Recognizing people by the way they walk

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Recognizing people by the way they walk can have numerous applications in the fields of security, leisure or medicine. Ramon Mollineda, lecturer at the Department of Computing Languages and Systems at the Universitat Jaume I, is working with his team in the development of this new biometric technique that takes into account the way a person walks and his/her silhouette. The technique offers significant advantages as recognition can be done remotely and does not require the cooperation of the subject. Detecting suspicious behaviour (video surveillance), access control to buildings or to restricted areas and demographic analysis of a population in terms of gender and age range are just some of the possible applications of this technology.

The role of biometrics as an artificial intelligence field is the identification of an individual based on certain physical and non-transferable aspects of his/her body, such as fingerprint or facial recognition. These are just two of the most widely used and developed biometric sources because, as the researcher states, "they are very reliable and difficult to fake, although both require that the user is close to the sensor and collaborates in the recognition process, and we can not always count on that". Hence the importance of advancing in complementary techniques.

We all have a very personal way of walking. "Although it is easy to manipulate and consciously change, each person walks in a different way", says Mollineda. "There are experiments in which a person has to recognize familiar people just watching his/her silhouette in motion and the success rate is very high", he adds. It has to be kept in mind that

there are several factors that influence so that each person has a unique way of walking. From a video of the subject walking, the developed system distinguishes the background silhouette and it becomes a sequence of silhouettes, placed one upon the other, resulting in a summary image. This final representation stores all physical appearance and movement of the person walking, thus getting a unique mark for each of them.

Mollineda warns that, for now, due to the margin of error that gait recognition has in not controlled real scenarios, this technique would be much more effective if combined with facial recognition. "They are complementary methods: the way you walk can be detected from a distance and does not require a high-resolution image (it can be done even against a backlight and with poor lighting), while face recognition is performed close-up and with a high-resolution image. In this way, surveys could be carried out in a wider range of conditions or, if both methods are applicable, results could be more reliable thanks to contrasting hypotheses about the identity of an individual generated by two biometric systems".

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