pascal musabyimana

Student aan Universiteit Gent

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- *Aspiring parttime student-freelancer in full-stack development and computer-vision enthousiast feel free to check out my personal website : https://react-portofolio-with-tailwind-lj1u.vercel.app/. Deeply interested in macro-economics , science and technology(web-app development, SaasAI& Startups & Medical Ai Segmentation.*

EXPERIENCE

Stealth, Gent en omgeving
January 2021 - Present

Oprichter

- Bootstrapped a tinder like swipe app for college students I am responsible for user-experience , beta-testing , gdpr guidelines, updating the app regularly , design and finding a product-market fit mvp , creating the website and its design https://vex-oh-be339.web.app/.

EDUCATION

Ghent University
Present

Bachelor of Science - BS, Bestuurskunde

- Activities & Societies: Capitant

PROJECTS

Boxing Video Analysis with YOLOv8 and Ultralytics

- I'm excited to share a project where I applied computer vision and deep learning techniques to analyze boxing matches using YOLOv8 and the Ultralytics framework. Project Highlights:
- YOLOv8 Object Detection: We used YOLO (You Only Look Once) to perform real-time object detection on video frames. This allowed us to identify and track the movements of boxing participants, making it a powerful tool for sports analysis. Pose Estimation: I applied YOLOv8's pose estimation capabilities to precisely locate key body parts like the nose, wrists, and shoulders of the participants. This fine-grained pose data enabled us to gain insights into their movements and positions. Foul Detection: i developed a custom algorithm to detect fouls during boxing matches. By analyzing the proximity of key body parts between participants, we could identify instances where rules were infringed upon. Visual Feedback: When a foul was detected, I added a blue tint to the video frame to provide a visual cue, making it easier to spot fouls and helping referees in their decision-making process. Tools and Libraries:
- OpenCV: Used for video processing, frame capture, and display. YOLOv8: A state-of-the-art object detection and pose estimation framework. Ultralytics: A powerful deep learning library that simplified the integration and use of YOLOv8. Applications: This project has various applications in the world of sports analytics and coaching. It can help referees make more accurate decisions, assist coaches in analyzing their fighters' performance, and provide valuable data for in-depth match analysis.
- #ComputerVision #SportsAnalytics #YOLOv8 #DeepLearning #SportsTechnology #Ultralytics #LinkedInProjects

Brain-tumor detection

- Leveraged SAM2's ability to process video data and generate accurate segmentation masks. Utilized a combination of manual prompts and the model's internal tracking capabilities to achieve robust results.
- Key accomplishments:
- Successfully integrated SAM2 into a Colab notebook for efficient experimentation. Overcame challenges of limited access to medical datasets by using a YouTube video as a proxy. Demonstrated the effectiveness of SAM2 in segmenting moving objects in real-time video.

Object Detection on Soccer Video using YOLOv8

- Overview: This project implements an object detection pipeline using the YOLOv8 architecture. Leveraging datasets from Roboflow and experiment management via ClearML, the project focuses on training the YOLOv8 model and performing object detection on both single frames and entire videos.
- Key Components:
- Dataset Acquisition: Utilized Roboflow to access and download datasets, preparing them in the YOLOv8 format for training the object detection model.
- Experiment Management: Integrated ClearML for streamlined experiment tracking and management, ensuring reproducibility and collaboration throughout the development process.
- Model Training: Utilized the Ultralytics YOLO library to define and train the YOLOv8 model, configuring parameters such as dataset paths, epochs, and image size for optimal performance.
- Object Detection on Frames: Developed functions to perform object detection on individual frames extracted from video files

using the trained YOLOv8 model, with adjustable confidence thresholds for filtering detections.
- Video Processing: Implemented functions for processing entire video files, detecting objects in each frame, and optionally saving annotated frames to output video files. Real-time display of processed videos was also enabled.
- Conclusion: This project showcases the successful implementation of an object detection pipeline using YOLOv8, demonstrating its effectiveness in real-world applications. By integrating datasets from Roboflow, ClearML for experiment management, and the Ultralytics YOLO library for model training and inference, the project provides a comprehensive framework for object detection tasks on both static images and dynamic videos.

Real-Time Person and Vehicle Tracking with Object Detection and Pose Estimation In Ghent

- This project demonstrates the use of object detection and pose estimation to track people and vehicles in a video. The project uses the YOLO object detection model to detect cars, buses, trucks, and people in the video. It then uses the Ultralytics pose estimation model to track the body parts of people who are detected. The project also uses a Kalman filter to smooth out the motion of the body parts and a particle filter to track multiple people simultaneously.

Region Counting Using YOLOv8 (Inference on Video) Applied to Ghent

- Region counting is a methodical approach that finds applications in diverse fields. In our case, this project is geared towards tracking and counting objects in specified areas, such as the Korenmarkt Watersportbaan and Rooigemlaan. This information can be pivotal for enhancing traffic management and safety in these areas.
- Hmsdq`bshud Trdq Dwodqhdmbd9 Sgd Kdes Lntrd Bkhbj hmsdq`bshnm needqr trdqr sgd `ahkhsx sn cxm`lhb`kkx lnchex bntmshmf qdfhnm on the fly, providing a seamless and intuitive experience. This feature ensures the adaptability of the system to different video scenarios. Jdx Ed`stqdr
- Real-Time Object Detection: Employing YOLOv8, our system ensures precise identification and counting of objects within specified regions in video feeds. Interactive Region Adjustment: Regions can be dynamically adjusted in real-time using a simple Left Mouse Click. This interactive feature enhances user control and flexibility during the counting process. Customizable Regions: Tailor regions to meet your preferences and requirements, making the system adaptable to various scenarios and use cases.