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RESEARCH ARTICLE

The Innovation of smart Photography VIGNESH.R-PG Student II year MCA

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Abstract

We present the new method in smart photography by adding new option user defined option for detecting the face or object according to user perspective. The field of image and video recognition is quickly progressing, with new technology now allowing for content-based search and classification of digital media. This article introduces the area of smart photography and describes the Impala app, a real-world application developed by Euvision Technologies. It is automatically improving or modifying an image based on visual concept detection, performed entirely on the camera in real time.

INTRODUCTION

The image and video recognition is immensely progressing, with new technology now allowing for content-based search and classification of digital media. In the past, the accuracy of video recognition doubled every three years, 1 but recent advance employing deep convolution neural networks have nearly doubled in accuracy in a single year.

At this stage, coarse grained classifications and concepts or nouns, such as cars, sunsets and sunrises, mountains, and indoor scenes, can be recognized. It's also possible to recognize fine grained classifications such as German shepherds, Afghan hounds, terriers, or spaniels. It has even become possible to recognize events in videos, such as a person changing a car tire, a person cleaning an appliance, or a couple at a wedding ceremony. The progress may well be a result of international benchmarking challenges. These challenges encourage research in information retrieval by providing large test collections, uniform scoring procedures, and forums for comparing results. Two well-known examples are TRECVid for evaluation of video retrieval3 and ImageNet for image classification.4

Categorizing Images

At this time, it appears that the first mobile application that performs visual concept classification 100 percent on the mobile phone it automatically creates a series of labeled folders (such as cats, cars, or beaches) and then places pictures from a mobile device's image gallery into these folders to help the user locate pictures. The image classification runs in real time. The classification actually takes place while the user is pointing the camera at the scene to be photographed. On today's modern mobile chips, three to four frames can be processed per second. The app instantly displays the image categories under which the photo to be captured will be placed. This allows the user to easily locate the picture in the future.

The Future of Smart Photography

Popular apps such as Instagram, Cameraþ, EyeEm, Hipstamatic, and Aviary have introduced the idea of photographic filters. These filters, which can be complex, typically adjust the intensity, hue, saturation, or contrast in the image either locally or globally. They can also apply color lookup tables or overlay one or more masking filters such as a vignetting mask (darkening edges and corners), thereby generating the Polaroid effect, for example. Different filters are best applied to different types of images to obtain aesthetically pleasing pictures. Well-known examples of photographic filters provided by the Instagram app, for example, are the Rise filter, which works best for close-up portraits; the Hudson filter, which is best applied to photos of building exteriors; and the Lo-Fi filter for shots of food.

Blocking Content

Today's scanners have built-in recognition capabilities to recognize banknotes, which are printed with a unique pattern of small dots that is easily picked up by scanner software. Either the document will be reproduced with a big "specimen" overlay, or the scanner will simply refuse to make a digital copy of the banknote. The same functionality is present in software such as Photoshop, which prevents a user from uploading or opening a file with a scanned banknote. In addition to banknotes, some other types of content, such as classified military objects or child pornography, should not be copied, photographed, or viewed. With the current accuracy of image recognition, it has become possible to train classification engines to detect these types of content. At Euvision Technologies, we apply these engines to help social media platform owner's moderate content.

Furthermore, in close cooperation with the Dutch police, we trained our engine to recognize images of sexual child abuse. This has two advantages: Not only does it mentally prepare forensic investigators for what they are about to see, it also allows them to work more efficiently during forensic searches. This inspired us to develop another advanced application of concept-based image recognition technologies running on mobile devices: blocking unwanted content. As a technology demonstrator, we trained the Impala classification engine to recognize hands.

We chose hands because these, in a way, represent the color, texture, and shape of certain unwanted scenes and because every photographer can easily take a picture of his own hand for testing. Once a hand becomes visible within the camera's field of vision, the view of the hand is pixilated, as is shown in Figure 5.Moreover, the recording button is made inactive, preventing the capture of the image. Of course, it is then trivial to replace the hand recognition functionality by, for example, an adult content classifier. Of course, this works both at the time of recording and at display time. This means that even if thousands of images of unwanted content are stored on a device, such images become unviewable. Mobile devices loaded with the new sexual child abuse filtering option would stop the recording of this type of content. Besides blocking the creation of new material, this filter would also block the viewing of legacy material.

The results achieved by the newly invented algorithms have recently started to make their way to industry at incredible speed. For instance, a professor from the University of Toronto, Geoffrey Hinton, won ImageNet in 2012, and in March 2013, his neural network start-up was acquired by Google.5Within three months, Google made the algorithm's results available in its social network Googleþ.6. This was repeated the next year. New York University professor Yann LeCun won ImageNet 2013. December of that year, LeCun was made director of a new research laboratory at Facebook through an "aqui-hire," with the goal of bringing aboutmajor advances in Facebook's artificial intelligence.7 Another example of the rapid market penetration of computer vision and machine learning algorithms is the introduction of fine grained image recognition by China's top Internet search engine Baidu. The company's Baidu Translate app lets you take a picture of something and circle it. The outlined object is then sent to a server, which attempts to identify the object and tell you what it is in Chinese and English.

Sustainability

The more photos we take, the less likely we are to ever look at any of them again. Of course, that problem is easily overcome with these recent advances in computer vision. However, creating a sustainable business model for the new technologies is not easy. Perhaps the best photo start-up, Everpix, recently shut down due to the exceedingly high costs of the cloud services that provided compute power and storage capacities.9. The aforementioned industry leaders (Google, Facebook, and Baidu) have taken advantage of the breakthroughs in our field. However, it appears that none have yet taken advantage of another revolution, the ever-increasing amount of compute power available on chips and, hence, on smart phones and tablets. These mobile devices today have eight cores with a clock speed of almost 3 GHz.

Implementation

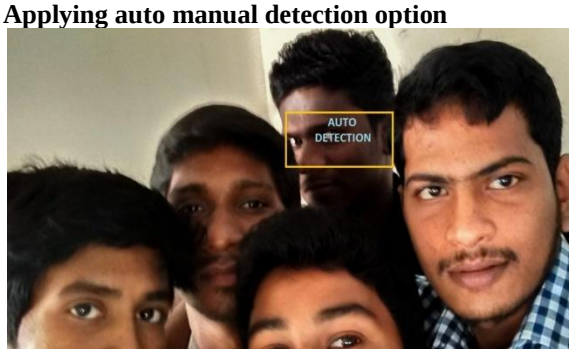
System implementation is the most crucial stage in achieving a successful system and giving the user's confidence that the new system is workable and effective. Implementation of a modified application is to replace the existing one. Each program is tested individually at the time of development using the data. It has been verified that this program linked together in the way, specified in the requirement specification.

Implementation is the carrying out, execution, or practice of a plan, a method, or any design for doing something. As such, implementation is the action that must follow any preliminary thinking in order for something to actually happen.

In an information technology context, implementation encompasses all the process involved in getting the software or hardware operating properly in its environment, including installation, configuration, running, testing, and making necessary changes.

The system that has been developed is mapped with the requirement to make sure that system is developed with the required specification. The implementation stage involves careful planning, investigation of the existing system and its constraints on implementation. Implementation is the process of converting a new design into operation.

Applying auto manual detection option



Final Out

Conclusion

Smart photography carries both the promise of enabling us to make better pictures and the power to root out the spread of sexual child abuse media. The new method involves in many options which are reliable and easy to access and enhance our views on reality and it also exposes the clarity and some additional option provides the task simple as well as comfortable. I believe both are outstanding accomplishments of the computer vision community and the semiconductor industry.

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