SPORTRADAR

Technical Interview Task - Computer Vision Engineer

Dominik Györkös

Tasks:

• Coded prototype capable of solving the task or part of the task
The main advantage of my solution isto be able to determine the position of the Scoreboard from many type of inputs and return it.

• Task breakdown into smaller, easier to tackle, parts
I divided the problem into 3 main parts:
- video input / stream.py
- scoreboard search / separator.py
- optical character recognition / ocr.py
And a main.py that handles these three

• For each of the parts explanation of how you would solve it

   - **video input:** pafy library, focused only youtube inputs
   - **scoreboard search:** opencv, separated the static scoreboard from the background with motion detection
   - **optical character recognition:** because it takes a long time to write own character recognition, it seemed logical to use pytesseract.

• Rough time estimates
The most time consuming part is finding the position of the score table (max 5s after it pops up). After that, only the image cropping and OCR need to be updated, this has a run time of <1s

• Assumptions, limitations, future work considerations
1. The program performs image processing on the scoreboard before OCR.
This image processing could be tested adaptively or with several different filters at runtime to pass the best to OCR
2. To help with OCR, the scoreboard could be split into two rows and columns after the first name found, in which it would now only perform a character search, which is more efficient and parameterizable (numbers only, single characters only)

• List of existing solutions that are relevant for this challenge (scientific articles, git repositories, etc.)

pytesseract: https://pypi.org/project/pytesseract/
pafy: https://pypi.org/project/pafy/