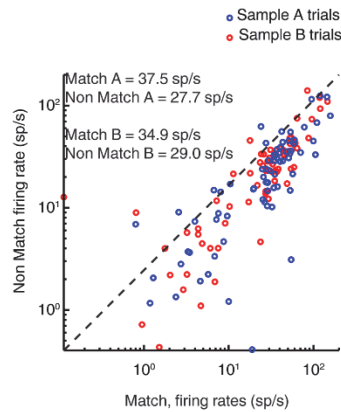
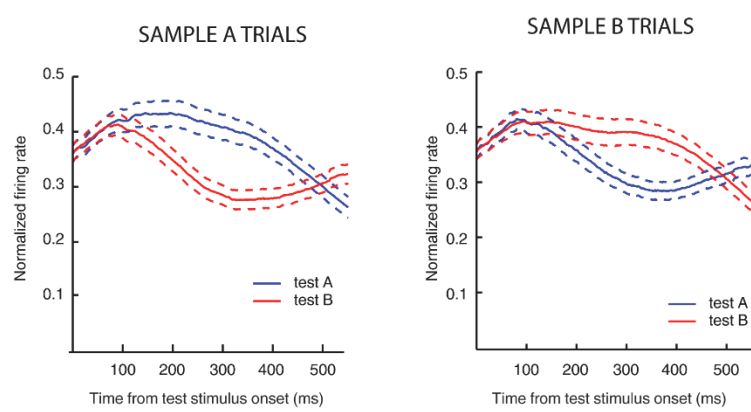


Supplementary Figure 1, related to Figure 3: Impact of task demands on LIP direction tuning using permutation test on fixed window. Conventions similar to Figure 3.

A. MATCH SELECTIVITY (N=71)



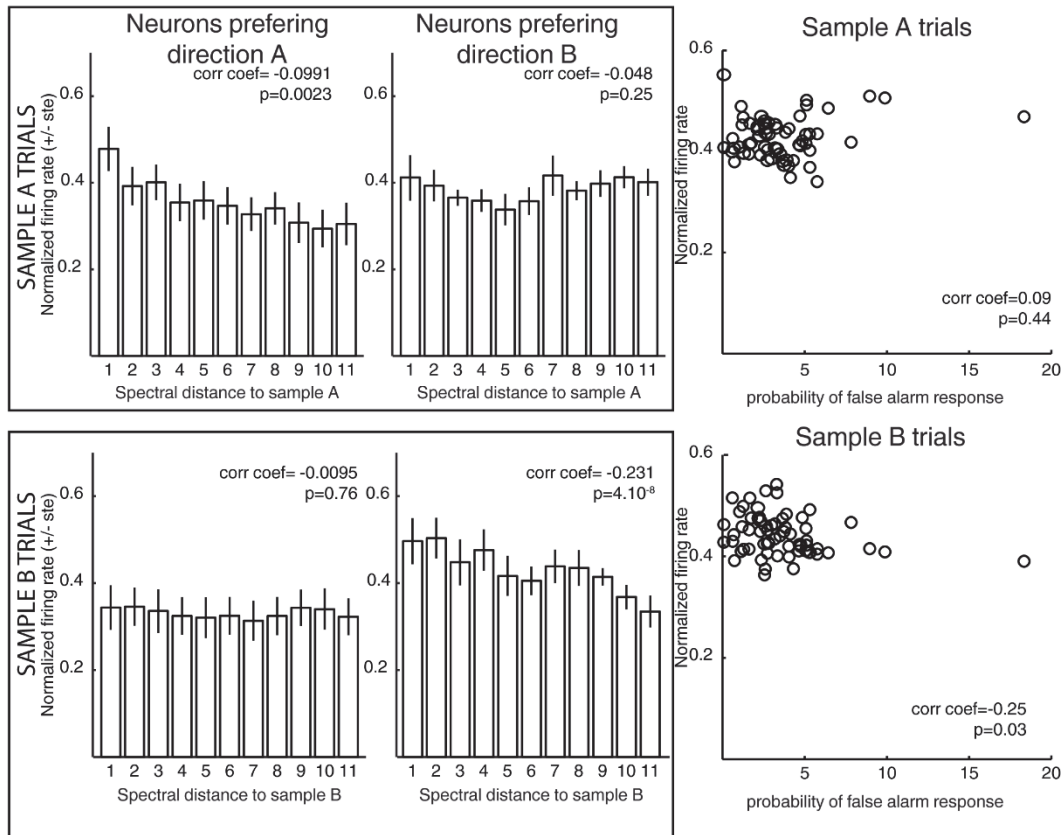
B. POPULATION RESPONSE



Supplementary Figure 2, related to Figure 3: Match selectivity of feature selective neurons. A. Activity of feature selective neurons (N=71) to match (x-axis) and non-match (y-axis) stimuli during sample A (blue) and sample B (red) trials. During sample A trials, the response to test stimulus A (match) was 7.3 sp/s more than the response to test stimulus B (non-match) (paired T-Test,  $P=2 \cdot 10^{-5}$ ). During sample B trials, the response to test stimulus B (match) was 4.8 sp/s more than the response to test stimulus A (non-match) (paired T-Test,  $P=4 \cdot 10^{-4}$ ). B. Time course of the population response to test stimulus A (blue) and B (red) during sample A trials (left) and B trials (right).

A. RESPONSE AS A FUNCTION OF SIMILARITY

B. RESPONSE AS A FUNCTION OF FALSE ALARM PROBABILITY



Supplementary Figure 3, related to Figure 3: A) Effect of the “spectral distance” between sample and test stimuli on the activity of significantly shifted neurons (significant shift for both features, N=25). B) The relationship between the probability of false alarm and neuronal activity to the 64 test stimuli (Spearman correlation; population of neurons showing significant shifts for both features, N=25).