Reduced temporal fusion in near-hand space

**Stephanie C. Goodhew** (stephanie.goodhew@anu.edu.au), Research School of Psychology, The Australian National University  
**Davood Gozli** (d.gharagozli@mail.utoronto.ca), Department of Psychology, University of Toronto  
**Susanne Ferber** (ferber@psych.utoronto.ca), Department of Psychology, University of Toronto  
**Jay Pratt** (pratt@psych.utoronto.ca), Department of Psychology, University of Toronto

The brain is continuously confronted with changing visual input, from which it must infer what stimulation belongs to a continuing object over time, versus that which belongs to distinct objects. Performance on a variety of tasks is known to be affected by the proximity of visual stimuli to the observer’s hand, which has recently been suggested to be mediated via enhanced magnocellular channel input to near-hand space. Given the magnocellular channel’s superior temporal resolution, we tested whether observers’ ability to perceive two discrete visual events in time would be influenced by the proximity of observers’ hands to the stimuli. To do this, we used object substitution masking (OSM), where two objects in close spatiotemporal proximity are mistaken for one. Specifically, participants’ task was to identify the gap location (left vs. right) in a target C, which was surrounded by a configuration of four small dots (the mask). When the offset of the mask is delayed (masking condition), target perception is impaired relative to simultaneous offset. We found that masking was reduced in near-hand space. This suggests that conscious perception of two distinct objects can be facilitated by a transient boost in the temporal precision of encoding.