

Look out, its going to fall!: Does physical instability capture attention and lead to distraction?

Marta Kryven

Massachusetts Institute of Technology, Cambridge, Massachusetts, United States

Sholei Croom

MIT, Cambridge, Massachusetts, United States

Brian Scholl

Yale University, New Haven, Connecticut, United States

Josh Tenenbaum

MIT, Cambridge, Massachusetts, United States

Abstract

Physical scene understanding requires not only detecting the current state of the world, but also predicting how the future will unfold. The need for such prediction is especially salient in the context of physical instability as when an object is teetering, about to fall off a surface. Here we asked whether such scenes automatically capture attention, such that the mere presence of instability will impair performance on a central attention-demanding task. Observers viewed scenes in which an object (e.g. an open laptop) was either sitting stably, or was about to fall off a table. Observers simply completed a central Multiple Object Tracking (MOT) task (e.g. which could appear on the screen of the depicted laptop). MOT Performance was indeed worse in the presence of physical instability, despite its task irrelevance, and even when observers failed to notice the physical stability vs. instability in the first place.