Trimming the Fat

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Deep learning based searching in videos

Motivation

- Finding clips of interest in videos
  - Extremely important for many companies and security agencies.

- Pain Point
  - Sifting through videos is a tedious task
  - To perform the above task efficiently with minimal human effort

Problem Statement

- With the recent advancements in deep learning, this problem is more easily solvable by automatic detection and tagging.
- According to our research, till this day, no proper consumer based solution exists to tackle this problem in the right way.
- **Our application is a software to analyze a video file and allow the user to search for objects in it.**
    - **It is also extended to recognize object color and recognize specific people in the video.**

Technologies

Training Data

Microsoft COCO Dataset

- Large-scale object detection and captioning dataset.
- Classification for up to 80 different types of objects

Object Detection

YOLO (You Only Look Once)

- Real Time Object Detection

Other Chained Models

- K-means clustering for color extraction
- Face Detection

State of the Art

We couldn't find any consumer based product that uses deep learning to search in videos with efficiency.

Companies which are involved in a similar kind of work include:

- Ella: Web-based AI but needs a ICR Box products on the camera network
- Camio: Too hard to able to be used by the general media, hence not suitable for many non-tech-savvy markets like India.

Use Cases

Sample use-cases for companies include:

- Finding and recognizing suspects in extremely long video feeds.
- Tracking suspected objects like handbags, clothes, etc and the people carrying them.
- Counting and recognizing people in crowds.
- Taking attendance in classes/offices using face-recognition
- Automated tagging of color and other features on e-commerce websites for fashion items.

Business Model

In our business model, we plan to make 2 products with different payment models.

- Server-based analytics:
  - Small enterprises and individuals to test the product or perform analysis on a small set of videos.
  - Here the user will be able to upload a video file onto the website and be able to view the results in a web-based environment.
  - User to search for objects by tags and some properties like color and human face recognition.
- Local software suite:
  - Big companies and government organizations where the data is huge.
  - Software will be completely offline and the users will see a similar UI to the website.
  - With further extensions, live camera and CCTV feeds can be fed into the system for real-time analysis and tagging.