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Human motion perception: From psychology to vfx

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The visual attention is challenged every day by an environment more and more complex and a bigger offer for digital entertainment. The competition seems unequal and the visual attention system has no other choice than being selective. The scientific work on visual attention exploded from the 1980's consistently with the maturity and accuracy of measurement apparatus (fMRI, eye-tracking and so on). In such context, Human motion raised the interest from various communities, from psychologists, to biologists, neuroscientists. Pionner work of Gunnar Johnson (1973-1976) defined the biological motion perception through a the point-light displays paradigm. He evidenced that few small light bulbs positioned to the major points of a human figure dressed entirely in black may be used to study the human position. Thus, 10 dots at 200 ms of display time were sufficient for a human observer to perceptually organize the dots into a full coherent shape. Later, in 2008, other scientists evidenced some signatures included into the biological motion patterns. From the point-light displays, one can easily identify between animal and human figure, recognize a familiar person and determine relevant attributes, such as gender, age, mental states, actions and intentions. In this presentation, we will introduce the work from psychologists and will attempt to make the link with recent publications in the computer vision community, such as the style transfer of motion/gait, the automatic quality assesement of animations and so on.

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