

Supplemental Information

	speed = 0.12	Speed = 0.25	size = 6x6	size = 8x8
Monkey 1				
Mean	1.186	1.885	1.376	2.024
Std. Dev.	0.124	0.198	1.067	1.089
Monkey 2				
Mean	1.841	2.926	3.241	3.278
Std. Dev.	0.094	0.149	1.709	0.977

Table S1. Number of disappearances over 15 second trials.

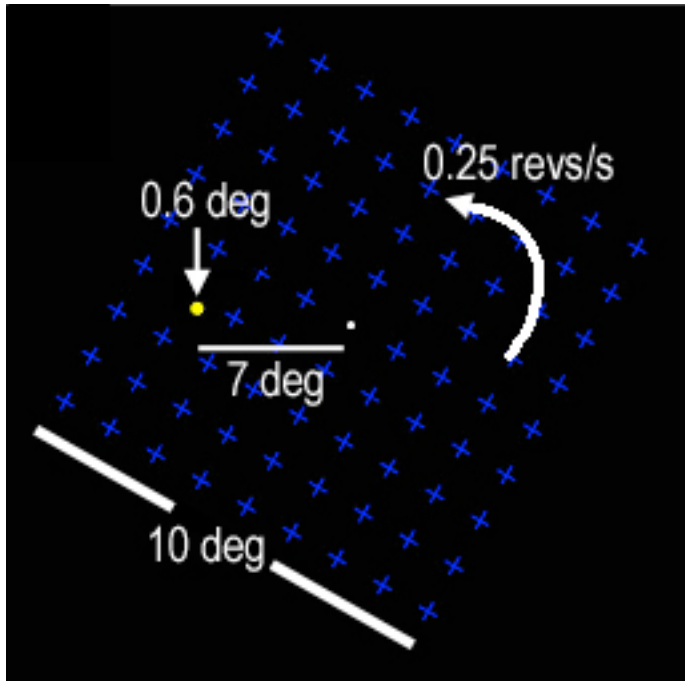


Figure S1. Stimulus used during training and recording sessions.

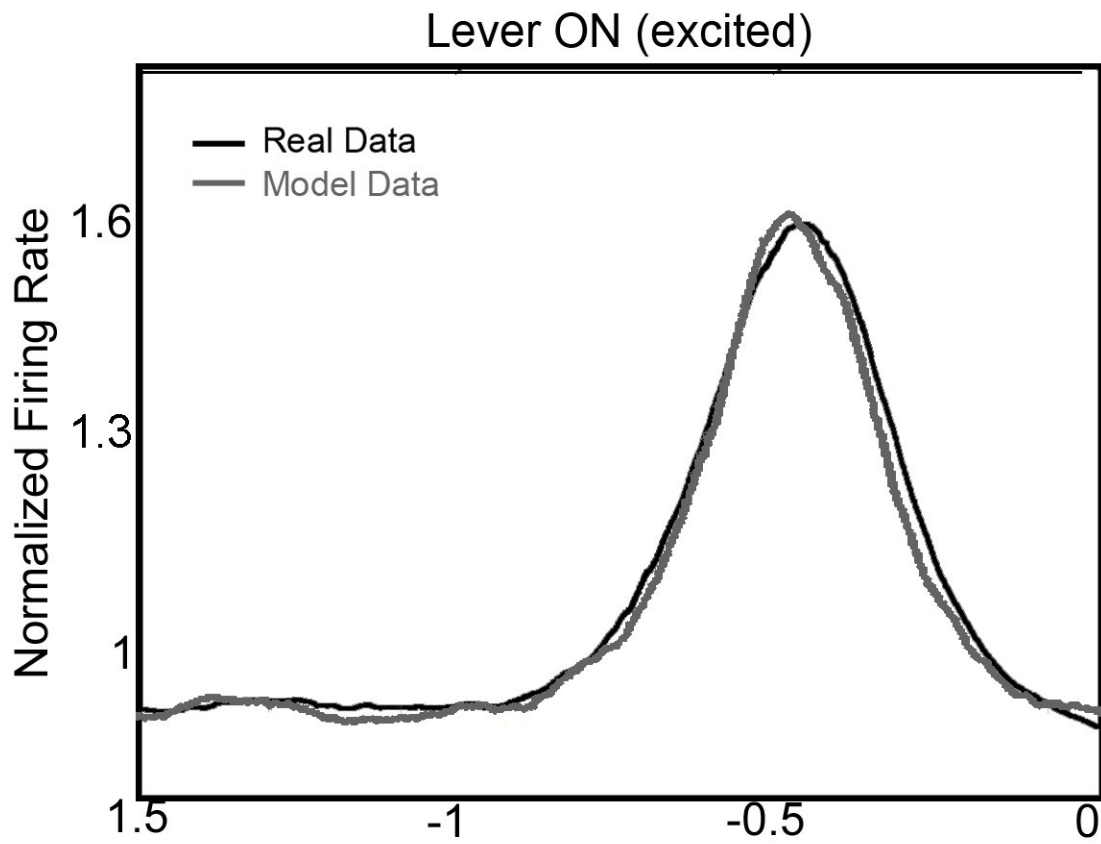


Figure S2. Real (black trace) and model neuronal activity (gray trace) prior to response to target ON.

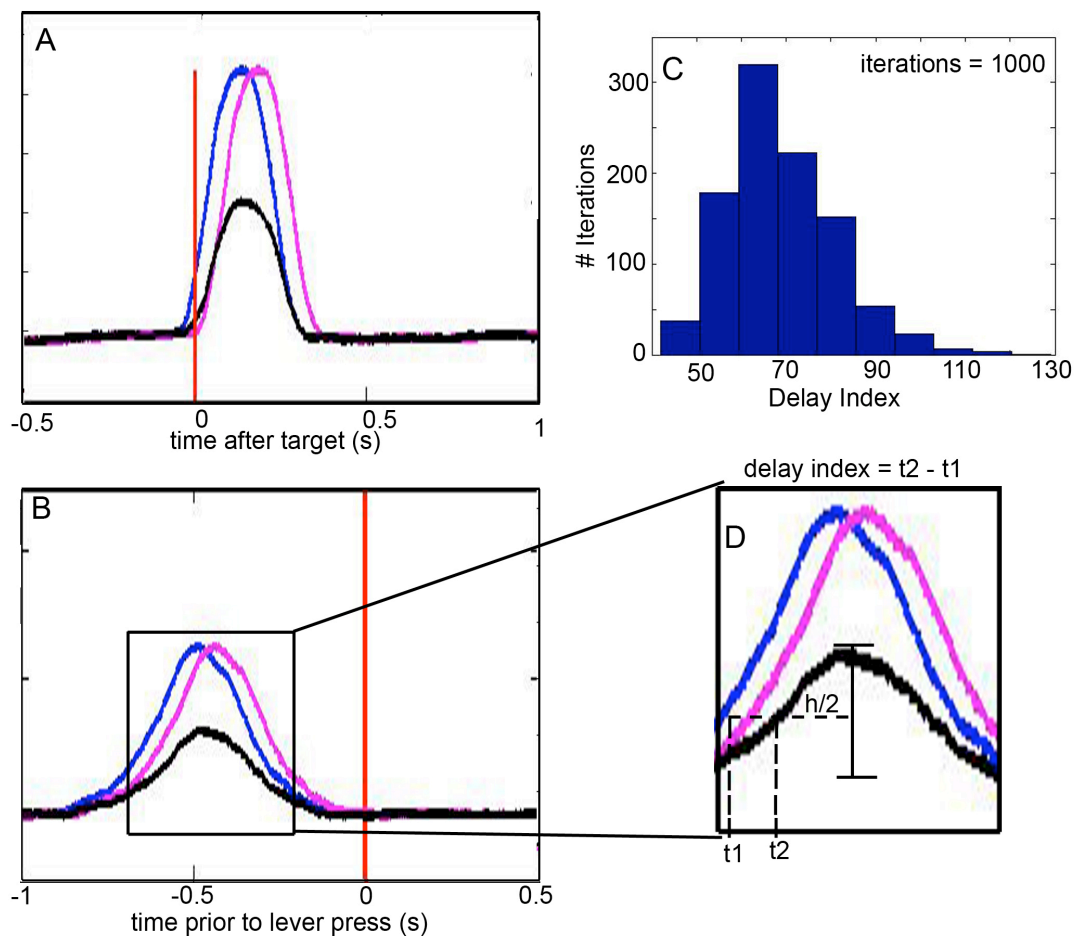


Figure S3. Model data. Blue trace represents normal response, purple trace represents normal response delayed by 50ms, and black trace represents truncated response, defined as the late component when the response duration is divided in half. (A) Peri-stimulus histogram (B) Peri-response histogram (C) Delay index distribution for 1000 iterations of the truncated response model. Indices in the delay model are all 50ms, as defined. The indices observed in real experimental data (Figure 3) are -2.3 for target ON and -118.1 for target OFF (for excited neurons). These values do not overlap with the distribution seen in Figure S3c, implying that the activations observed do not correspond to a delayed response or a truncated late component of the normal response to a visual target. (D) Computation of delay index: the time at which activity reached half the peak activity (t_2) minus the time this same level of activity is reached in the normal condition (t_1).

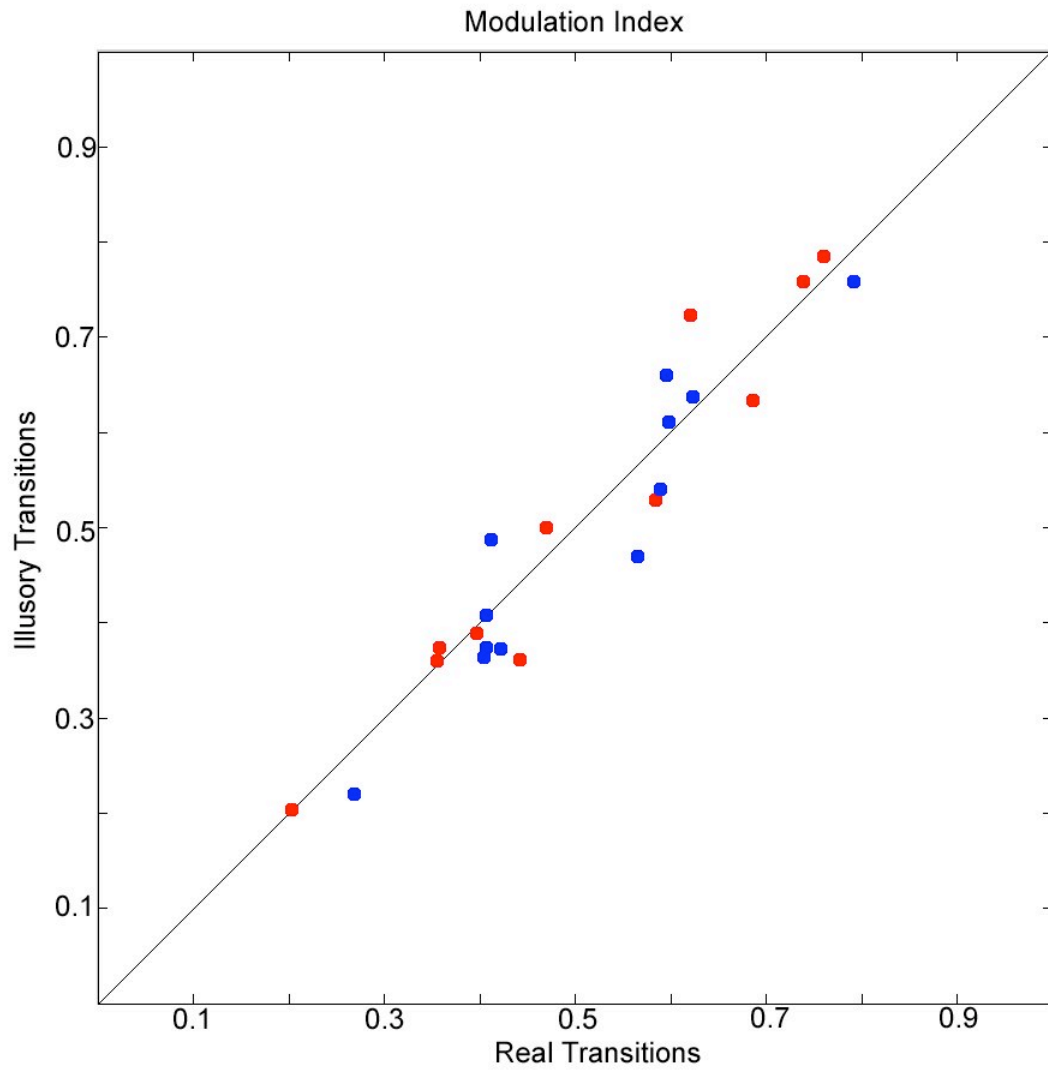


Figure S4. ROC values of real versus illusory transitions in a single recording session. The plot shows the ROC values from cells recorded in a single recording session. Same conventions as in Figure 4.

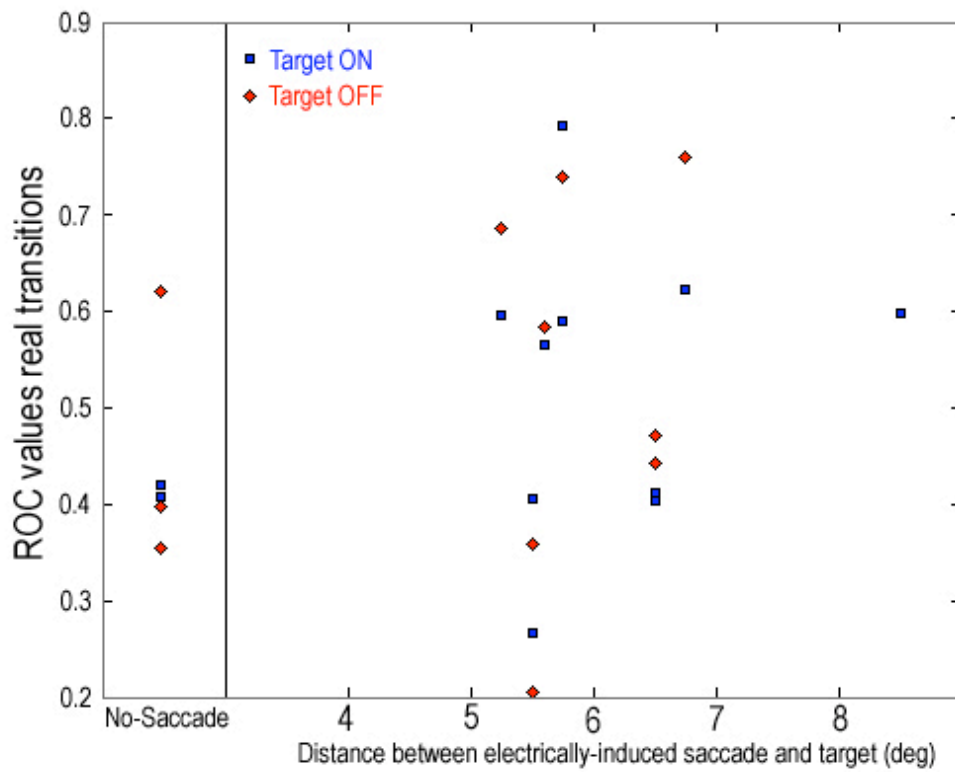


Figure S5. ROC values are not related to electrically-induced saccade target location. ROC values of individual cells are plotted in the Y axis versus the distance between electrically-induced saccade locations and visual target location in the X axis. The no-saccade box includes the electrodes that did not evoke a saccadic eye movement but did contain visually responsive cells.

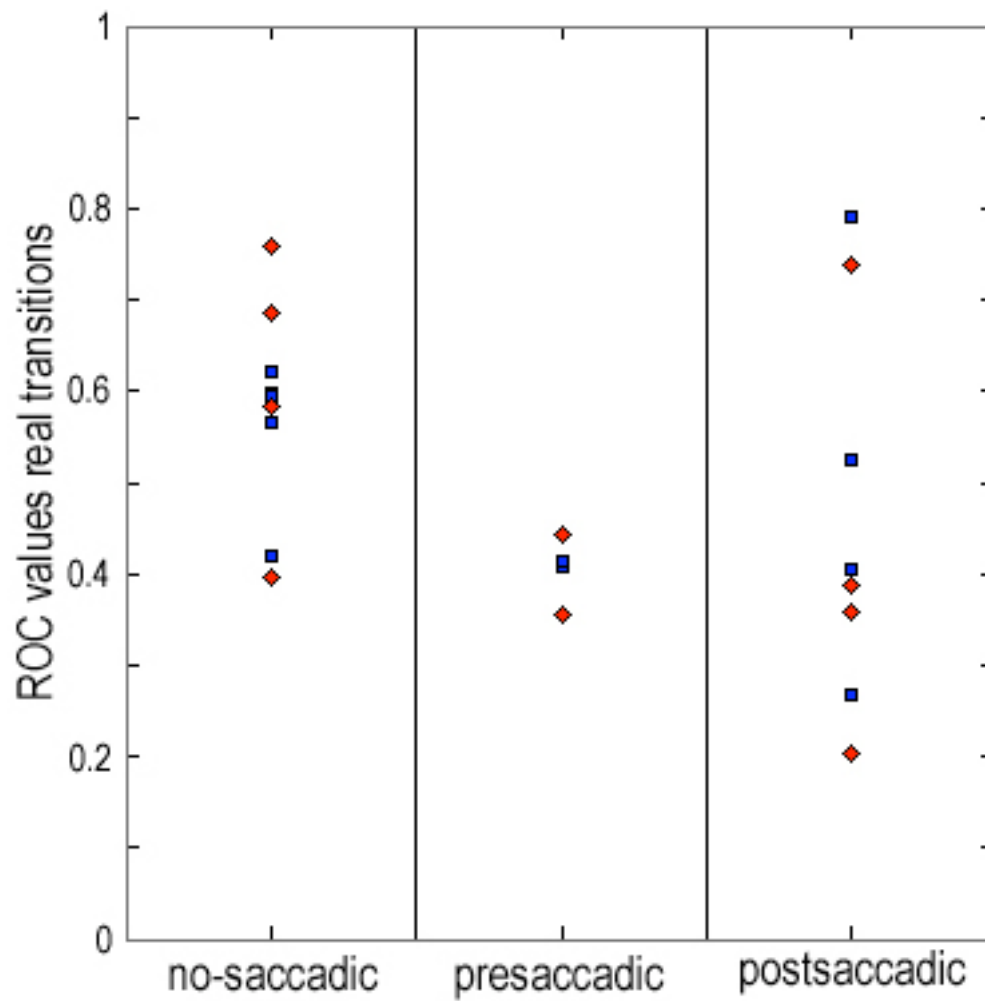


Figure S6. ROC values are not related to perisaccadic activity. ROC values of cells in three categories; left - no-saccade related activity, middle – presaccadic activity, right – postsaccadic activity.