DAFTAR PUSTAKA

Ali, R. (2016). DETEKTOR EKSPRESI WAJAH MANUSIA. *Jurnal Informatika*,

Arianto, M. (2016). *Analisis dan Perancangan Representational State Transfer (REST) Web Service Sistem Informasi Akademik STT Terpadu Nurul Fikri Menggunakan Yii Framework*.

Awad, M., & Khanna, R. (2015). *Efficient Learning Machines: Theories, Concepts, and Applications for Engineers and System Designers*. Apress. https://doi.org/10.1007/978-1-4302-5990-9

Cambell, M, Y. (2011). *Learning with Support Vector Machines: Synthesis Lecturers on Artificial Intelligence and Machine Learning*.

Faihah, R. (2010). *Learning with Support Vector Machines: Synthesis Lecturers on Artificial Intelligence and Machine Learning*.

Feta, N., Ginanjar, A.,. (2019). *Feta, N., Ginanjar, A., 2019. KOMPARASI FUNGSI KERNEL METODE SUPPORT VECTOR MACHINE UNTUK PEMODELAN KLASIFIKASI TERHADAP PENYAKIT TANAMAN KEDELAI 1, 33–39*.

Grandini, M., Bagli, E., & Visani, G. (2020). *Metrics for Multi-Class Classification: An Overview*. http://arxiv.org/abs/2008.05756

Gunn, S. (1998). *Learning with Support Vector Machines: Synthesis Lecturers on Artificial Intelligence and Machine Learning*.

Jain, M. (2020). *Face Recognition Attendance System Based on Real-time Video Processing*.

Oktianawati, A. (2022). *SISTEM MONITORING KEBERADAAN PEGAWAI DENGAN VIDEO PROCESSING SECARA REAL TIME*. [Skripsi tidak dipublikasikan] 86.

Patil, S. (2020). *Automatic Attendance System for University Student Using Face Recognition Based on Deep Learning*.

Santosa, B. (2007). *Support Vector Method for Function Approximation, Regression Estimation and Signal Processing. Advances in Neural Information Processing Systems 9*.

Santra. (2012). *Genetic Algorithm and Confusion Matrix for Document Clustering. IJCSI International Journal of Computer Science Issues, 322- 328*.

C., Khoshgoftaar, T. M. (2019). *A survey on image data augmentation for ep learning. Journal of Big Data, 6(1), 60.* tps://doi.org/10.1186/s40537-019-0197-0

Simard. (2003). *Best practices for convolutional neural networks applied to visual document analysis. Seventh International Conference on Document Analysis and Recognition, 2003. Proceedings., 958-963*. https://doi.org/10.1109/ICDAR.2003.1227801

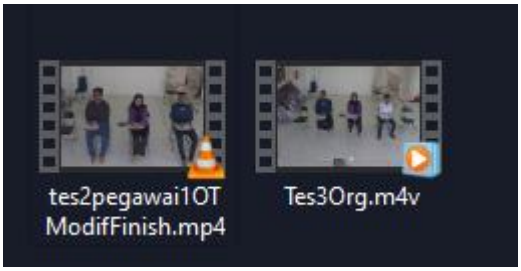
Sutabri, T., Pamungkur, P., Kurniawan, A., & Saragih, R. E. (2019). Automatic Attendance System for University Student Using Face Recognition Based on Deep Learning. *International Journal of Machine Learning and Computing*, *9*(5), 668–674. https://doi.org/10.18178/ijmlc.2019.9.5.856

Taslinda. (2022). *"Sistem Deteksi Hambatan pada Autonomous Driving Menggunakan Metode Single Shot Multibox Detector (SSD)."*

Vapnik. (2007). *Support Vector Method for Function Approximation, Regression Estimation and Signal Processing. Advances in Neural Information Processing Systems 9*.

Zhao, Z.-Q., Huang, D.-S., & Sun, B.-Y. (2004). Human face recognition based on multi-features using neural networks committee. *Pattern Recognition Letters*, *25*(12), 1351–1358. https://doi.org/10.1016/j.patrec.2004.05.008

Lampiran 1 Dataset Video



Link database video : https://www.kaggle.com/datasets/agthm3/dataset-video-3-angel

Lampiran 2 Source Code

```
import cv2
import numpy as np
from sklearn import svm
import os

# Menginisiasi Haar cascade
face_cascade = cv2.CascadeClassifier(cv2.data.haarcascades +
'haarcascade_frontalface_default.xml')

# Menginisiasi SVM dengan probability=True
clf = svm.SVC(gamma='scale', probability=True)

# Menyimpan wajah yang terdeteksi dan labelnya
faces = []
labels = []

# Path ke direktori dataset
path = "extracted_faces"

# Loop melalui setiap subdirektori dalam direktori
for subdir in os.listdir(path):
    # Path ke subdirektori (mahasiswa)
    subdir_path = os.path.join(path, subdir)

    # Jika ini adalah direktori
    if os.path.isdir(subdir_path):
        # Loop melalui setiap file dalam subdirektori
        for file in os.listdir(subdir_path):
            # Path ke file (gambar wajah)
            file_path = os.path.join(subdir_path, file)

            # Baca gambar
            img = cv2.imread(file_path, cv2.IMREAD_GRAYSCALE)

            # Resize gambar menjadi 100x100
            img = cv2.resize(img, (100, 100))

            # Flatten menjadi vektor
            face = img.flatten()

            # Tambahkan ke list wajah
            faces.append(face)

            # Tambahkan label (nama mahasiswa)
            labels.append(subdir)
while True:
    # Membaca frame
    ret, frame = cap.read()

    # Jika frame tidak bisa dibaca, keluar dari loop
    if not ret:
        print("Can't receive frame (stream end?). Exiting ...")
        break

    # Konversi ke grayscale
    gray = cv2.cvtColor(frame, cv2.COLOR_BGR2GRAY)

    eteksi wajah
    es_detected = face_cascade.detectMultiScale(gray,
    ctor=1.1, minNeighbors=5)
```

```
    for (x, y, w, h) in faces_detected:
        # Mengambil wajah yang terdeteksi
        face = gray[y:y + h, x:x + w]

        # Resize menjadi 100x100
        face = cv2.resize(face, (100, 100))

        # Flatten menjadi vektor
        face = face.flatten()

        # Prediksi label menggunakan SVM
        label = clf.predict([face])

        # Prediksi probabilitas menggunakan SVM
        proba = clf.predict_proba([face])

        # Ambil probabilitas tertinggi
        confidence = np.max(proba) * 100

        # Menentukan warna bounding box dan label
        box_color = (0, 255, 0)  # Hijau untuk dikenali
        label_text = f"{label[0]}: {confidence:.2f}%"
        if confidence < 70:
            box_color = (0, 0, 255)  # Merah untuk tidak dikenali
            label_text = "OT"

        # Menggambar persegi pada wajah yang terdeteksi
        cv2.rectangle(frame, (x, y), (x + w, y + h), box_color, 2)

        # Menulis label pada frame
        cv2.putText(frame, label_text, (x, y - 10),
cv2.FONT_HERSHEY_SIMPLEX, 0.9, box_color, 2)

        counter += 1

    # Menampilkan frame
    cv2.imshow('Video', frame)

    # Keluar loop jika tombol 'q' ditekan
    if cv2.waitKey(1) & 0xFF == ord('q'):
        break

# Membebaskan video
cap.release()

# Tutup semua window
cv2.destroyAllWindows()
```

Link Source Code: https://github.com/agthm3/haarcascade-Javapocalypse.git

LEMBAR PENGESAHAN SKRIPSI

PENINGKATAN AKURASI PENGAWASAN PEGAWAI DENGAN SISTEM *REALTIME VIDEO PROCESSING*

Disusun dan diajukan oleh

Andi Gigatera Halil Makkasau
D121191054

Telah memenuhi syarat untuk melaksanakan Seminar Proposal/Hasil
Pada tanggal ……

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