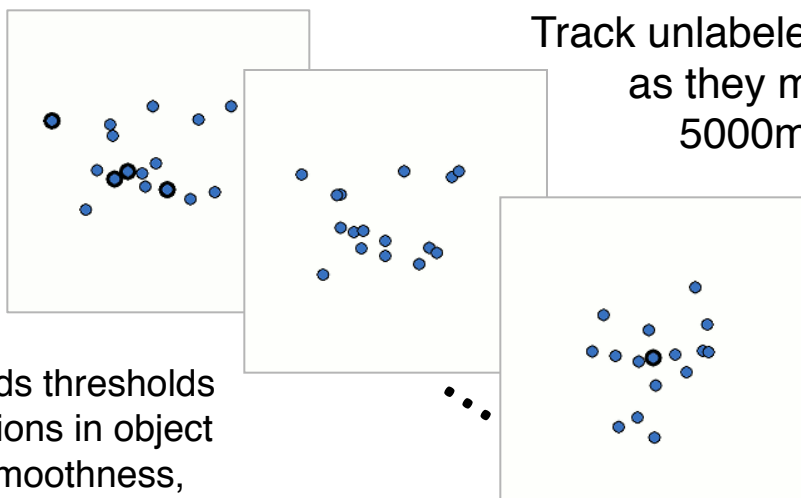


# Multiple object tracking task

Targets indicated 500ms



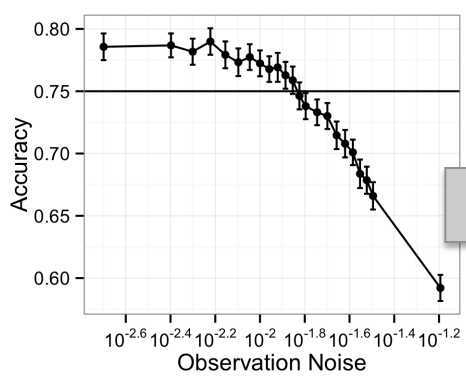
Track unlabeled objects as they move 5000ms

Respond whether probed item is a target

Human object speeds thresholds measured for variations in object spacing, motion smoothness, number of objects, and object color.

## Application of ideal observer model to speed-spacing tradeoff

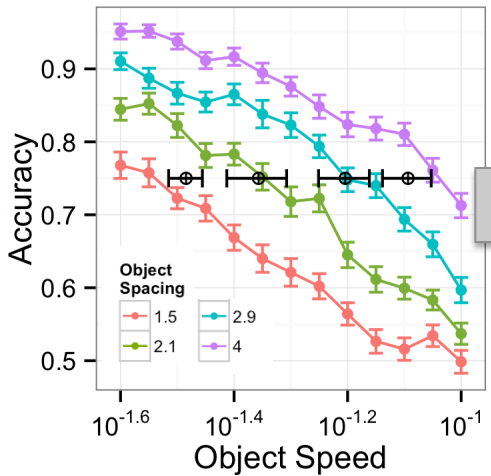
Fit model observation noise to 75% accuracy



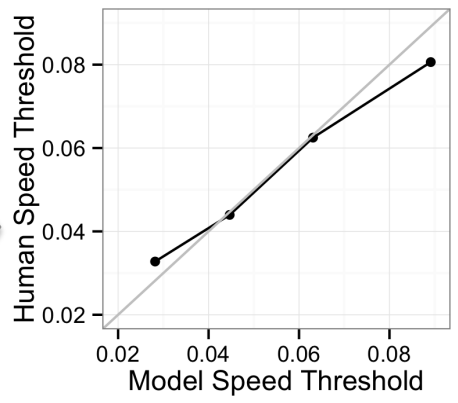
Fix observation noise

Speed-spacing tradeoffs of model

Human thresholds in black



Human versus model speed spacing tradeoffs



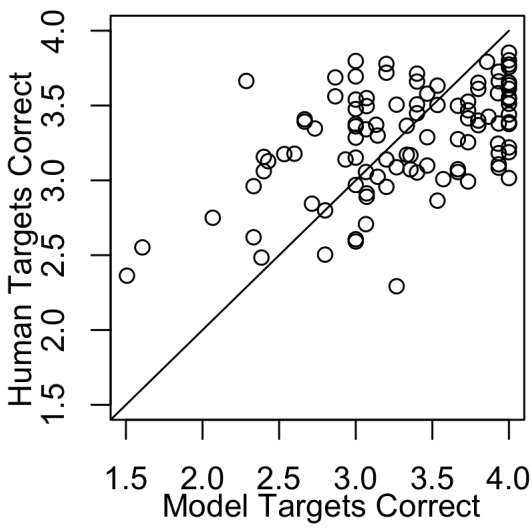
Each point is the speed needed for 75% accuracy at different object spacings

## Zero-parameter model applied to individual trial accuracy

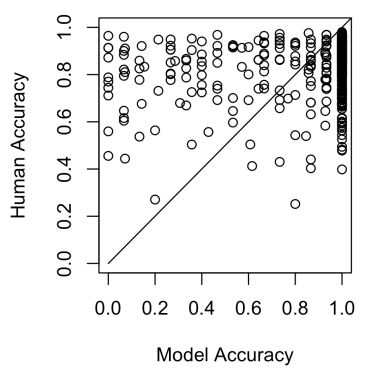
For 100 trials collected accuracy in reporting all 4 targets 250 people each (reliability:  $r = .63$ )

Ran model on same trials (correlation with human data  $r = .50$ )

Number of correct targets of human versus model



Accuracy of individual targets in humans versus model



While model captures trial accuracy, it does not capture specific errors