

Biométrie dans un contexte de vidéo surveillance.

Mots clés :

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- **Domaine scientifique principal**: Divers

Résumé du projet de recherche (Langue 1)

At the moment, people involved in video surveillance studies on the one hand and people involved in biometrics on the other hand form two distinct communities. In particular they do not use the same databases to test and design their algorithms and do not work with the same objectives. Researchers in video surveillance are working on videos obtained from classical and existing video cameras (one or several) generally of low quality and try to identify or recognize a human activity (eg. walking, running, etc.) whereas researchers and developers in biometrics (in particular face recognition) are mainly working from one single frontal image (possibly extracted from a video) that has been either normalized in luminance and pose or either taken under very constraint conditions (ie. frontal, neutral expression, etc.) to recognize people. In this thesis, we plan to tackle the difficult problem on working on biometrics from video sequences provided by video cameras of surveillance with unconstraint conditions on users or environment). Such an approach includes many benefits: - We do not need collaborative users (users can even be not aware of being under authentication); - We do not use specific acquisitions (videos cameras already exist; no additional costs); - We can operate authentication on-the-move (no delay); - We can expect to operate at a large scale (major sport events, large airport, etc.)

Résumé du projet de recherche (Langue 2)

Obviously, to obtain similar results (person recognition rate) from pictures obtained by video surveillance as ones obtained from still normalized frontal images is very challenging and much more difficult if processing is restricted to face recognition based on texture data. It is then necessary to enforce classical facial features with some other information; and video surveillance sequences offer new potential information: - In addition to physical information about the face, dynamic parameters (ie behavioral) can be extracted from both face (pose, eyes blinking, mouth motion) and body (gait); - Soft biometrics can be extracted from both face (color of eyes, gender, aging, ...) and body (weight, height, ...); these information are not sufficient to recognize but can help the process; - If available, audio and speech can be also considered to help in people recognition including partial information such as the identification of the language used by the person; - Finally, video surveillance mainly includes not only one video camera but several ones that can complement each other, ie multiple views. This point can open new applications, such as simultaneous authentication and tracking of people. In addition to numerous security related applications, such tool could be of interest to find for example a lost child in an airport.