Modeling crowding based on interactions between sustained and transient channels and differential latencies

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Purpose
To explain crowding based on feed-forward interactions between sustained and transient responses to the target and its flankers.

The Model

Assumptions/Features
1. Static and moving objects are processed in separate pathways.
2. Some neurons respond to sustained input and some respond to changes in input (transient), and with different latencies.
3. Different populations of neurons respond to different motion velocities and with different latencies.

References

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Scenario 1: Static Temporal Condition
Target duration = Flanker duration = 22 ms

Scenario 2: Motion Condition
Target duration = 22 ms
Flanker velocity = 18.75 or 37.5 rpm

Scenario 3: Static Unmatched (Duration) Condition
Target duration = 50 ms
Flanker duration = 12.5, 25, 50, 100 ms

Performance of the model was directly related to the integration of responses from the crowding unit between 25 and 75 ms after the onset of response from the static target unit.