Evidence for norm-based visual coding of human movement speed

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Estimates if the visual speed of human movements such as hand gestures, facial expressions and locomotion are important during social interactions because they can be used to infer mood and intention. However it is not clear how observers use retinal signals to estimate real-world movement speed. We conducted a series of experiments to investigate adaptation-induced changes in apparent human locomotion speed, to test whether the changes show repulsion of similar speeds or global re-normalisation of all apparent speeds. Participants adapted to videos of walking or running figures at various playback speeds, and then judged the apparent movement speed of subsequently presented test clips. Their task was to report whether each test clip appeared to be faster or slower than a 'natural' speed. After adaptation to a slow-motion or fast-forward video, psychometric functions showed that the apparent speed of all test clips changed, becoming faster or slower respectively, consistent with global re-normalisation rather than with repulsion of test speeds close to the adapting speed. The adaptation effect depended on the retinal speed of the adapting stimulus but did not require recognizably human movements.