REAL TIME SCENE ANALYTICS USING PYTHON

Real time scene analytics and human activity analysis has always been vast and much import research topic under computer vision.We aim to propose simple yet robust solution for real time scene analytics by using python and its modules such as opencv,matplotlib,numpy scipy etc.Opencv and Numpy are the vast used modules for mathematical computation on images. The whole work on scene analytics can be divided can be divided into three main stages.

(i) The first stage includes, user-defined Region of Interest and human detection.
(ii) Second stage includes feature extraction,representation and classification of human actions.
(iii) And as a final stage we would improvise our solution to detect non human events in real time.

We have developed the first stage on real environment rather than using any public human activity datasets which has till now followed an agile methodology.Our project focus to gain better accuracy in classifying human as well as non human events, thus providing better solution to applications such as camera survillence , healthcare etc. Eventhough scene analysis has been very old topic , lack of accuracy and complexity to build such systems and still keeps this project under research. Python being a very effcent and strong language will definitely reduce the complexity of development to build such any complicated system. We are still under the exploration of possibilties of python modules and its possibilites.

Overview on general system for scene anaytics

- Provision to set , view and analyse multiple cameras.
- Provision for the user to define Region Of Interest
- Segmentation of all events happening in the Area of interest. This segmentation is by background substraction.
- Extract the blobs of images of interest and identify human by HOG descriptor.
- Extract the features of interest from action dynamics, shape structure, orientation etc.
- Train events using any suitable classifier
- Recognizing valid events.
- Finally saving valid events and its corresponding data to a database.