The role of perceptual confidence in decision-making and its pupillary correlate during the interaction with a human and machine partner

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Résumé

Every decision we make is accompanied by a sense of confidence. Confidence mechanisms enable us to evaluate how good our perceptual representations are and it is thought to play a critical role in guiding decision-making. However, only a few empirical studies have actually investigated the function of perceptual confidence on decision-making. To investigate this issue, participants completed a task in which they provided sequential decisions. They were presented with two random dot kinematrograms, and judged which group of dots moved closer to the vertical axis. Subsequently, they indicated whether they were confident or not that their response was correct and then viewed the response of a machine or human partner. They were instructed to evaluate the response of their partner and decide whether to keep or change their initial perceptual judgment. We observed that confidence predicted participants' decision to keep or change their initial responses more than task difficulty and perceptual accuracy. Furthermore, confidence judgments could be predicted by pupil dynamics, suggesting that arousal changes are linked to confidence computations. In sum, this study contributes to our understanding of the function of confidence for decision-making and highlight the possibility of using pupil dynamics as a proxy of confidence.

Mots-Clés: perceptual confidence, decision, making, human, human and human, machine interactions, pupil dynamics

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