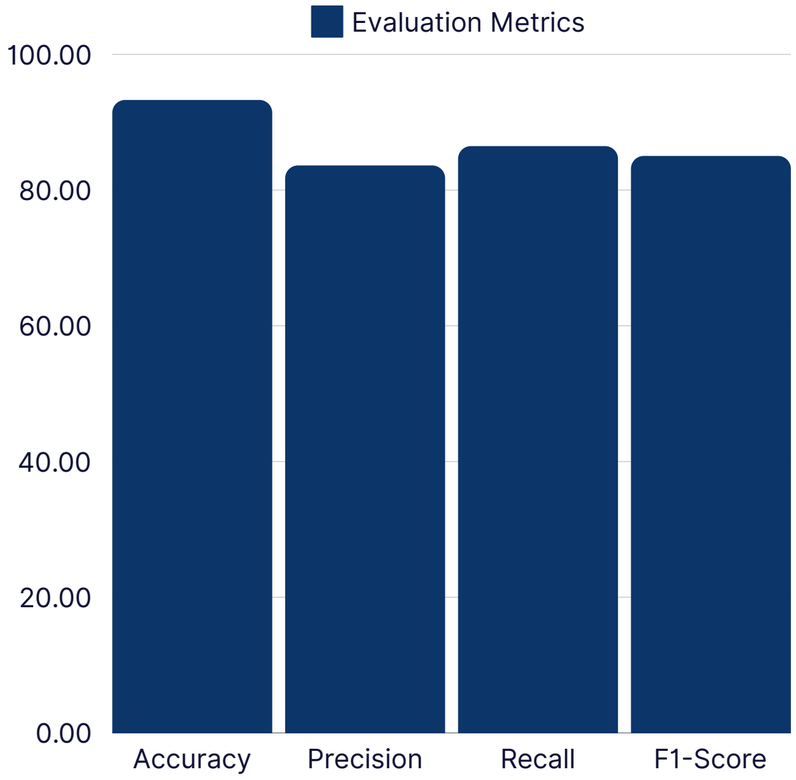
  > Number of images: 4720
  > Image type: facial images

- Extraction method: GhostFaceNets model => 512-dimensional embedding vector
- Use Faiss (Facebook AI Similarity Search) for face recognition





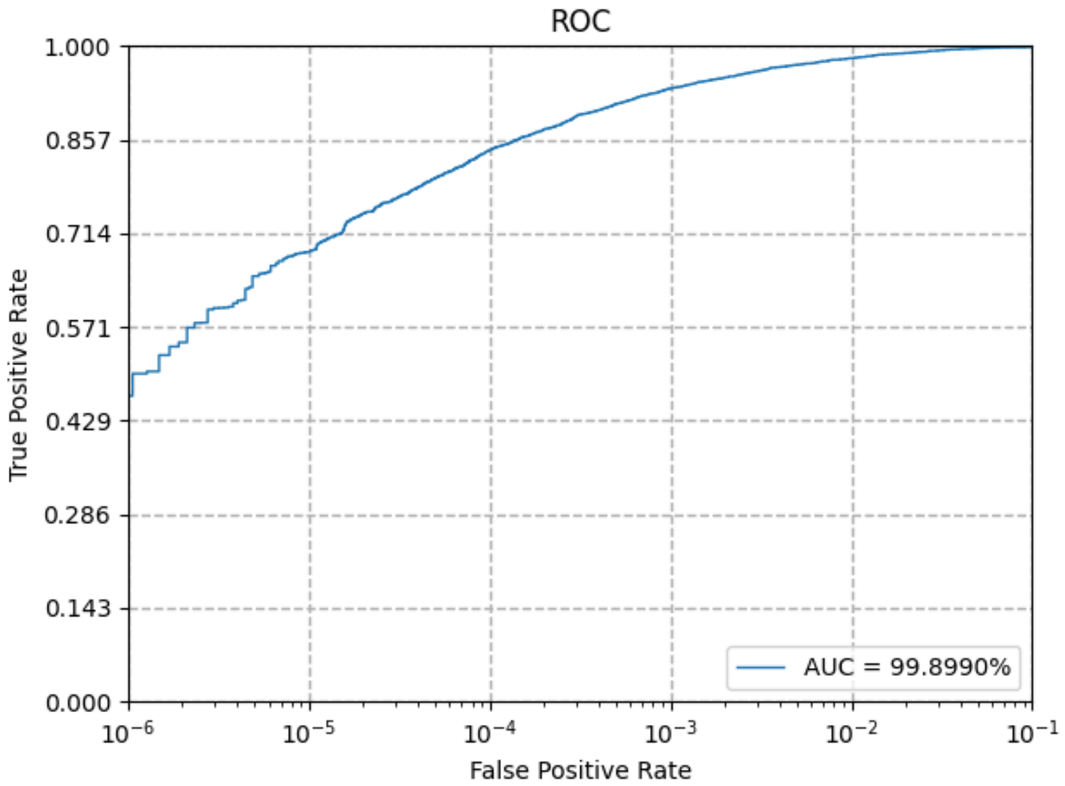
RESULTS & ANALYSIS



- Accuracy: **93.28%** - How often the app is right overall
- Precision: **83.63%** - How often the app recognizes someone correctly
- Recall: **86.48%** - How often the app finds everyone it should
- F1-Score: **85.03%** - How good the app is for both finding the correct faces and avoiding mistakes

```
>>>> [base info] embs: (4720, 512) imm_classes: (4720,) register_ids: (1000,)
Evaluating: 100%|██████████| 1000/1000 [00:03<00:00, 255.82it/s]
saving vector đại diện tại:  /content/drive/MyDrive/jupyterNotebook/root_embs/processed_1000embedding.npz
Shape of similarity matrix between images and classes: (4720, 1000)
register_ids shape:  (1000,)
self.imm_classes shape:  (4720,)
Shape of positive prediction conditions array: (4720, 1000)
Shape of positive prediction distances array: (4720,)
(4715280,)
Accuracy:  0.9328389830508474
Precision: 0.8363040360581848
Recall: 0.8648305084745763
F1 Score: 0.8503280908238725
```

RESULTS & ANALYSIS



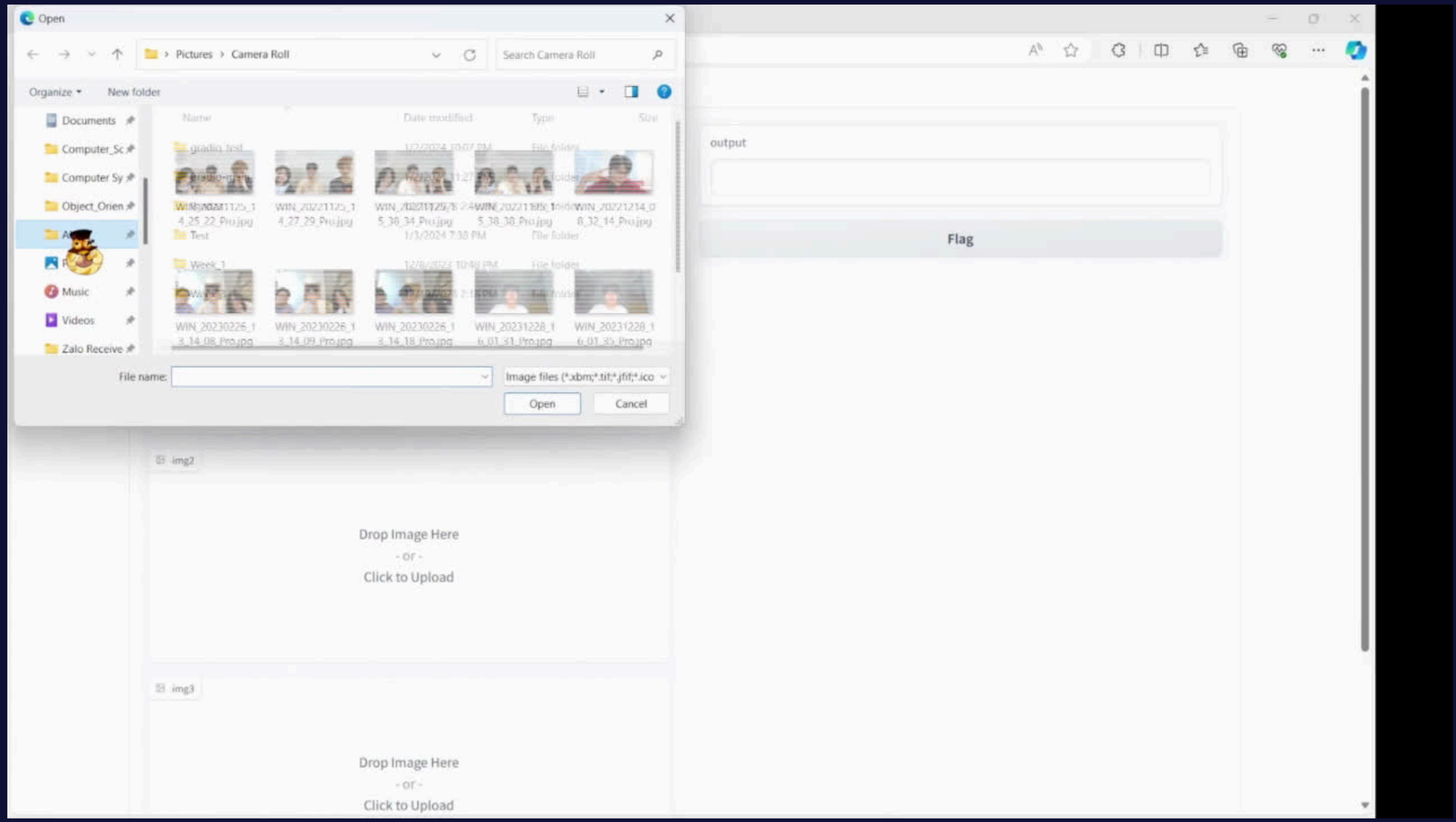
Receiver Operating Characteristic (ROC) Curve:

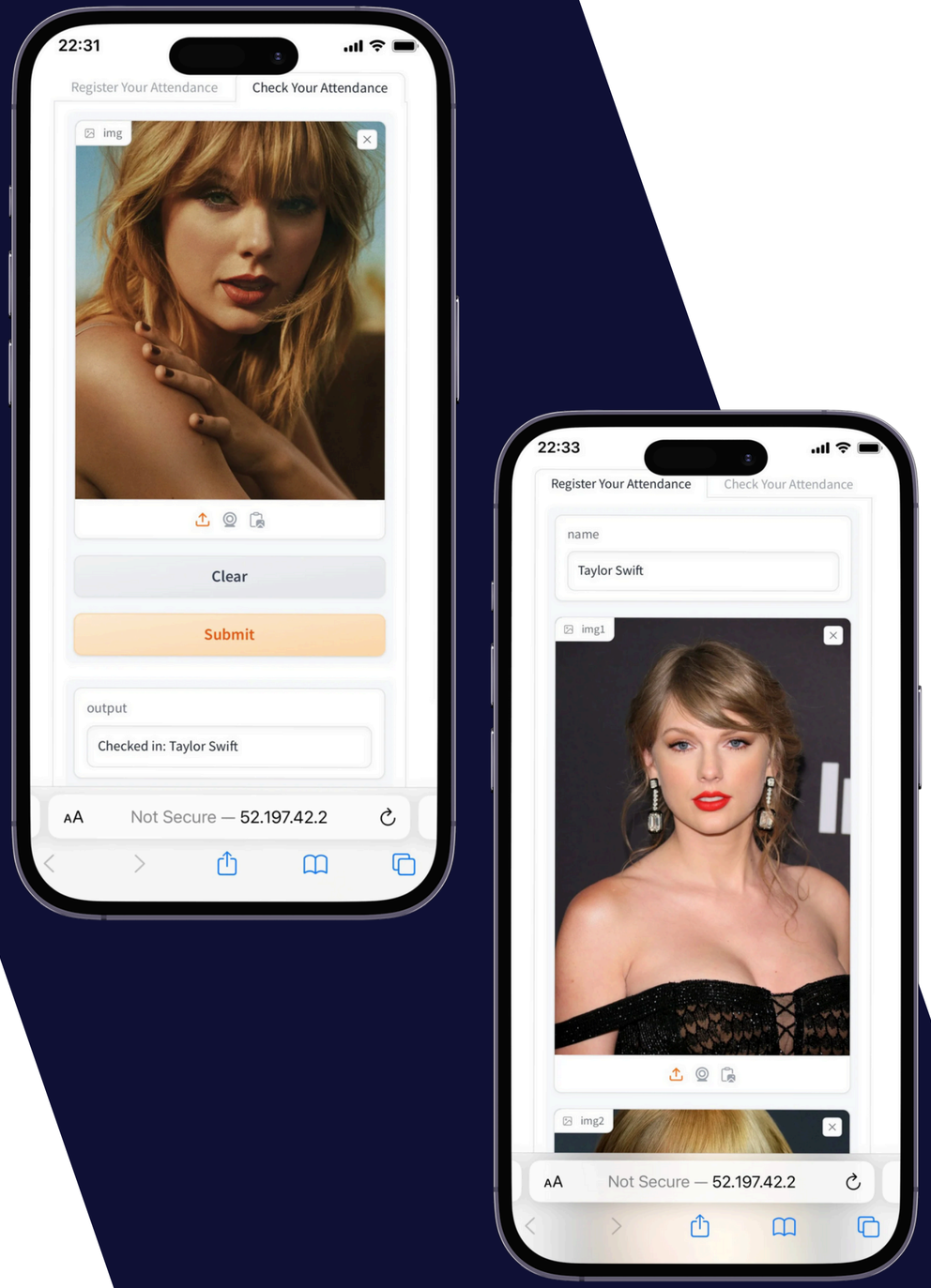
- Trade-off between True Positive Rate (TPR) and False Positive Rate (FPR)
- Closer to top-left corner = better performance

Area Under the Curve (AUC):

- Quantifies overall model effectiveness
- Higher AUC = better at distinguishing positive and negative cases

DEMO VIDEO


Open
Pictures › Camera Roll
Search Camera Roll
Organize
New folder
Documents
Computer_Sc
Computer Sy
Object_Orien
Music
Videos
Zalo Receive
File name:
Image files (*.xbm;*.tif;*.jfif;*.ico
Open
Cancel
output
Flag
img2
Drop Image Here
- or -
Click to Upload
img3
Drop Image Here
- or -
Click to Upload



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THANK YOU

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