The Temporal Dynamics of Meta-Cognition in a Continuous Visuomotor Task

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Submitter Shannon M. Locke

Affiliation New York University

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Presentation Abstract Summary An accurate meta-cognitive estimate of confidence for our perceptions and actions is important for learning and making decisions. We investigated how well confidence judgments discriminate between good and poor sensorimotor performance in a tracking task, and at which points in time did tracking error predict the confidence report made by the human participants. In the task, a twinkling cloud of dots followed an unpredictable horizontal trajectory. Participants tracked the cloud with a computer mouse. Meta-cognitive sensitivity was above chance, and similar whether the observers were given an obvious or subtle cue to the difficulty level of the trial, suggesting an attempt to monitor actual performance rather than relying on heuristic cues. A temporal analysis found that tracking performance during the late portion of the trial best predicted confidence judgments. This sub-optimal recency effect may result from memory constraints and/or the complexity of the error computations.

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Co-author Information

* Presenting Author

First Name	Last Name	Affiliation	E-mail
Shannon M. *	Locke *	New York University	shannon.m.locke@nyu.edu
Michael S.	Landy	New York University	mike.landy@nyu.edu
Pascal	Mamassian	Ecole Normale Superieure	pascal.mamassian@ens.fr
Eero P.	Simoncelli	New York University	eero.simoncelli@nyu.edu

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