AI Pipeline for Image Segmentation and Object Analysis

A streamlined AI-powered solution using Detectron2, Pytesseract, and Transformers to segment objects, extract text, and generate summaries from images.

Key Features

Object Segmentation

Mask R-CNN detects and segments objects.

Text Extraction

OCR with pytesseract extracts text from images.

Summarization

BART-large model generates summaries.

Streamlit UI

User-friendly interface for interactive results.

System Architecture

1

Image Upload

Start with an image file.

2

Object Segmentation

Detectron2 identifies and segments objects.

3

Text Extraction

pytesseract extracts text from the image.

4

Summarization

BART-large generates summaries based on detected objects and text.

5

Output

Organized output folder with segmented objects, summaries, and extracted text.

Output & Folder Structure

Output	Description
Segmented Image	Visualizations of segmented objects.
Whole Image Summary	Overall summary of the image content.
Extracted Text	Text extracted from the image.
Individual Object Images	Segmented images of individual objects.
Mapped Data	JSON file containing details about segmented objects and extracted text.

Streamlit UI Overview

Image Upload & Processing

Upload images and process in real-time.

Segmented Image Display

View the image with object boundaries.

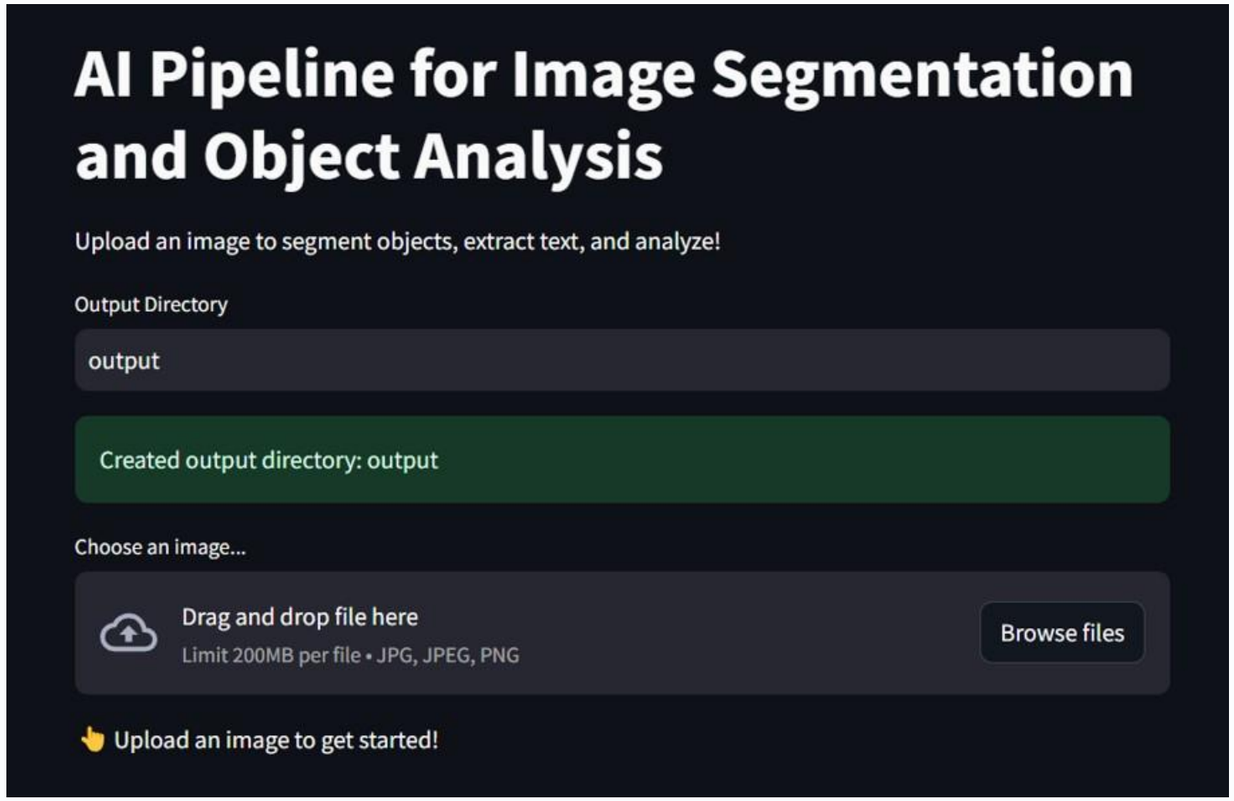
Image Summary

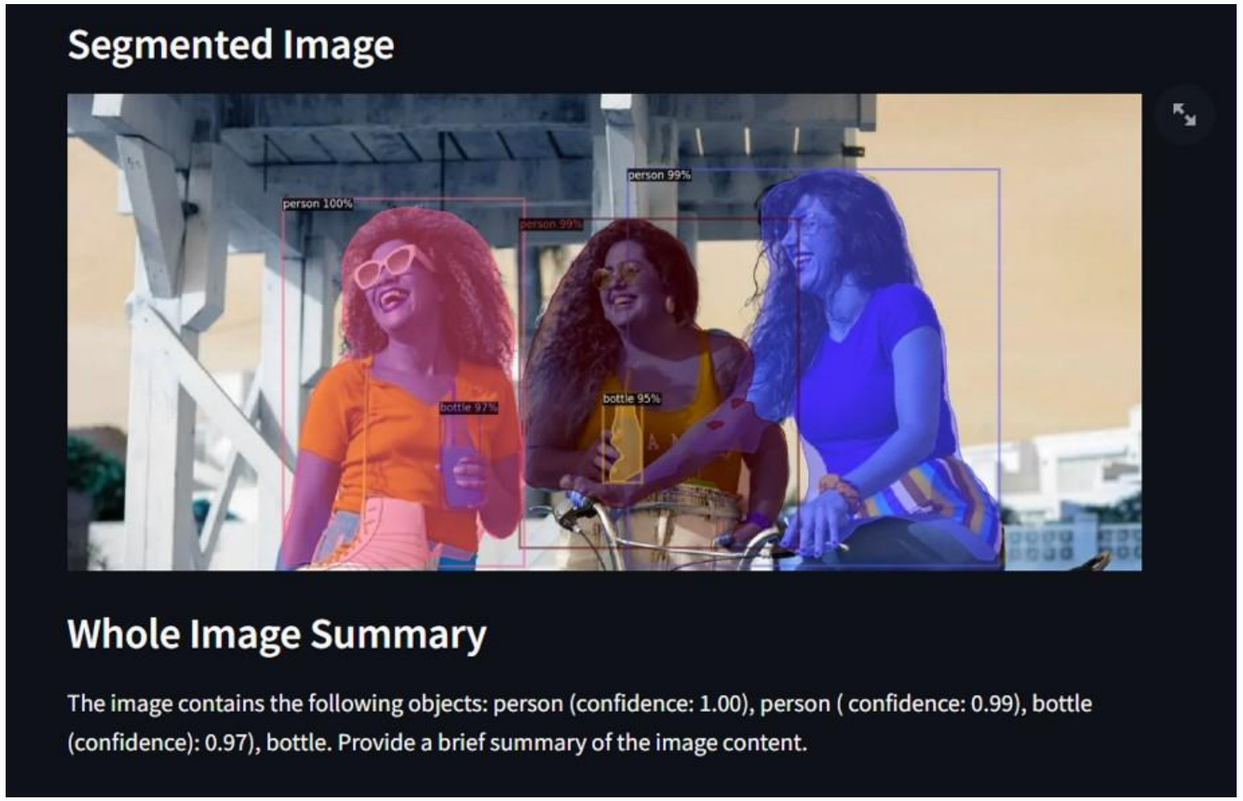
Summarization and text extraction from the entire image.

Object Analysis

Detailed results for each detected object, including class and confidence score.

Streamlit UI Overview





Thank You!

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