**Twitter**

🎉 Exciting news! Our new paper in PLOS Biology analyzes over 20M perceptual decisions, revealing that human & mouse perception is bimodal. #ScienceTwitter #PerceptionResearch [Link to paper]

How does the brain balance sensitivity to change with robustness against sensory noise? We addressed this question in two open datasets on perceptual decision-making in humans (https://nature.com/articles/s41562-019-0813-1) and mice (<https://elifesciences.org/articles/63711>).

We found that humans & mice fluctuate between alternating intervals of externally- and internally-oriented modes.

During external mode, perception is more sensitive to external sensory information. During internal mode, perception is stabilized by preceding choices (serial dependence).

Computational modeling indicated that between-mode fluctuations are driven by two factors: the integration of sensory information over time, and systematic oscillations in the perceptual impact of external inputs vs. internal predictions that are shaped by preceding choices.

Bimodal inference may generate unambiguous error signals that align perception with the current state of the environment in iterative test-update-cycles, similar to the wake-sleep-algorithm in RNNs.

Between-mode fluctuations may thus play an adaptive role in metacognition and reality monitoring.

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Many thanks also to our reviewers and the team at @PLOSBiology, who helped us a lot in improving this manuscript!