

# **Face and ID Matching Service for Remote Identity Verification**

**Final-Team project**  
**Team: VICLab**

KNU Artificial Intelligence Class 002 (Professor Jaehyup Lee)

# Introduction

Background

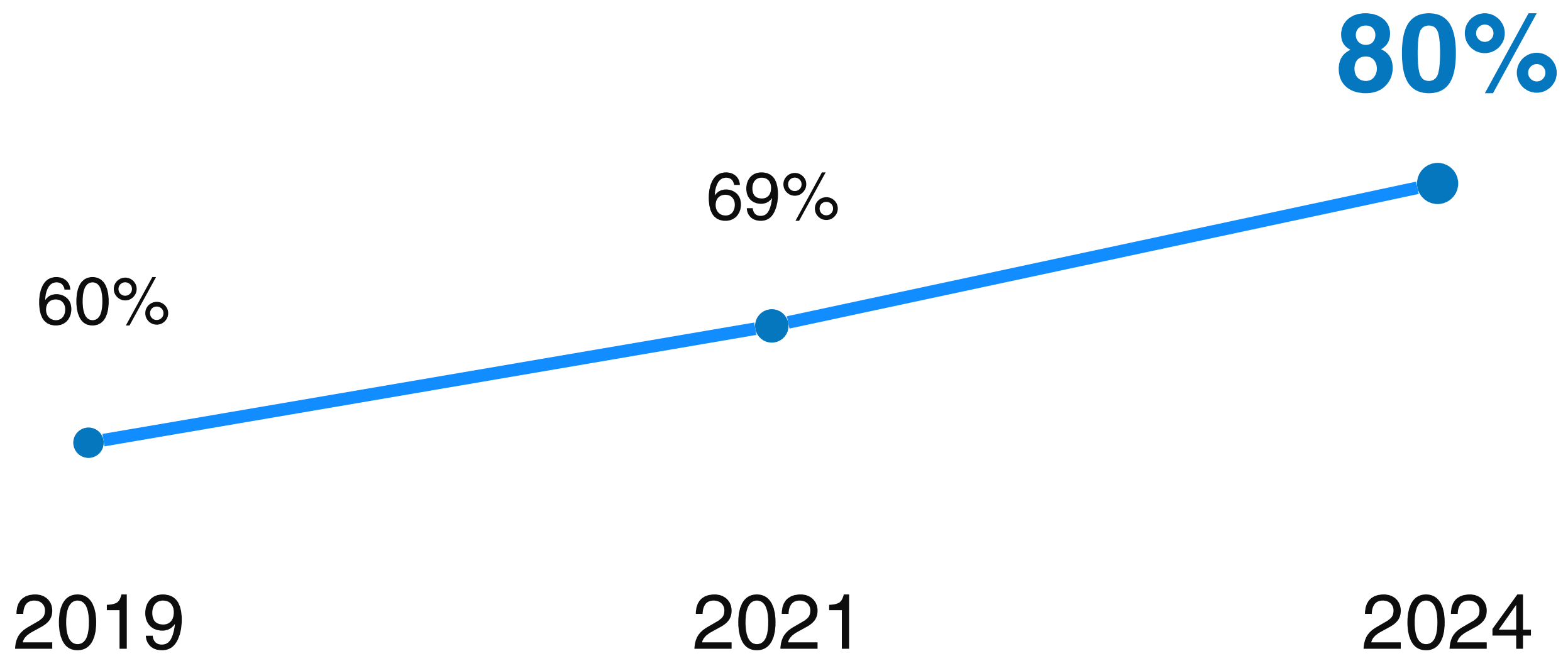
About **80%**

Fully Remote Financial Transactions

**78%**  
Deposit

**79%**  
credit loan

**69%**  
secured loan



Trend in Non-Face-to-Face Sales Proportion

Source: KB-Bank, Shinhan, Hana, Woorie, NH

# Problem setting

Problem scenarios related to the background

economy

**“President Yoon Seok-yeol’s account  
can also be hacked with just one copy  
of his ID”**

Posted 2022.09.24 14:20

economy

**Loan fraud using ID copy... lax non-face-to-face real name  
verification**

🕒 Last modified 2023-01-05 12:49:06

society

**Court: “Non-face-to-face financial identity verification require  
s video call and direct ID verification photo”**

Entered 2024.08.08 (08:11) | Last modified 2024.08.08 (08:15)



summation

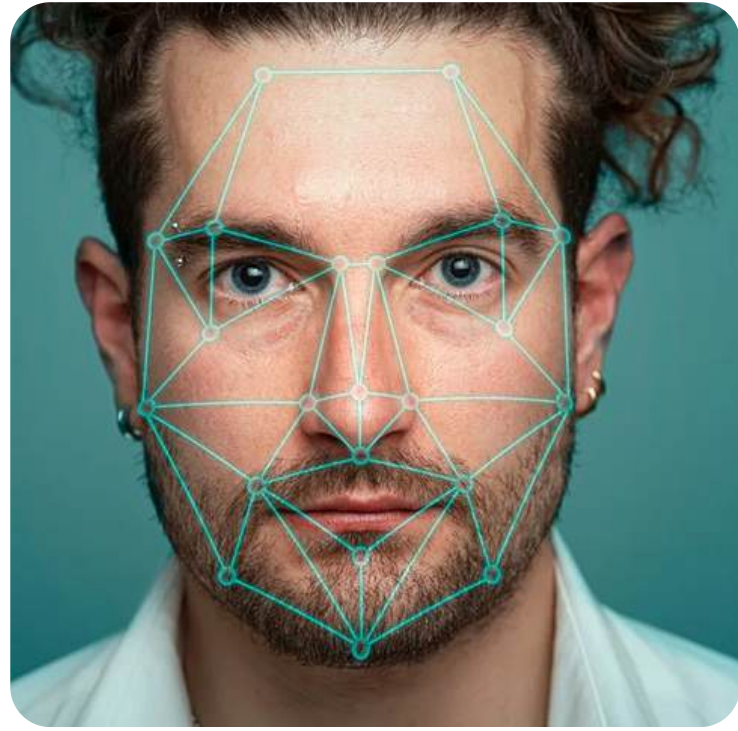
Reference: 경향신문. 2022, KBS. 2024. 연합뉴스. 2022.

**\$ 4.2 million**  
= 5.7 billion Korean won

# Liveness

Determining whether the person in front of the camera is a real human





**DeepFake image**



**High-res image**

# Challenge

What we are trying to address is...

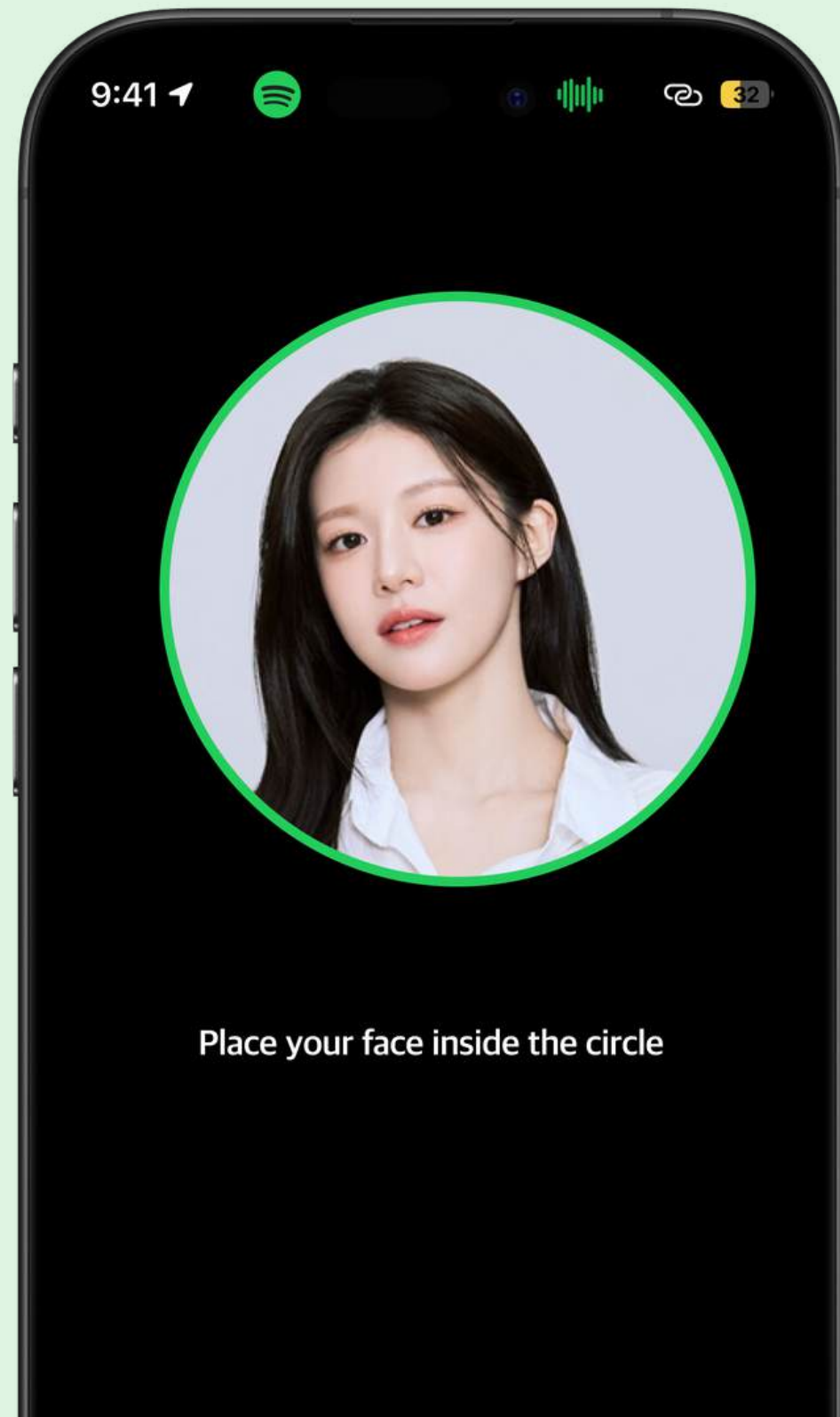
Let's make AI

**The end of remote transaction fraud**

**Solution**

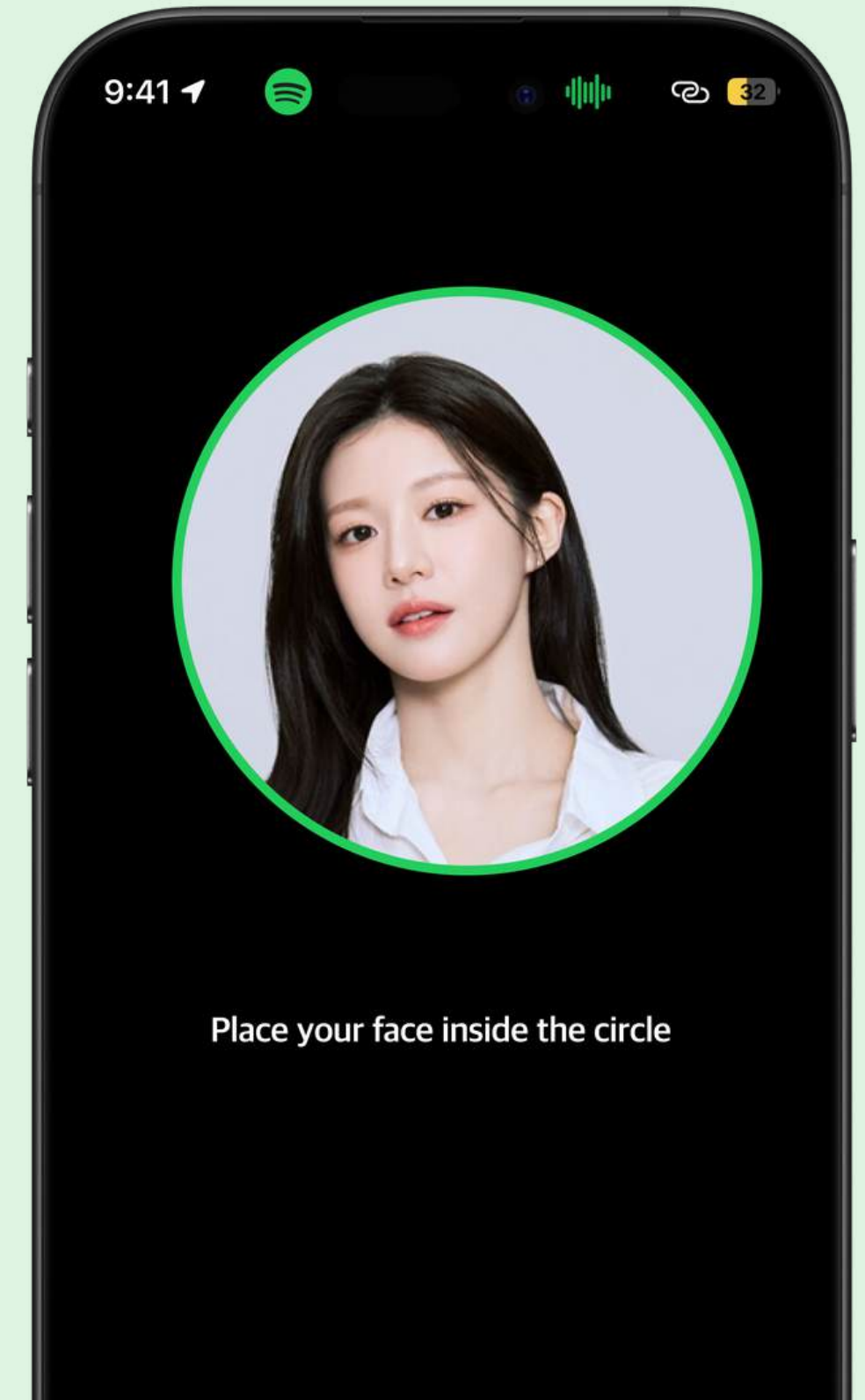
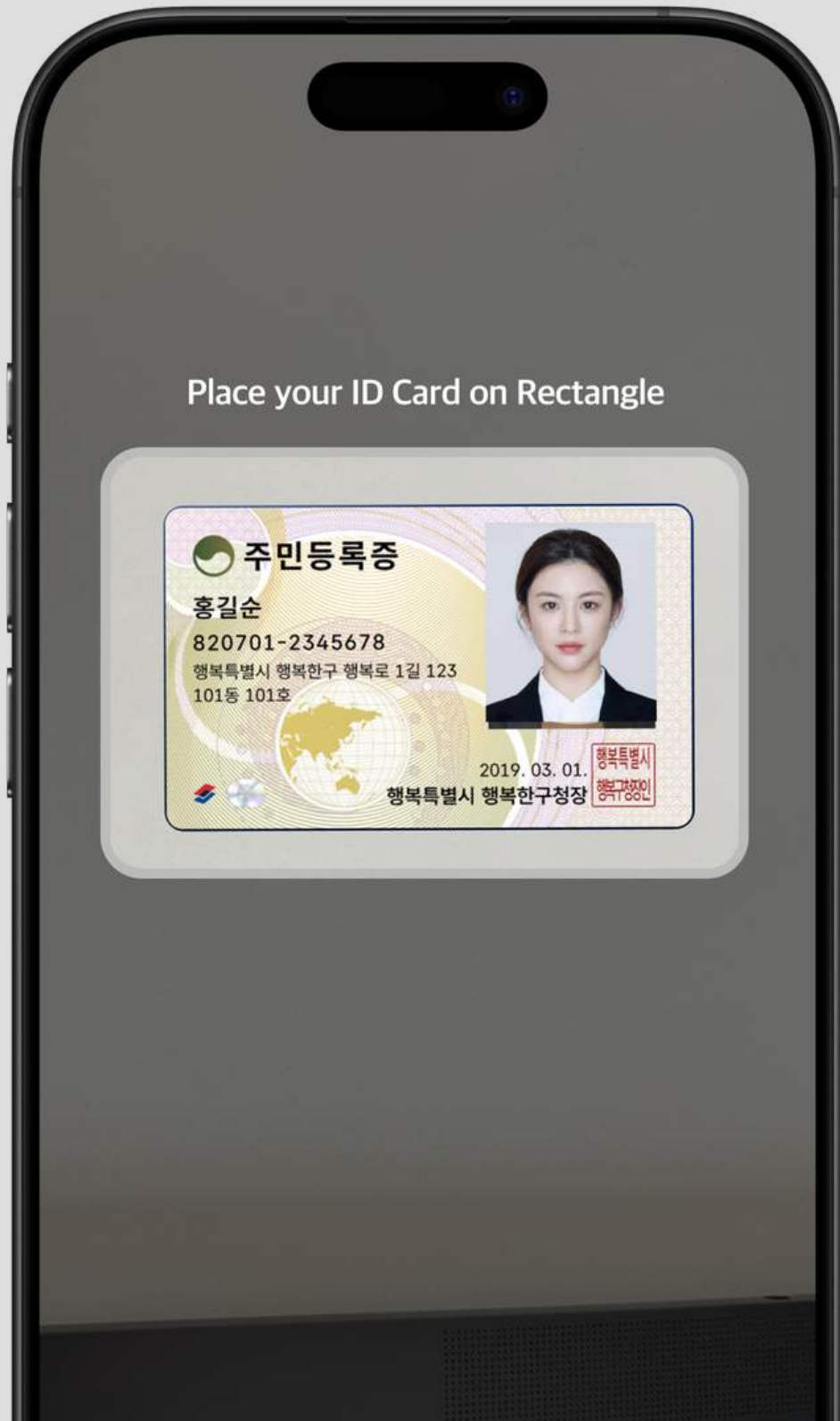


# Detect the face on the ID card



# Preventing spoofing with AI-powered liveness checks

# Checking similarity



Method

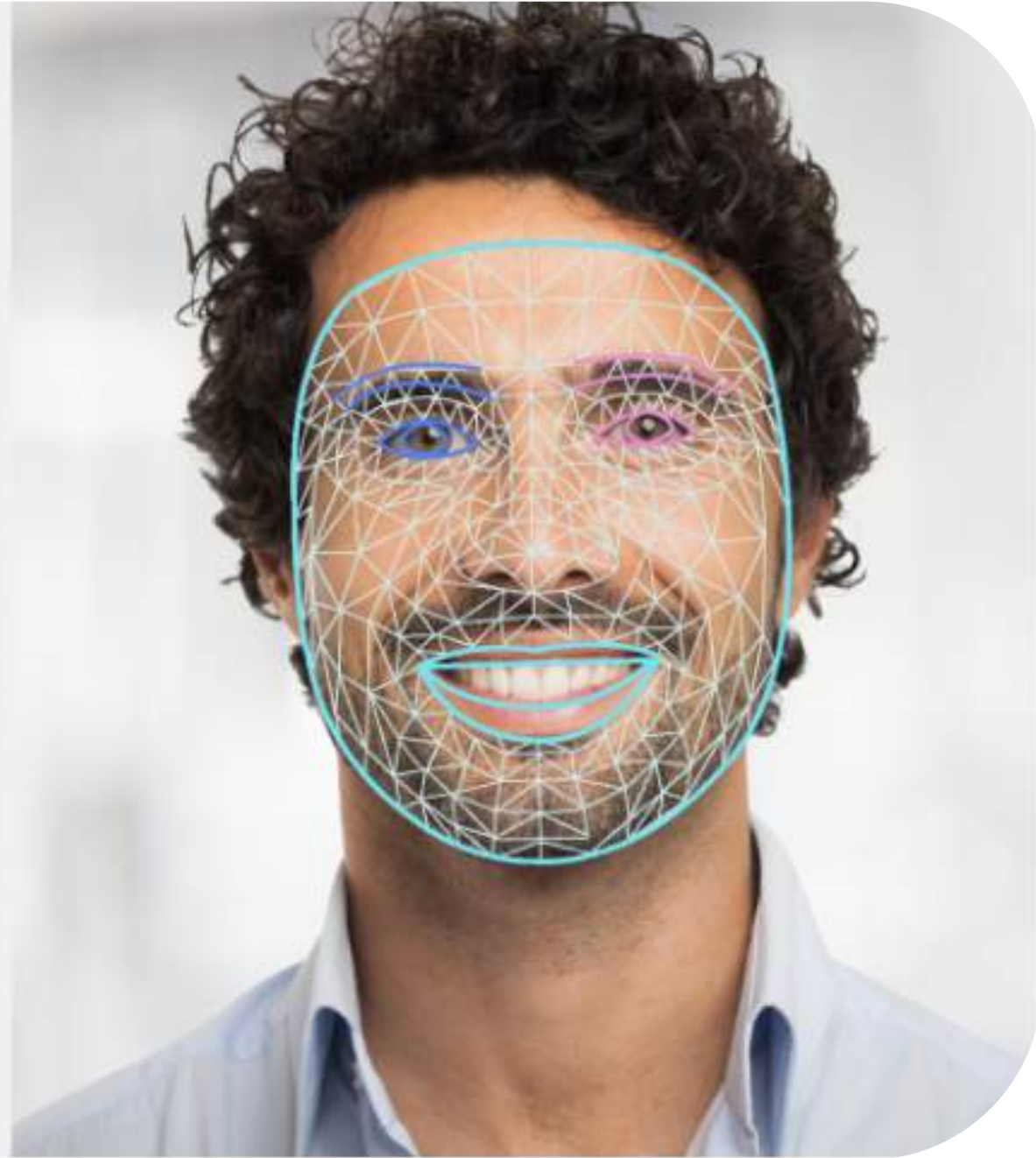


# FaceDetection





**Mediapipe**



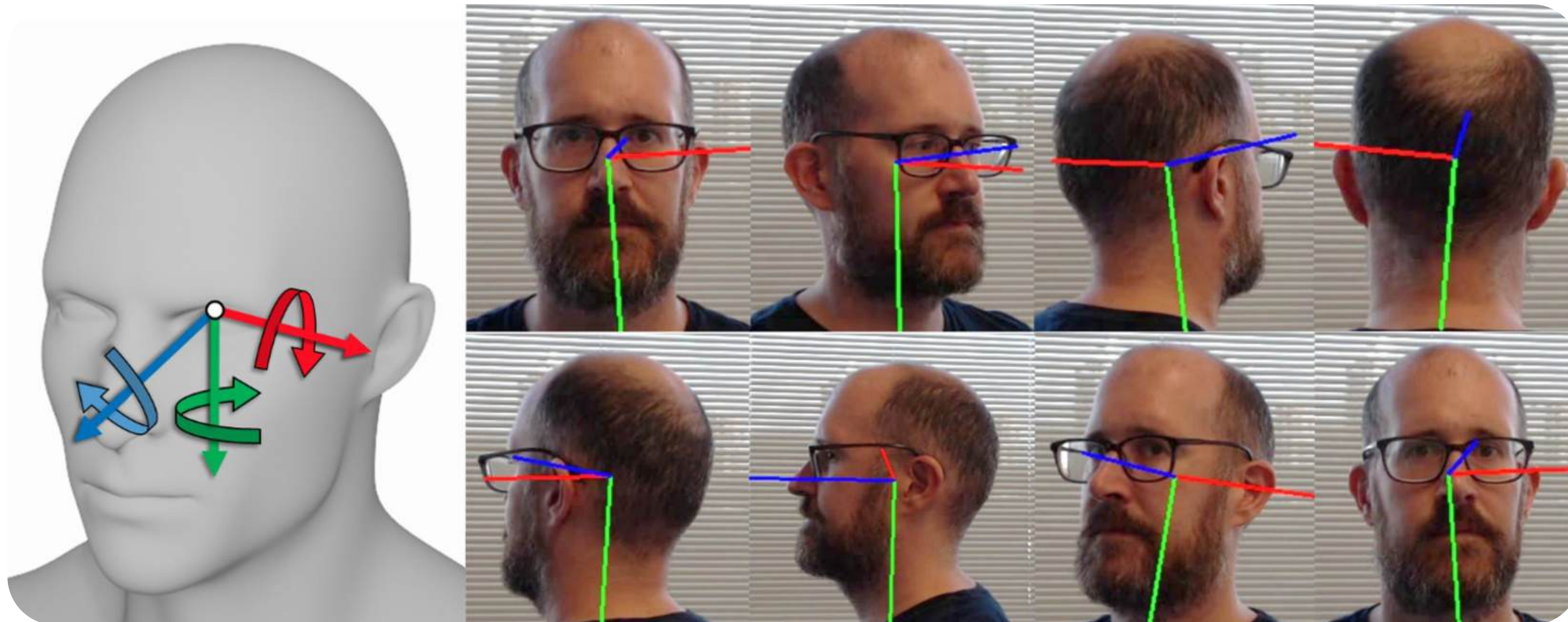
**Similarity**

similarity

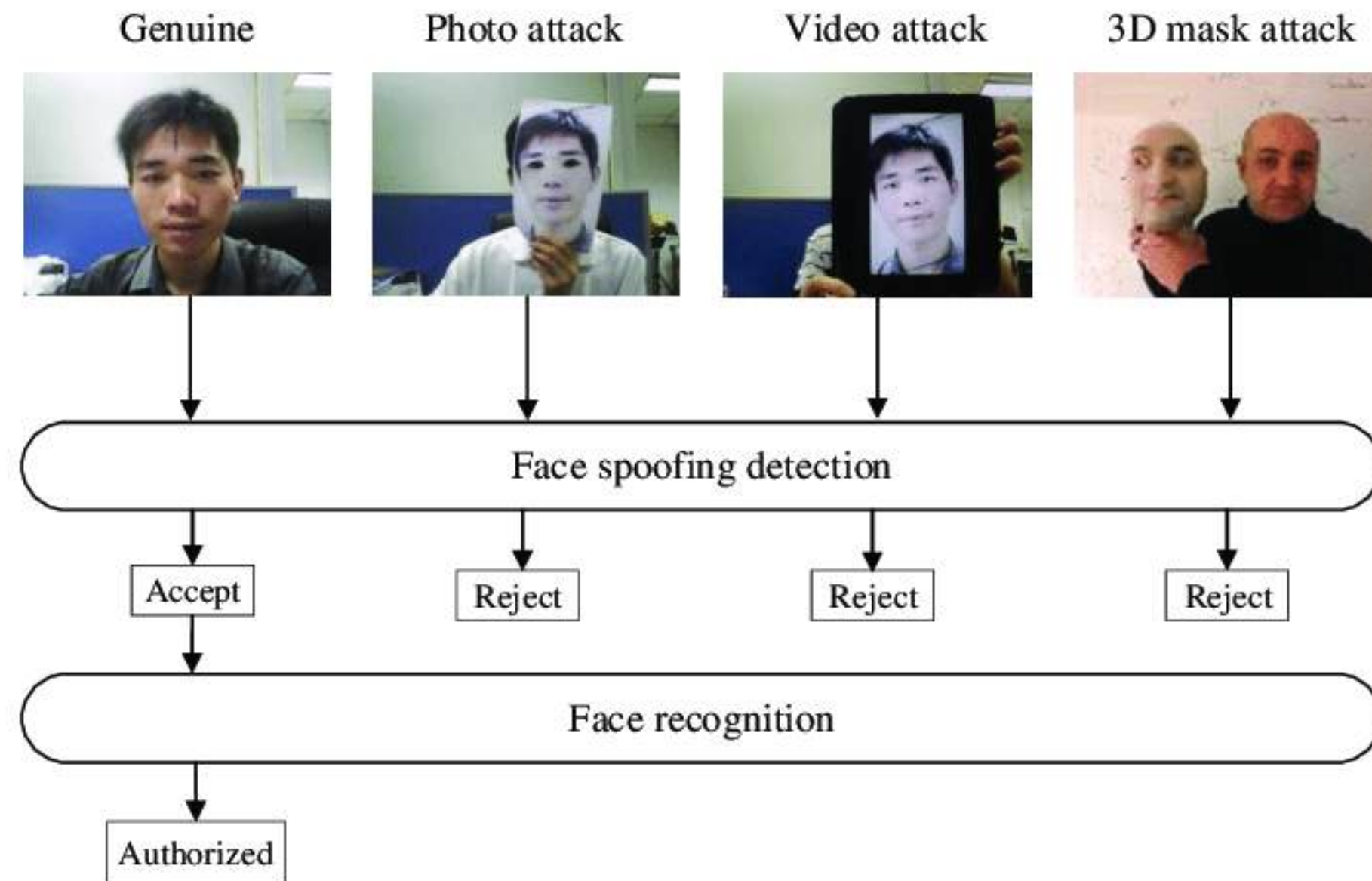


Liveness





# Real-time Head Pose Estimation

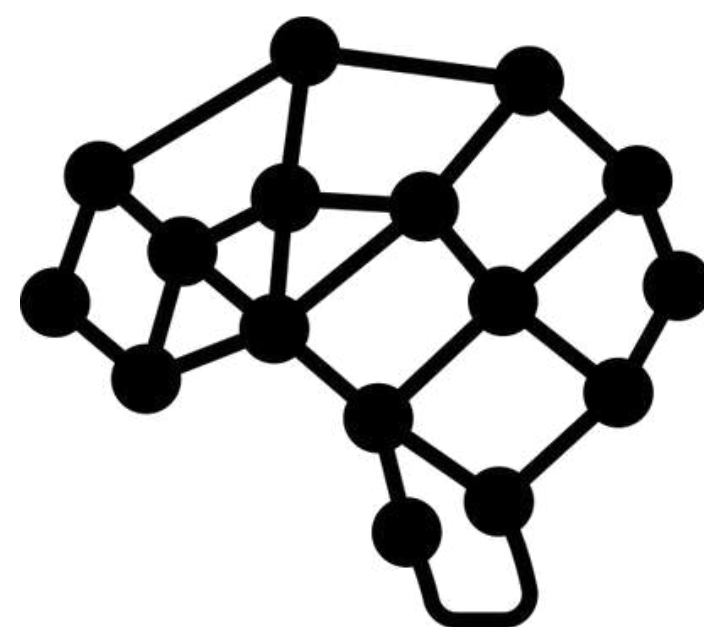


# Type of Face Spoofing

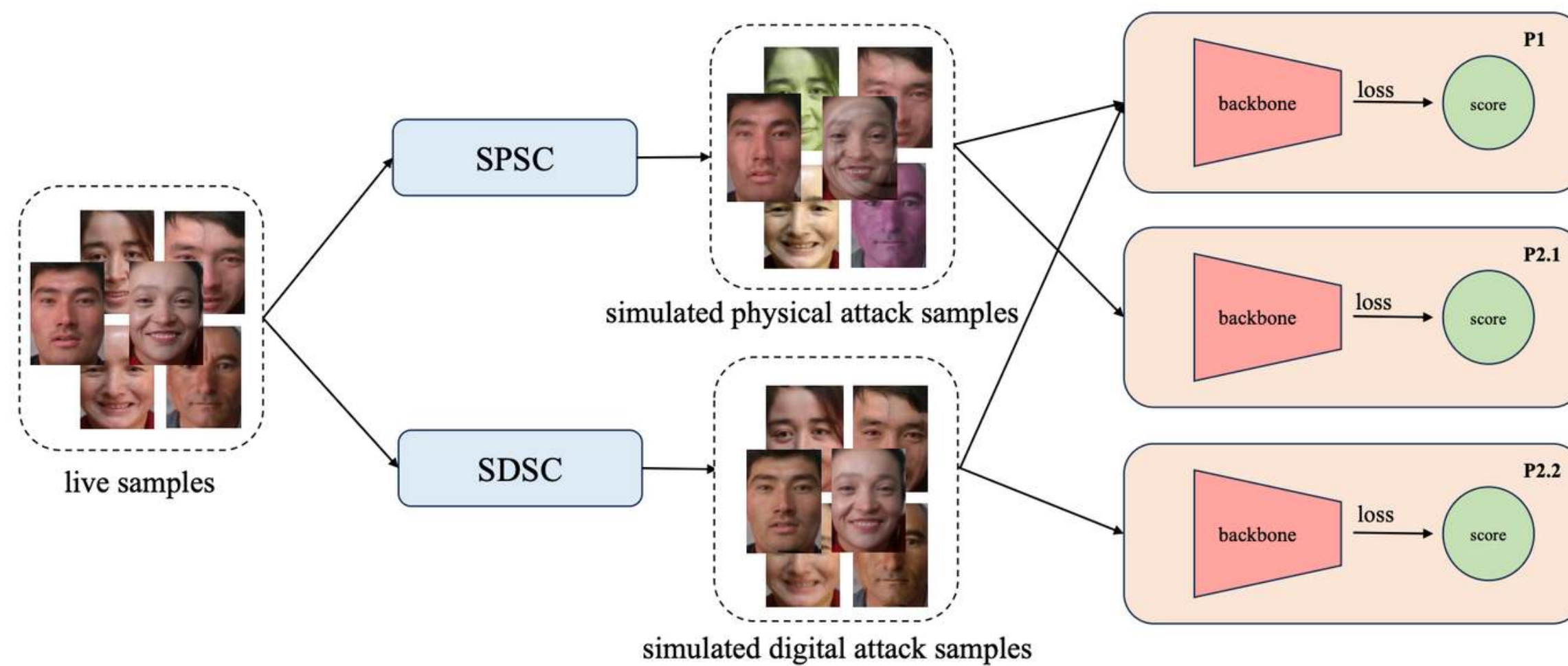




**5th Chalearn Face Anti-spoofing Workshop and  
Challenge@CVPR2024**

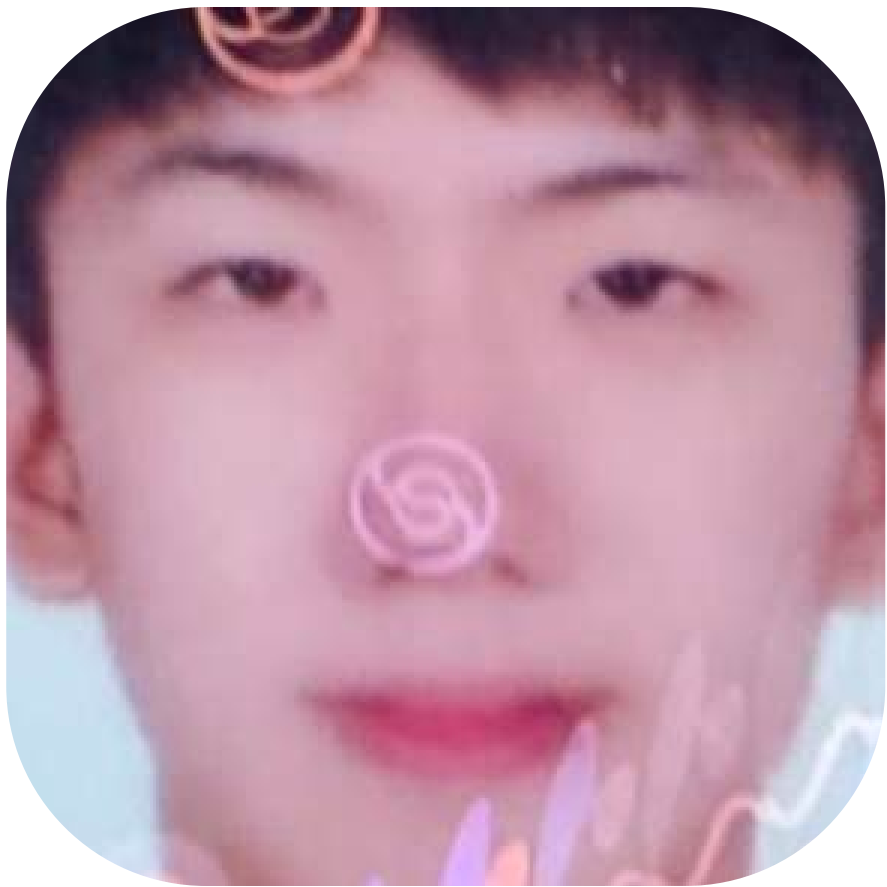


**ResNet-50**

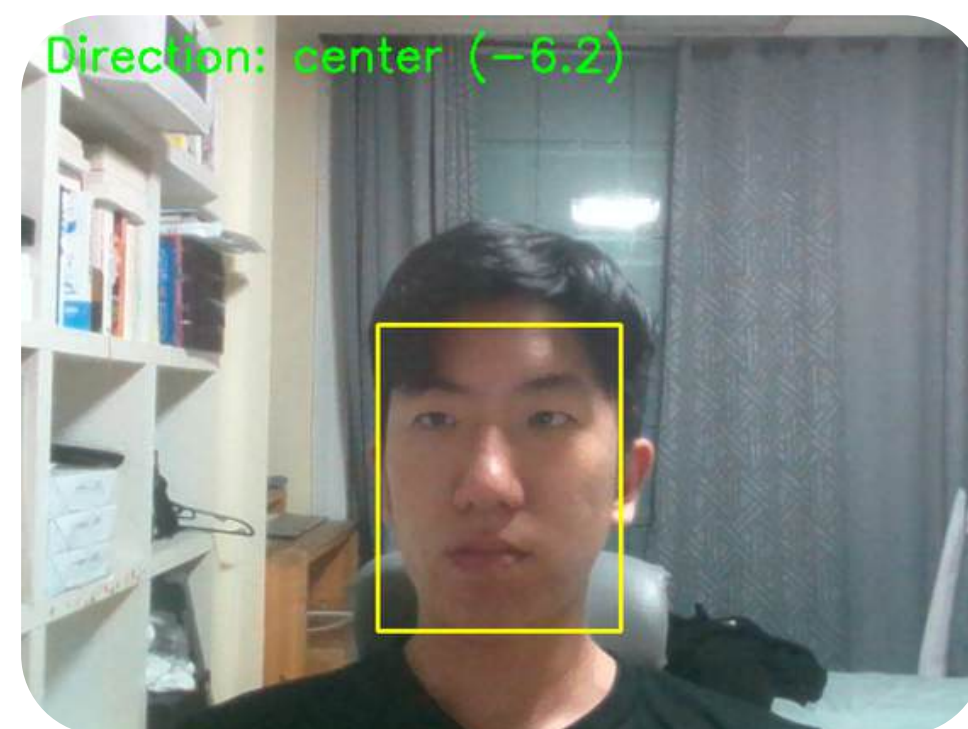
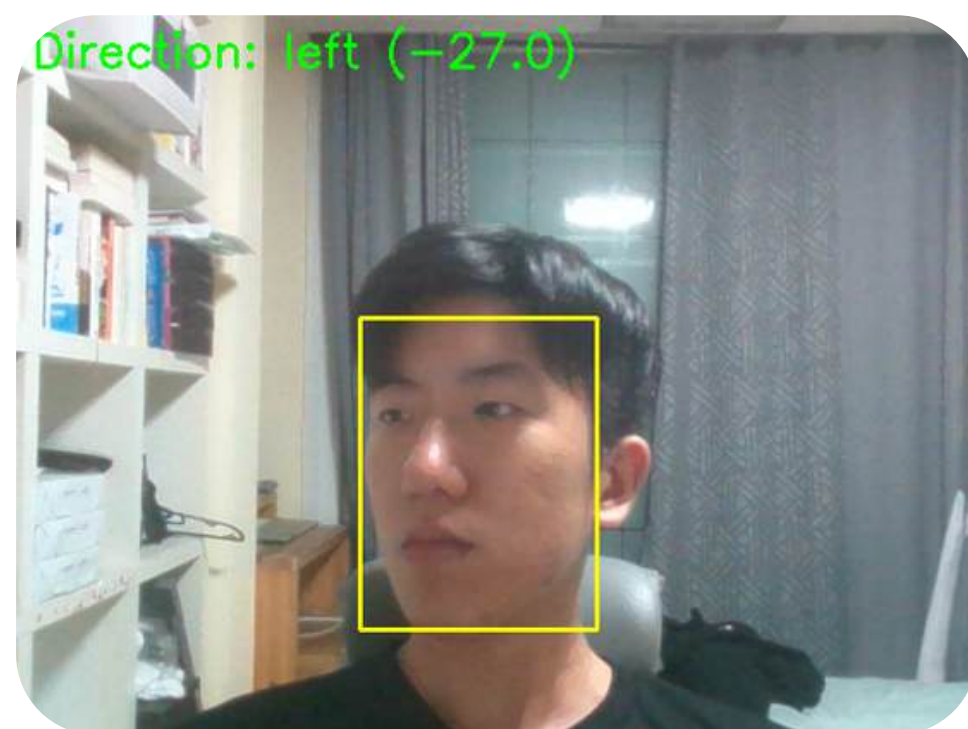


# Data Augmentation

# Results







99%+

Similarity Accuracy

Cosine Similarity: 0.5194  
SamePerson: ☒ Yes

Image 1



Image 2



Cosine Similarity: 0.5757  
SamePerson: ☒ Yes

Image 1



Image 2

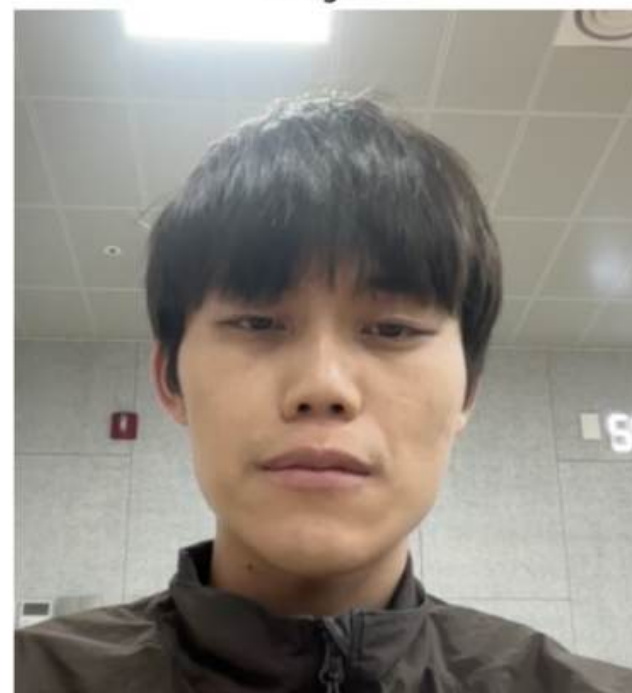


Cosine Similarity: 0.8413  
SamePerson: ☒ Yes

Image 1



Image 2



Cosine Similarity: 0.6054  
SamePerson: ☒ Yes

Image 1



Image 2





Cosine Similarity: 0.3582  
동일 인물로 판단: ❌ No

Image 1



Image 2



Cosine Similarity: 0.3804  
SamePerson: ❌ No

Image 1



Image 2



Cosine Similarity: 0.2285  
SamePerson: ❌ No

Image 1



Image 2



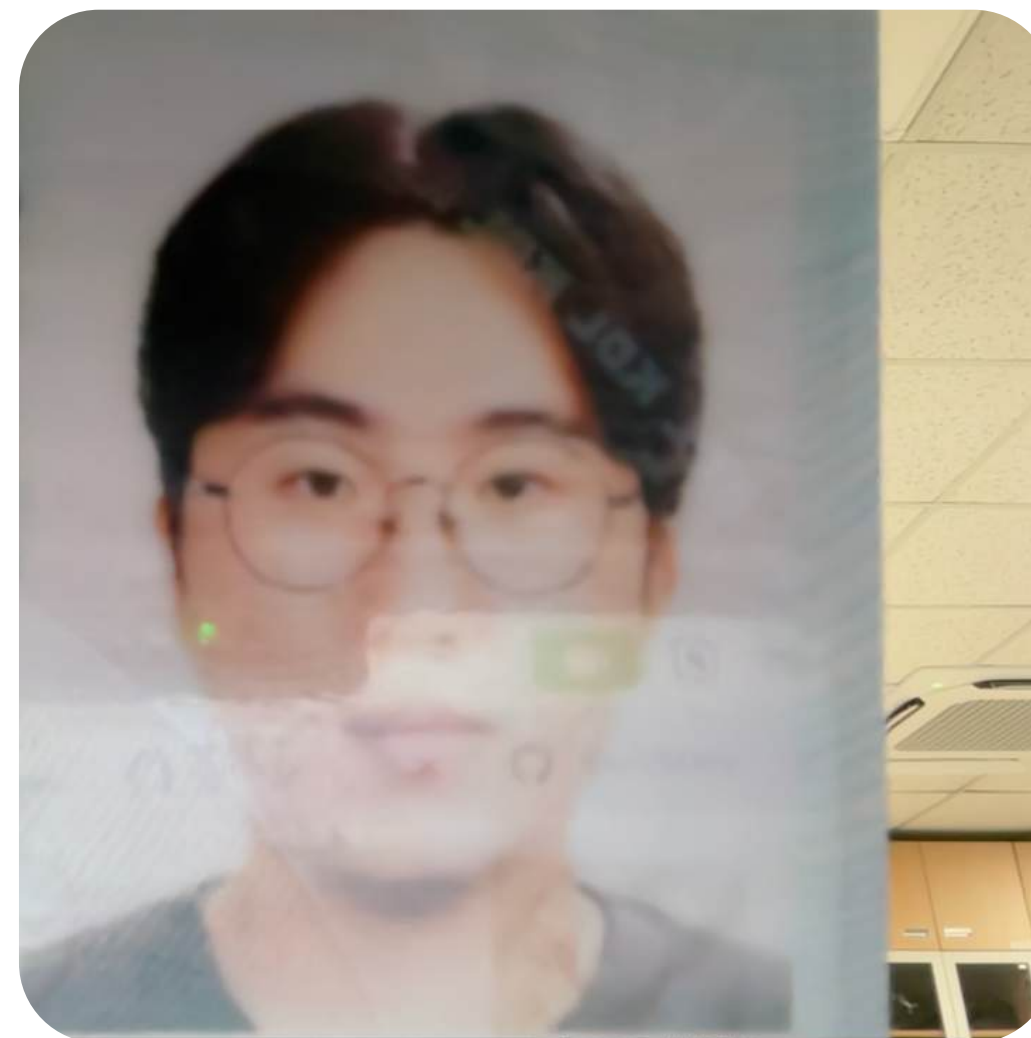
Cosine Similarity: 0.0981  
SamePerson: ❌ No

Image 1



Image 2





## Spoofing Detection - ID Card

**SPOOF : 1.0000**

**LIVE: 0.0000**





O



O



O

## Spoofing Detection - Video Attack

98% Detection





O



O



X

## Spoofing Detection - Photo Attack

94% Detection



**We use AI to rebuild trust for the remote era.**



# Thank you

## Team VIC Lab



**Kim Hyeongrae**



**Jeong Yuhyeon**



**Kim Minjong**



**Mun Jaeyun**