VIDEO ANALYTICS REQUIREMENTS

WHW

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Scope

Based on an input video, generate object classifications with CNN and OpenCV for the location and tracking of different object classes in a period of time.

Two modules must be generated.

1. **Anonymize video**
   Blur faces from video
   a. Input: Video path (file system), FPS, Path to save video as output (file system)
   b. Output: Path of saved blurred video (with saved blurred video in low resolution - i.e: 720 px)

2. **Generating a CSV document of movements**
   1. CSV Matrix of movement
      a. Input: Video path (file system), Video FPS
      b. The Output header must have standard csv format.
      c. Save in file system along with the des-identified video
      d. Output: CSV result file path (with saved CSV file)
   2. Background image of video

Classes requested (Object_Code):

a. Light vehicle: car, SUV, pickup, jeep and alike (LV)
b. Pedestrian (PD)
c. Biker (BK)
d. Scooters (SC)
e. Basic taxi (BT)
f. Urban bus (BS)
g. Truck (TR)
h. motorcyclist (MC)
i. School transport vehicle (ST)

Remarks:

- A person on a bike or motorcycle should be considered **as one object**: a biker or motorcyclist, **not** as a Pedestrian + Bike or Pedestrian + Motorcycle.

Matrix of 7 attributes example we need from proceeded videos:

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Frame number, tracking ID, Object_ code, object_ position x, Object_ position y, Object_ width, Object_ height,... repeats for for all vehicles

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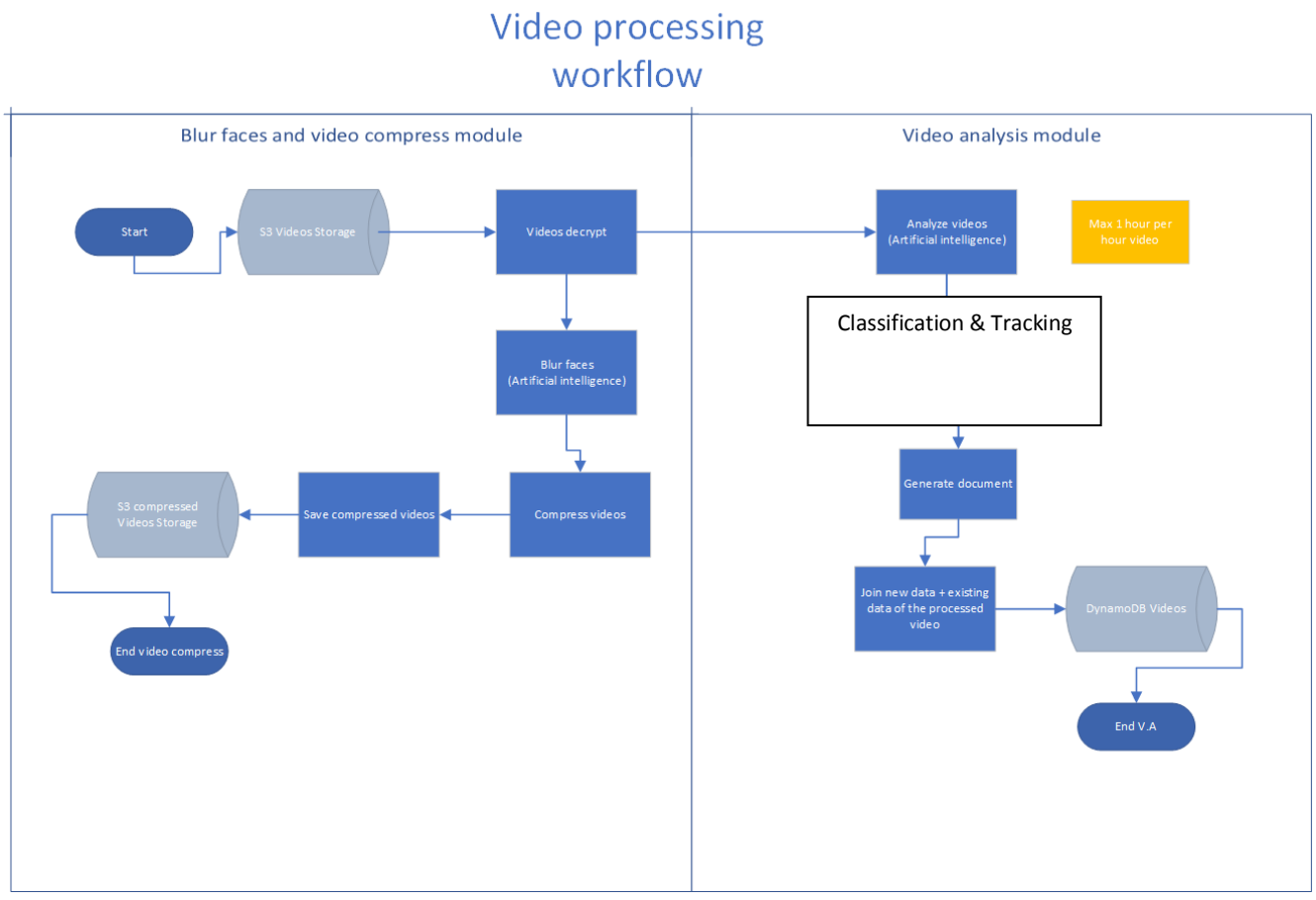
1,1,PD,1750,586,86,172,2,LV,786,521,220,143,3,LV,1438,872,469,195,4,LV,1089,407,104,68,

2,1,PD,1749,585,89,173,2,LV,786,521,220,143,3,LV,1437,872,470,194,4,LV,1083,404,108,76,5,LV,1185,434,119,66,

3,1,PD,1750,579,93,180,2,LV,786,521,220,143,3,LV,1439,873,467,194,4,LV,1080,405,102,77,5,LV,1185,434,119,66,

4,1,PD,1748,581,92,178,2,LV,786,521,220,143,3,LV,1441,872,464,196,4,LV,1080,405,102,77,5,LV,1185,434,119,66,6,LV,1121,354,87,5

Suggested diagram



Requirements

- The solution must be solved using Python OpenCV
- The number of FPS to be analyzed must be a configurable parameter (10 FPS by default)

Deliverables:

1. For all the development, the technical and code documentation must be made.
2. Python wrapper script that executes the trained models and returns the CSV Matrix described in the Product Scope.
3. Python script that executes video anonymization.

Delivery term:

June 12, 2020

Resources

https://github.com/sebasegovia01/CNNYoloV3