



PROJECT OVERVIEW

Project Title: Global COVID-19 Vaccine Tracker and Image Processing Tool

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University: Université Paris Est Créteil University

Degree Program: Master of Biometrics and Intelligent Vision

Introduction

Welcome to the Global COVID-19 Tracker and Image Processing Tool! This project aims to provide users with a comprehensive toolset for tracking COVID-19 vaccination data globally and performing various image processing operations. Developed by Sulaiman Waliu as part of the Master of Biometrics and Intelligent Vision program at Université Paris Est Créteil University, this tool offers a user-friendly interface powered by Python programming language and PyQt5.

Global COVID-19 Tracker – Help and Information

Functionality:

The data processing section involves data cleaning, processing, and analyzing the Covid-19 vaccination data using Python libraries such as Pandas and NumPy.

The dataset used from <https://ourworldindata.org/covid-vaccinations>. The main tabs in this section include Graph, Chart, and Map.

Visualization Tabs:

Graph tab: Visualizes selected country data including daily vaccinations, total vaccinations, people vaccinated, daily people vaccinated, and people fully vaccinated. Users have the flexibility to plot single or multiple countries for effective comparison.

Chart tab: The Chart tab offers line plot and scatter plot options, enabling users to track Covid-19 vaccine trends using selected data. This section provides a dynamic way to observe and compare vaccination data.

Map tab: Explore the world map in the Map tab, illustrating total vaccinations, percentage of people vaccinated, and percentage of people fully vaccinated in each country. This visual representation offers a comprehensive view of global vaccination efforts.

Image Processing – Help and Information

Welcome to the Image Processing component, where users can upload, save, and manipulate images. Developed with Python and utilizing the OpenCV library, this module provides a range of functionalities for image and video processing.

Functionality:

Image Upload and Save: Users can upload and save images for processing.

Basic Operations: Users can perform transformations, image enhancement, filtering, zooming in and out, and rotation.

Advanced Operations: Includes functionalities like Gamma correction, Gaussian filter, Log transform, Dilate and Erosion, and Canny edge detection.

Video Processing: The Video Processing section allows users to perform basic video processing tasks, including grayscale conversion, Canny edge detection, Otsu thresholding, and more. A comparison feature is available to visualize the impact of different video processing techniques.

Histogram Plotting: Users can visualize the histogram of uploaded images for better analysis.

Interface Interaction: Navigate seamlessly through the interface to access different functionalities. The user-friendly design ensures easy interaction with image and video processing features.

Additional Considerations:

Visualization:

To enhance user understanding, visual aids and screenshots have been strategically placed throughout the interface. These visuals serve as a guide, providing a clear representation of each step in the Global Covid19 Tracker and Image Processing modules. Look out for the accompanying images to navigate the functionalities seamlessly.

User Guides:

Navigate through the user-friendly interface with confidence using our detailed step-by-step user guides. Whether you're exploring the Covid19 Tracker's Graph, Chart, and Map tabs, or delving into Image Processing functionalities such as transformations, enhancements, and video processing, each section is accompanied by comprehensive guides. These guides offer a roadmap, ensuring users can make the most out of every feature.

For example:

Graph Tab User Guide: Learn how to select countries, choose data types, and interpret visualizations with our step-by-step guide in the Graph tab.

Image Enhancement User Guide: Discover how to enhance images with filters, zoom options, and gamma adjustments using our detailed Image Processing guide.

Troubleshooting:

Encountering issues? Don't worry – our troubleshooting section is here to help. Find common problems and their solutions outlined in this section. Whether it's a technical glitch or a query about a specific feature, the troubleshooting guide aims to provide quick resolutions, ensuring a smooth user experience.

For example:

Problem: Difficulty plotting multiple countries in the Graph tab.

Solution: Ensure you've selected the countries correctly and try again. Refer to the Graph Tab User Guide for assistance.

Contact Information:

For further assistance, questions, or feedback, feel free to reach out to me.

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