



Detection and classification of the behavior of people in an intelligent building by camera

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Abstract- an intelligent building is an environment that contains a number of sensor and camera, which aims to provide information that give the various actions taken by individuals, and their status to be processed by a system of detection and classification of behaviors . This system of detection and classification uses this information as input to provide maximum comfort to people who are in this building with optimal energy consumption, for example if I workout in the room then the system will lower the heating . My goal is to develop a robust and reliable system which is composed of two fixed cameras in every room of intelligent building which are connected to a computer for acquisition of video sequences, with a program using these video sequences as inputs, we use RGB color histograms and textures for LBP represented different images of video sequences, and SVM (support vector machine) Lights as a programming tool for the detection and classification of the behavior of people in this intelligent building in order to give maximum

comfort with optimized energy consumption. The classification is performed using the classification of $k = 1$ and $k = 11$ in our case, we built 11 models in the learning phase using different nucleus in order to choose the best models that give the highest classification rate and finally for, the classification phase, to classify the behavior, we compare it to the 11 behaviors, that is to say, we make 11 classification and take the behavior that has the highest classification rate. This work has been carried out within the University Joseph Fourier in Grenoble precisely LIG (Grenoble computer lab) in the team MULTI COM and the University of Oran Algeria USTO. Our contribution in this field is the design and implementation of a robust, and accurate system that make detection and classification of 11 behaviors cameras in an intelligent building, varying illumination it means, whatever lighting is our system must be capable of detecting and classifying behaviors.

Index terms: video analysis, people detection, intelligent building, classification.