Towards a Smart Selection of Cloud Resources for Multimedia Big Data Computing

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Abstract: the last few years have been marked by the presence of multimedia data (images and videos) in our everyday lives. The latter are characterized by a fast frequency of creation and sharing since images and videos can come from different devices such as cameras, smartphones or drones. They are generally used to illustrate objects in different situations (airports, hospitals, public areas, sport games, etc.). As result, image and video processing algorithms have got increasing importance for several computer vision applications that should be adapted to the scale of Big Data. In this work, we propose a real time cloud-based toolbox (platform) for computer vision applications. This platform integrates a toolbox of image and video processing algorithms that can be run in real time and in a secure way. The related libraries and hardware drivers are automatically integrated and configured in order to offer to users an access to the different algorithms without the need to download, install and configure software or hardware.

Experimentations were conducted within three kinds of algorithms: 1. image processing toolbox. 2. Video processing toolbox. 3. 3D medical methods such as computer-aided diagnosis for scoliosis and osteoporosis. These experimentations demonstrated the interest of our platform for sharing our scientific contributions related to computer vision domain.

Keywords: Cloud computing, real time, GPU, heterogeneous architectures, Big Data, image and video processing, medical imaging.

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