Gait Recorded by Smart Phone Can Reveal Your Emotion

So far, a lot of scientific studies have been carried out on nonverbal signals, which are considered as extrinsic expression of human's intrapsychic state. Among them, emotion detection aims to automatically determine a person's affective state, with immense potentials in many areas from health care, psychological detection to human-computer interaction. Traditional emotion detection is based on expressions, or linguistic and acoustic features in speech. However, high complexity in dealing with image and audio is inevitable.

Dr. ZHU Tingshao's team at the Institute of Psychology, Chinese Academy of Sciences has proposed a novel method for identifying human emotion from natural walking. Results indicate that it is possible to identify emotion using gait data. Besides, ankle is more capable to reveal human emotion (angry/neutral/happy) than wrist.

Dr. ZHU and his colleagues conducted two rounds of experiments. In the first round, each participant was asked to wear a smart phone on one of their wrists and another smart phone on an ankle, and stood within a fixed rectangle-shaped area marked on the floor with red lines. Then he/she walked calmly back and forth in the area for about two minutes, and reported their current emotion state (anger) with a score from 1 to 10.

After that, they were asked to watch some film clips (with anger themes), and then walk back and forth in the same area for another one minute. Each participant again reported their current anger score and recalled their anger score after watching the film clips. The same procedure was used for a second round of the experiment, using happy score and happy clips.

Results showed that there are great differences in the gaits before and after watching the film clip. The emotion identification accuracy on data sets from ankle is higher than that from wrist. The accuracy for identifying angry vs. neutral is around 90.31% while for identifying happy vs. neutral is 89.76%. The accuracies for identifying anger, neutral, and happy are 85%, 78%, and 78%.