Re:mind - 4분반 5조

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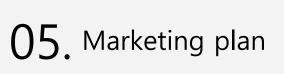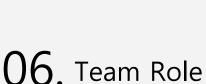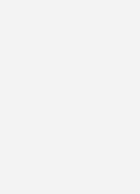
Motivation

너를 만났다: '가상현실' 속 그리운 사람과의 재회, 실제 치유가 될까?
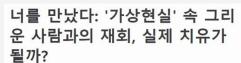
김효정
BBC 코리아

2020년 2월 14일

MBC

MBC 다큐멘터리 '너를 만났다'에서 장지성 씨가 3년 전 세상을 떠난 딸 나연이를 VR을 통해 재회했다

Reminiscence
It is possible to reunite those who cannot be seen in reality again with data alone.

Fun
Deepfake can give people fun and pleasure.

Compare other Apps

Deep Nostalgia
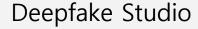
- Not a smartphone app
- Paid service

Deepfake Studio

- Just face swapping(Deepfake)
- Vulnerable to security

Wav2Lip
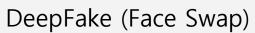
- Just Lip-Syncing
- Bad User Experience

Objective

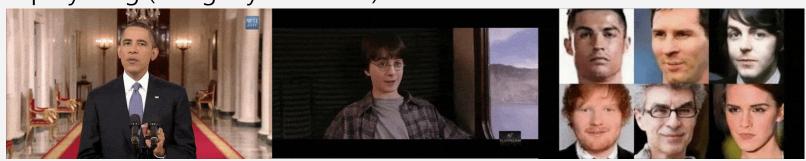## DeepFake (Face Swap)

Lip-Syncing (Using My Voice File)
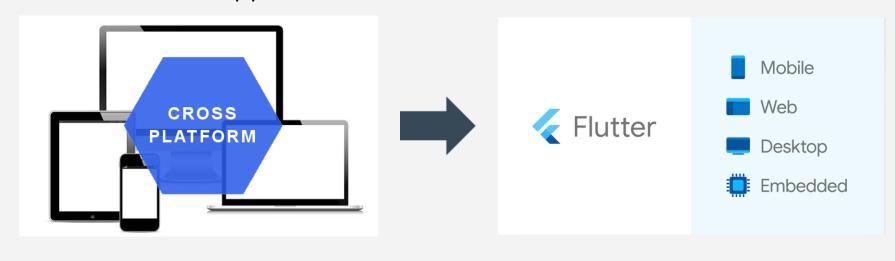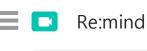
Objective

Cross Platform Application (Web + Mobile)

02. Description & Key Features
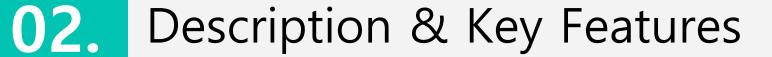
Description

Key Features

- For fun & reminiscence
- DeepFake(FaceSwap) + Lip Syncing
- Cross Platform App (Windows, Mac, Android)
  - Easy To Use
  - Better UI/UX
- Training One-shot (Image)
- High Quality + Done Quickly
- Various templates

Divide into two track

1. Gif file (3~4 seconds) + No Voice file

Source picture

Target Gif
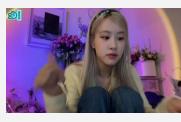
Result Gif file

2. MP4 file (30~60 Seconds) + Voice file

Source picture

Target MP4

source voice file

Result Mp4 file
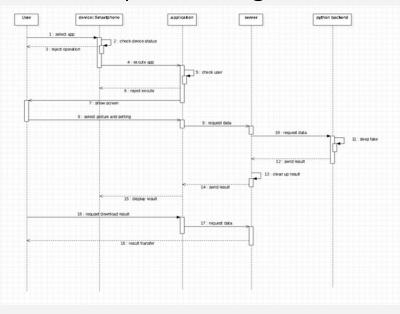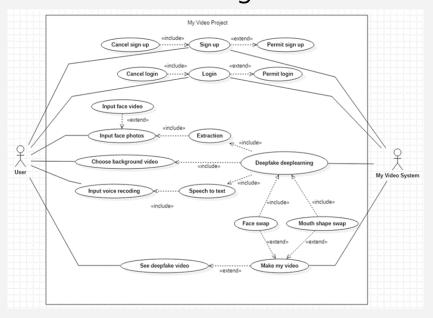
Sequence Diagram

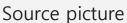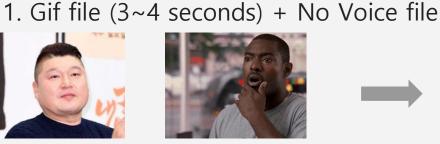# Usecase Diagram

Structure
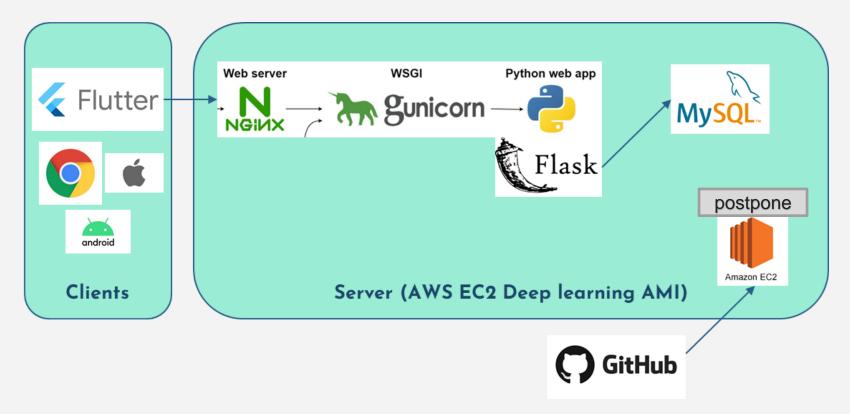
03. Development

System Flow

gif   mp4

Data — Select Template(gif or Mp4), source picture

Face swap Model — Deepfake(Ref.SimSwap) PatchGAN + Pix2PixHD + AdaIN

Result   voice file

Voice extraction Model   Lip-syncing Model

Extract only voice from mp3, mp4 or wav file

Lip Syncing (Ref.Wav2lip) Extraction → Training → Converting

Result
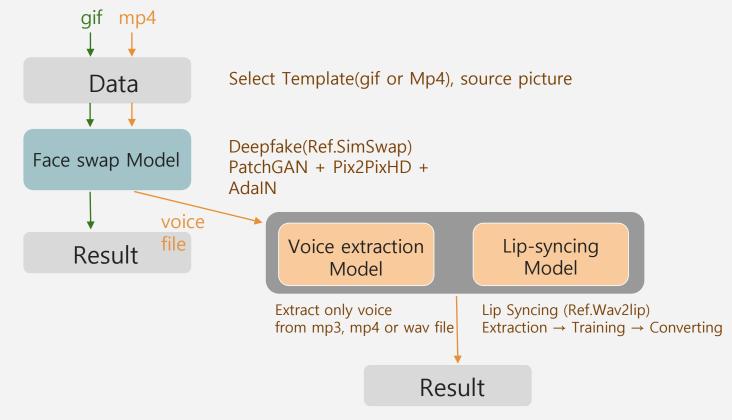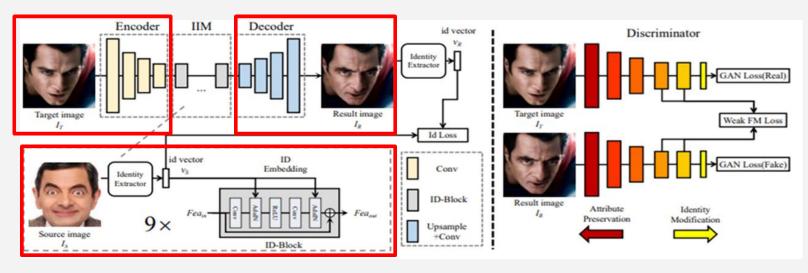
Model – 1. Face swap

Overcome the defects in generalization and attribute preservation

Generalization to Arbitrary Identify + Preserving the Attributes of the Target

Model - 2. Lip syncing
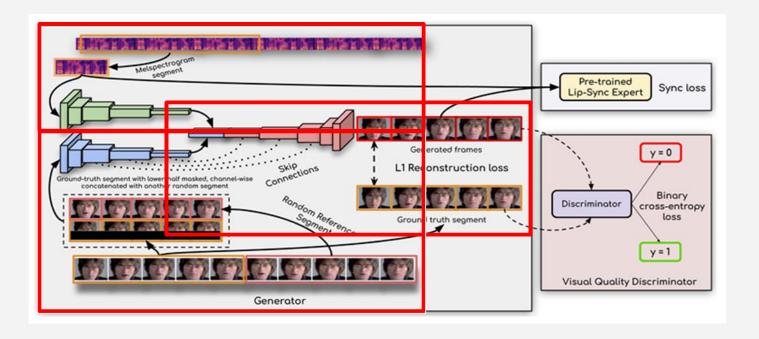
Extraction → Training → Converting

Model - 3. Voice Extraction
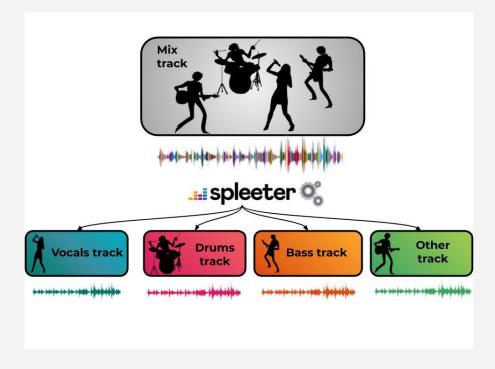
Extract only voice from mp3, mp4 or wav file → Better Quality

Cross Platform Application (Flask + Flutter)

Python Application & Cross Platform

04. Demo
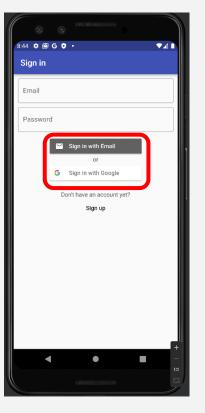
Flutter UI - Login Page

Flutter UI - GIF (Without Audio)
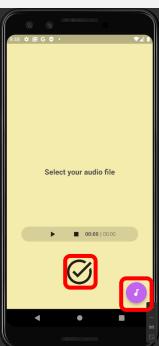
Flutter UI - MP4 (With Audio)

Flutter Demo - GIF (Without Audio)
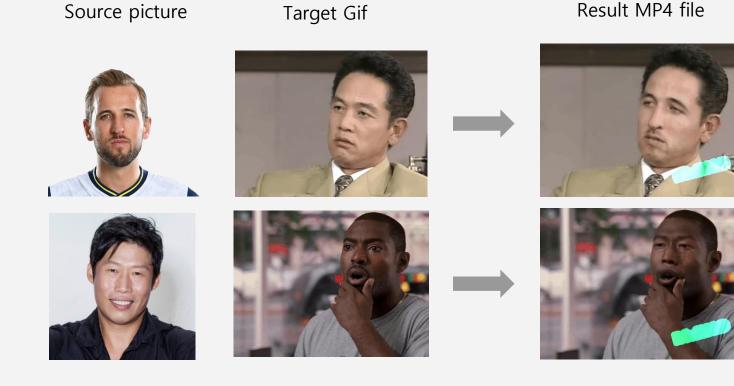
Source picture	Target Gif	Result MP4 file

Flutter Demo - GIF (Without Audio)

Flutter Demo - MP4 (With Audio)

Source picture

Target MP4
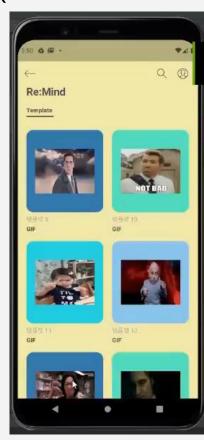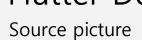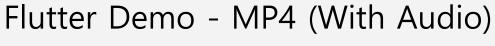
Result MP4 file

Flutter Demo - MP4 (With Audio)
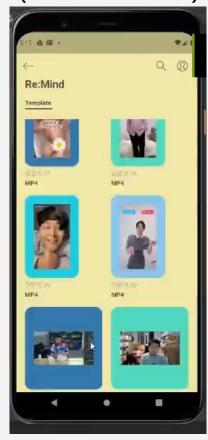
05. Marketing Plan

SWOT Analysis
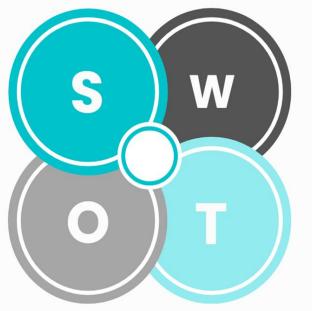
Strengths

Faical change function and voice
Up sync function at the same time.
UI that you can easily watch at once.

Weaknesses

Lack of marketing promotion that
customers can see.
The long time it takes to deliver the
service.

Opportunities

Deepfake technology growth and
market expansion.

Threats

The functional growth of existing apps.
Individuals must keep the results, and
the app does not keep the results.

S W
O T

Marketing Plan

Basically, service is free (but not hosted)

- We does not provide hosting due to rising hosting costs and problems with GPU usage costs.

- User can read how to use it through the GitHub and download and use the service.

- The service will be made available to anyone by providing it free of charge.

(Optional) Regular Sponsored Services

- User can read how to use it through the GitHub and download and use the service.

- The service will be made available to anyone by providing it free of charge.

06. Team Role

Our Team & Role

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Modeling, Flutter, Documentation

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Modeling, Lightweight, Documentation
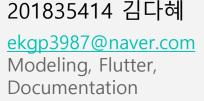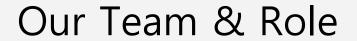
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Lightweight, Flutter, Documentation

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Modeling, Lightweight, Documentation

Documentation - Re:Mind Setting & Flutter

Re:Mind Setting

Setting computer

Require *Nvidia* GPU

Install Cuda Toolkit(After Check your Graphic card, install 10.2 version)

CUDA Toolkit 10.2 Download

After Sign in, install cuDNN with same Cuda Toolkit

Install Anaconda

https://www.anaconda.com/

Implement command on Anaconda prompt

Simswap Preparation

```
conda create -n simswap python=3.6
conda activate simswap
conda install pytorch==1.8.0 torchvision==0.9.0 torchaudio==0.8.0 cudatoolkit=10.2 -c pytorch
(option): pip install --ignore-installed imageio
pip install insightface==0.2.1 onnxruntime moviepy
(option): pip install onnxruntime-gpu
```

Open **VScode**, and press Ctrl+Shift+P

Python: Select Interpreter → Python 3.6.13('simswap') 선택

Terminal: Select Default Profile → Command prompt 선택

Pretrained model

There are two archive files in the drive: **checkpoints.zip** and **arcface_checkpoint.tar**

- Copy the arcface_checkpoint.tar into ./arcface_model
- Unzip checkpoints.zip, place it in the root dir ./

[Google Drive] [Baidu Drive]

Wav2Lip Preparation

```
pip install -r requirements.txt
```

Face detection pre-trained model should be downloaded to `face_detection/detection/sfd/s3fd.pth`

Spleeter Preparation

```
conda install -c conda-forge ffmpeg libsndfile
pip install spleeter
```

Wiki & Youtube

Project & Flutter https://github.com/kozeldark/Flutter/wiki

Re:Mind Model
https://github.com/dntjr41/Graduation_project/wiki

Youtube URL Link
https://youtu.be/KEYO8e3j9Ek

Resources

Papers & Websites:

- https://giphy.com/
- https://arxiv.org/pdf/2008.10010.pdf
- https://arxiv.org/pdf/2106.06340v1.pdf
- https://anaconda.org/deezer-research/spleeter
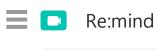
Github Pages

- https://github.com/neuralchen/SimSwap
- https://github.com/deepinsight/insightface
- https://github.com/zllrunning/face-parsing.PyTorch
- https://github.com/deezer/spleeter
- https://github.com/Rudrabha/Wav2Lip
- https://github.com/r9y9/deepvoice3_pytorch
- https://github.com/1adrianb/face-alignment
- https://github.com/abuanwar072/E-commerce-App-UI-Flutter

THANK YOU

Graduation Project 3 - (한명묵 교수님)
4분반 5조 - 김다혜, 선다혜, 오찬희, 심우석