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Psychological Evidence for Unconscious Processing of Detail in Real-time Animation of Multiple Characters

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Detailed animation of 3D articulated body models is in principle desirable but is also a highly resource-intensive task. Resource limitations are particularly critical in 3D visualizations of multiple characters in real-time game sequences. We investigated to what extent observers perceptually process the level of detail in naturalistic character animations. Only if such processing occurs would it be justified to spend valuable resources on richness of detail. An experiment was designed to test the effectiveness of 3D body animation. Observers had to judge the level of overall skill exhibited by four simulated soccer teams. The simulations were based on recorded RoboCup simulation league games. Thus objective skill levels were known from the teams' placement in the tournament. The animations' level of detail was varied in four increasing steps of modelling complexity. Results showed that observers failed to notice the differences in detail. Nonetheless, clear effects of character animation on perceived skill were found. We conclude that character animation co-determines perceptual judgements even when observers are completely unaware of these manipulations. Copyright © 2000 John Wiley & Sons, Ltd.