Image Analytics

Introduction

As the world is moving towards automation, we at Redeem Software are building some of the most complex systems to solve real world problems empirically. Our main focus verticals are Product Realization Analytics, IOT Analytics, Network Analytics and Engineering Analytics. With that in mind, there are two sources of data which engineering companies must pay heed to image and video data. There are many challenging application involving image and video analysis that can benefit and automate many processes in engineering. These models are not only very complex but they also requires huge amounts of data to be analyzed. Image mining is a very novel application of analytics on unstructured data that can be leveraged by businesses that are involved in design and manufacture.

Two practical ways they can improve their efficiency are:
- Quickly and accurately categorize all their designs into well-defined clusters.
- Automatically classify or tag images based on features such as color, pattern etc

Capabilities

- OCR IMAGE TO TEXT
- IMAGE CLASSIFICATION
- IMAGE CAPTIONING

Image Analytics Digitization

Using OCR, documents can be scanned and converted from image format to text. And then, we can use advanced text analytics tools to label these documents and categorize the documents accordingly.

Face Recognition

Using facial recognition systems in security and surveillance to identify the person for any security purposes, and to identify if an intruder is entering a restricted area.

Production Line Monitoring

Using neural networks image models, we can reduce the human load of having to manually check each and every product manufactured.

Pattern Identification and Segmentation

Identifying patterns and segmenting images belonging to a particular category can help create a repository and can reduce the manpower contributed towards.

Security and Surveillance

Intelligent video surveillance is the future of security applications. Whether it is a crowded airport, a subway platform, a nuclear plant, an office high-rise, or a vigorously patrolled border, there is an acute need to be aware of any and all suspicious activity on the premises. Real time video analytics is the key to intelligent video sur- veillance.

These critical infrastructure solution operates efficiently under all weather and light conditions in a variety of urban, rural and remote environments.

Using neural network models, we were able to achieve high levels of accuracy in automatic detection of image patterns. This model was most accurate in identifying geometric patterns and somewhat less accurate in

identifying novelty (non-standard) patterns. This analysis was conducted on only about 50 designs as an initial exploration. Once we expand the data set to include all of several hundred designs, the accuracy will greatly increase. This is an area where advanced algorithms such as deep learning can deliver extremely high accuracies.

The business use cases for video analysis are many. For example, the ubiquitous surveillance cameras in pretty much any business can generate a continuous feed of video footage that might need analysis. Obvious applications are motion detection - to trigger an alarm or alert if there is activity in an area where there is not supposed to be any to more sophisticated applications such as automatically identifying a person using complex facial recognition technologies. One big-brother type use case that may soon become common is tracking employee hours using both sensor data from RFID tags for example, and even adding facial recognition.