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Slow Change: The Visual Context for Real World Learning

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Abstract: The visual world can be a noisy and dynamic place. This poses problems for novice word learners who must map heard names to objects in scenes with their many potential referents. In this study, we consider how the visual stability and selectivity of scenes from the first-person perspective may simplify the learning problem. 12- and 30-month-old children wore head cameras and played with a large set of toys. Through analyzing head-camera video frame by frame, we measured the rate of change of scene information in the natural world of children in this context, and found that the visual world from the child's perspective changes continuously. However, this change is slow and incremental – tiny steps – even across increasingly larger timescales. We discuss the importance of understanding the dynamics of real world environments for understanding visual processing, sustained attention, and early object name learning.