Computer Vision (Shailesh Beri) - One Page Summary

Problem Statement:

Need a Computer Vision Reusable Feature which performs Computer Image Analysis, identifies objects in the image, and Describes these objects in a single function call

Overview of Technology (Hardware and Software)

- Azure Computer vision API Service
- Windows 7/10 Laptop
- Python 3.6 on Jupyter platform
- Packages to support Image Analysis and rendering in Jupyter

High Level Overview of steps:

- Create new resource group in “West US” region
- Sign-Up for Computer Vision API in Azure Portal under the resource group
  - Select Computer Vision API under AI + Cognitive Services
- Select correct pricing tier
- Capture Subscription keys
- Install opencv-python using PIP in cmd
- Call API(s) by running Python program
- Check Metrics in Azure Portal for the API and check calls made vs. successful calls

Data Set:

- Data used for the project are Image URL(s) from Internet
- To support the key objective of qualitative analysis of the Computer Vision API a variety of images were obtained from the Internet and were tested to verify results
- Sample URL(s)
  https://ausopen.com/sites/default/files/201801/28/o_federer_f_rla_28012018_42.jpg
  https://ausopen.com/sites/default/files/201801/28/o_federer_f_rla_28012018_35.jpg

Lessons Learned

- The Computer Vison API(s) are a powerful tool to get 360-degree view of an image, its characteristics, persons, objects and texts in the image
- Azure Computer API capability is good and flexible. There is room for improvement by enhancing the API through machine learning as more and more images are analyzed and the image knowledge base grows

Pros

- A single Computer Vision API service to be deployed in Azure to access all the functions by making calls to different underlying API(s)
- API(s) return all information back in JSON format which can be directly stored in database
- Multiple Image formats are supported (JPEG, GIF, BMP. PNG)

- Option to perform enhanced image analysis from 86 category taxonomy

Cons

- Image size is restricted to 4 MB
- More AI and Machine learning capabilities should be provided

References

https://docs.microsoft.com/en-us/azure/cognitive-services/computer-vision/tutorials/pythontutorial

Skeletal API(s)

https://github.com/Microsoft/Cognitive-Vision-Python

YouTube Video URL(s)

2-Min Video

https://youtu.be/s7AtUIe5kks