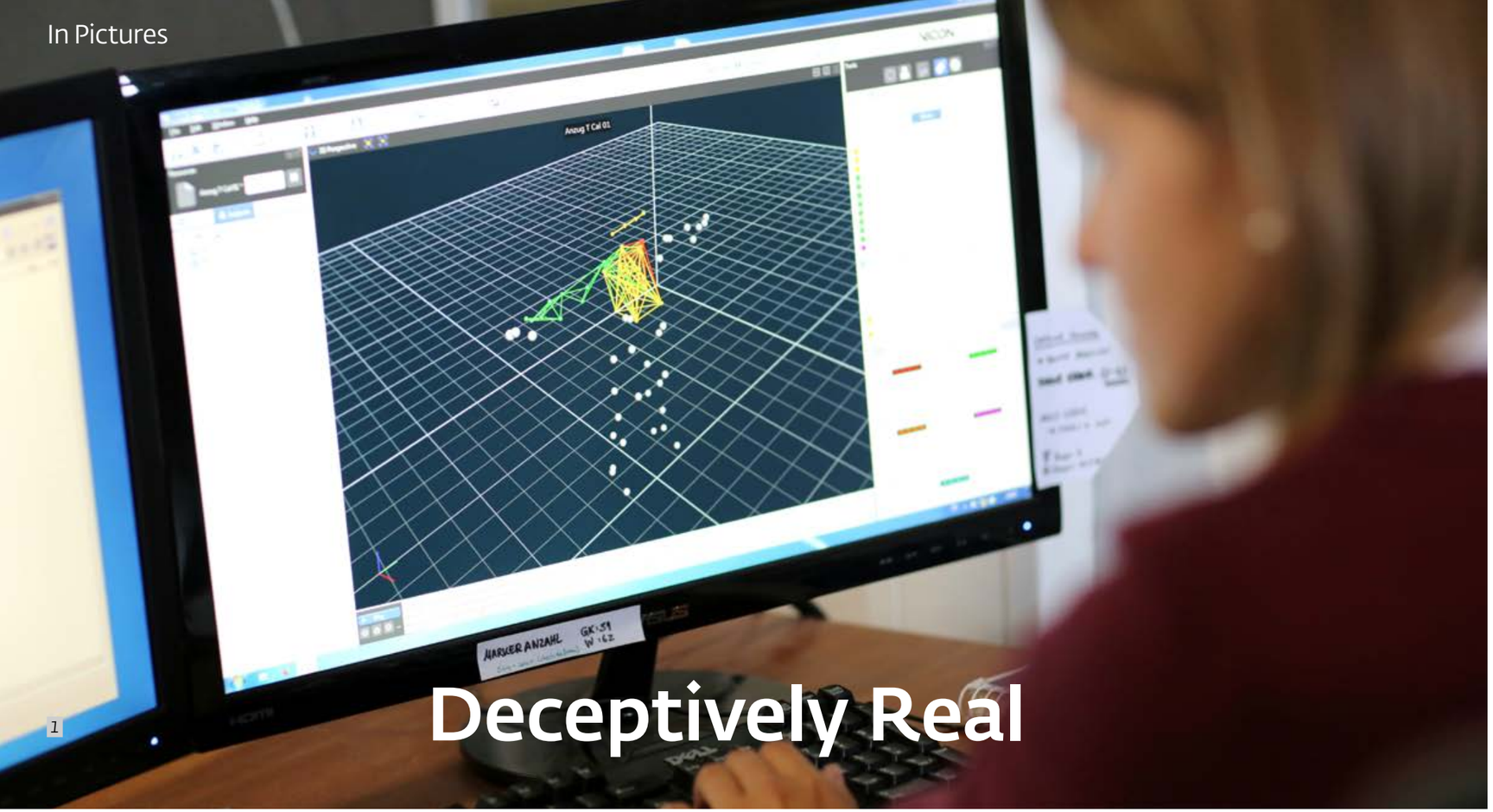
Deceptively Real



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Deception is fundamental to many kinds of sports. Oldenburg researchers under the aegis of sports scientist Jörg Schorer are studying the many different movements people use to trick their opponents.

1 *In her dissertation Josefine Panten is analysing the movements handball players use in the seven-metre penalty throw. Her question: precisely how do the throwers go about disguising their intentions? She gathers the necessary video data using a motion capture system. The movements are visually represented in virtual images.*

2 *Anatomical landmarks are labelled with reflectors attached to the bodies of test subjects.*

3

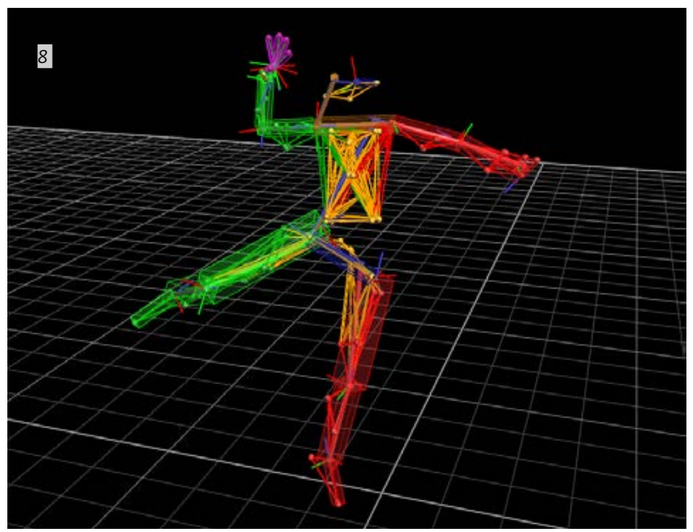
3 *In the laboratory a total of 12 infrared cameras record the position of the markers – at a rate of up to 240 images per second. The doctoral student has to calibrate the cameras in advance.*

4

4 *The two players take up their positions on the court. Before each throw, thrower and goalkeeper assume a starting position recognised by the system. This allows it to automatically map the anatomical landmarks.*

5

5 *The experiment foresees a total of 160 penalty shots divided into four blocks of 40 throws each – with extended breaks in between. The repetitions are necessary in order to compensate for the variations in the throwing movements, which result from the multiple factors in a situation that can only be minimally controlled.*



6 *There are no rules beyond the normal rules of handball – meaning that the interaction can produce deliberate, spontaneous deceptive manoeuvres, as the experiment requires.*

7 *Josefine Panten's experimental design proposes an initial set of 10 pairings of test subjects with intermediate to advanced skill levels so that she can gather sufficient data for her cluster analysis. Experiments with other skill levels will follow.*

8 *"Feigned throw" in 3D. The analysis makes the trajectory of the movement, or the spatial progression of the lines of the (points of) movement, clearly visible – from small-scale pointing or grabbing movements to larger scale running and jumping movements.*

9 *Josefine Panten with her supervisor Prof. Dr. Jörg Schorer. Even during the experiment they are able to follow the individual movement patterns in real time on the screen and verify the quality of the recorded data.*