

# Overconfident perceptuo-motor decisions

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Overconfidence can place humans in hazardous situations and yet it has been reported in a variety of cognitive tasks where participants have to rate their own performance. These reports have been questioned on the basis of the artificial nature of the tasks and the subjectivity of the responses. We demonstrate here that overconfidence can be revealed in a natural and objective visuo-motor task. Participants were asked to press a key in synchrony with a predictable visual event and were rewarded if they succeeded. On different occasions, participants could also be penalized if they were too quick or too slow. To maximise their gain, they should anticipate the visual stimulus at a time that is function of their own motor hitting uncertainty. Participants failed to aim at this optimal time and displayed instead an overconfidence in their action in the sense that they underestimated the magnitude of their uncertainty and the cost of their error. In addition, we show that this overconfidence perdures beyond the time scale of accuracy improvements resulting from motor learning. Therefore, overconfidence is not limited to subjective ratings of cognitive tasks but rather appears to be a general characteristic of human decision making.