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Pengenalan Wajah Bermasker dan Tanpa Masker dengan Menggunakan MTCNN dan VGG Face untuk Wajah Bagian Atas
HANIF NAUFAL ARIF S, Dr. Ir. Risanuri Hidayat, M.Sc., IPM. ; Dr. Ir. Rudy Hartanto, M.T., IPM.
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LAMPIRAN

```
# import

import cv2

import os

from keras_vggface import VGGFace

from keras_vggface.utils import decode_predictions

from mtcnn.mtcnn import MTCNN

import json

import pickle

from numpy import asarray

from keras_vggface.utils import preprocess_input

from PIL import Image

from matplotlib import pyplot

import tensorflow as tf

from scipy.spatial.distance import cosine

import timeit


tf.config.experimental.set_visible_devices([], 'GPU')


# ekstrak dr foto

def extract_face(filename, required_size=(224, 224)):

          # load foto / image

          pixels = pyplot.imread(filename)

          # detector

          detector = MTCNN()

          # detect wajah dari gambar
```

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```
            results = detector.detect_faces(pixels)
            # membuat bounding box, dan memotong
            x1, y1, width, height = results[0]['box']
            x2, y2 = x1 + width, y1 + round(height*0.50)
            # extract wajah
            face = pixels[y1:y2, x1:x2]
            # resize ukuran jadi 224x224
            image = Image.fromarray(face)
            image = image.resize(required_size)
            face_array = asarray(image)
            return face_array


# extract wajah dan embeding
def get_embeddings(filenames):
            # ekstrak wajah
            faces = [extract_face(f) for f in filenames]
            # jadi array
            samples = asarray(faces, 'float32')
            samples = preprocess_input(samples, version=2)
            # vgg face
            model     =     VGGFace(model='resnet50',     include_top=False,
input_shape=(224, 224, 3), pooling='avg')
            # prediksi
            yhat = model.predict(samples)
            print (yhat.shape)
            print (yhat)
            return yhat
```

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```
# pembandingan dari embeding yang diketahui

def banding(trained_embedding, test_embedding, thresh=0.50):

          score = cosine(trained_embedding, test_embedding)

          if score <= thresh:

                    return score

          else:

                    return -1



name_faces = {}

with open('data.pickle', 'rb') as f:

    name_faces = pickle.load(f)



# buka wajah

filenames = ['az.jpeg']

# ambil embeding

start=timeit.timeit()

embeddings = get_embeddings(filenames)

name = "Unknown"

curthres = 0.35

for i in name_faces:

    k = banding(embeddings, name_faces[i], curthres)

    if k > 0:

        name = i

        curthres = k

        akurasi = 100-(k*100)

        print(akurasi)

        print(name)
```

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```
end=timeit.timeit()

print(end - start)

pixels = extract_face('az.jpeg')

pyplot.imshow(pixels)

pyplot.title(name, fontsize=12)

pyplot.xlabel(akurasi, fontsize=12)

pyplot.show()
```

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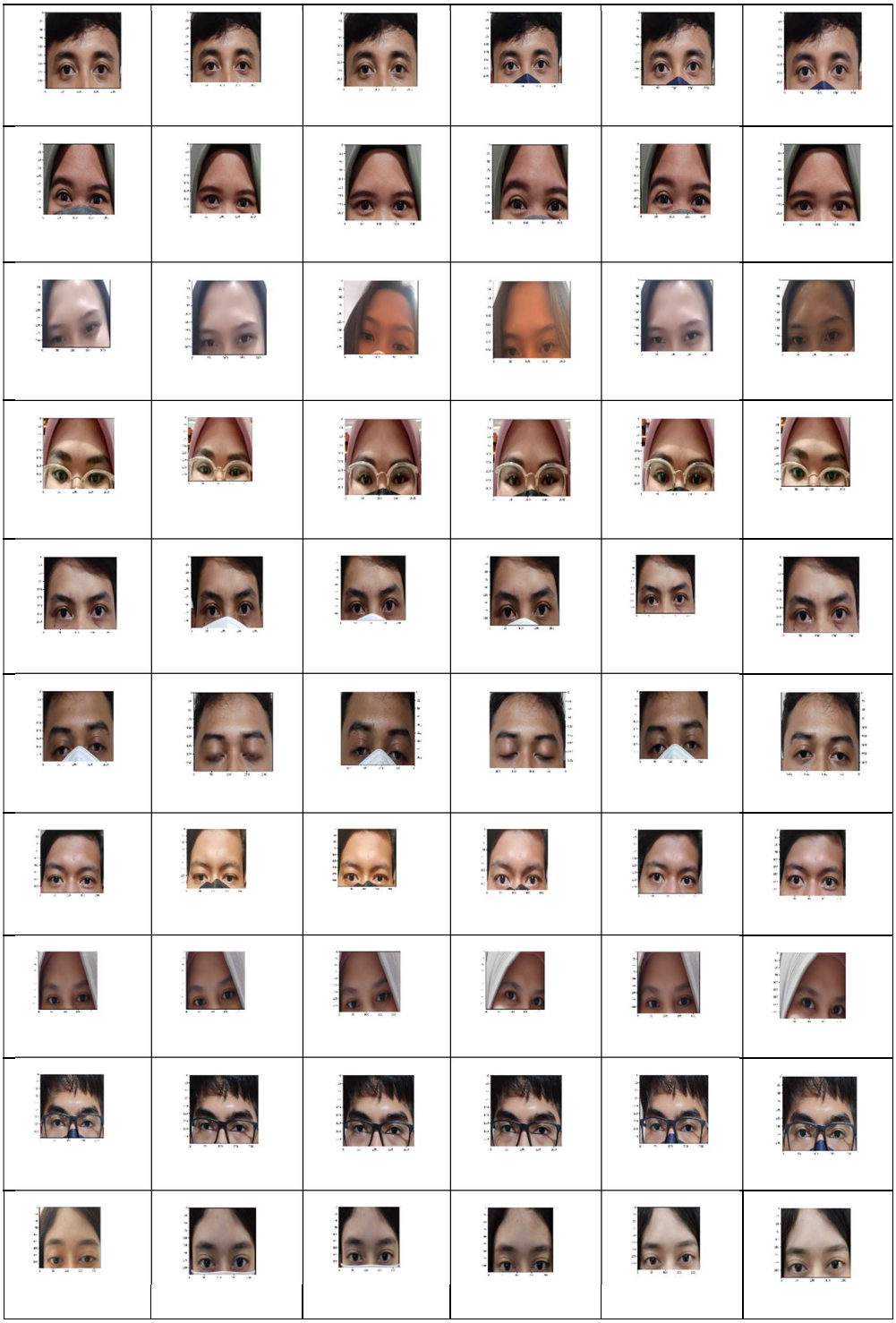

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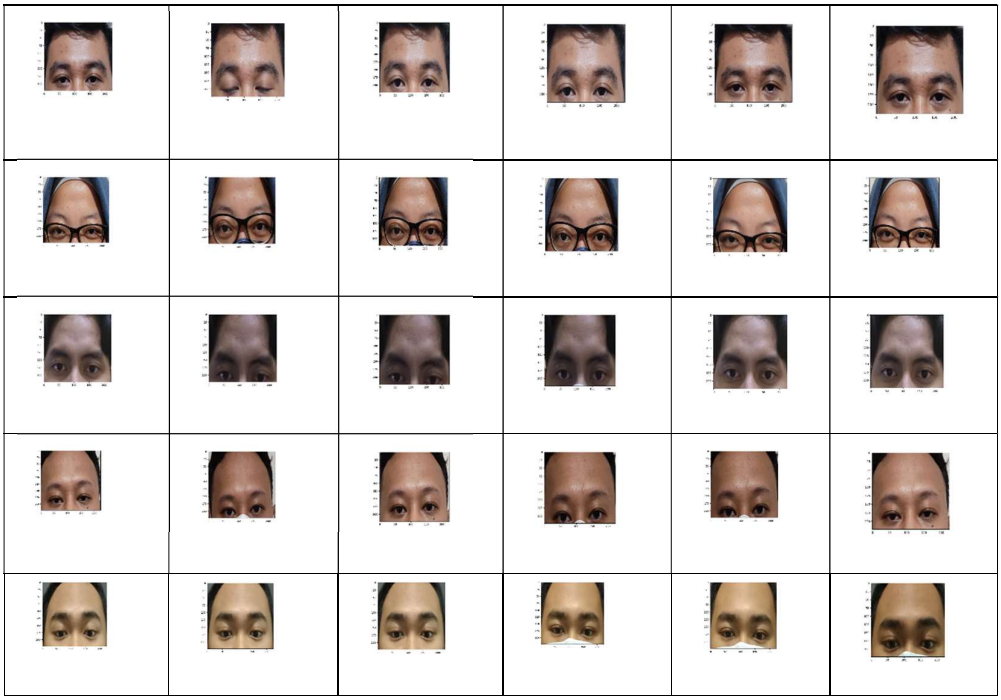

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