## **Data description**

**Source\_data\_Fig\_1.xlsx** - source data for Fig 1D-F and Fig S1

**Source\_data\_Fig\_2.xlsx** - source data for Fig 2B-C

**Source\_data\_Fig\_4.xlsx** - source data for Fig 4A

**Source\_data\_Fig\_5.xlsx** - source data for Fig 5B

**Source\_data\_Fig\_6.xlsx** - source data for Fig 6

**Linear Mixed Modeling** – unthresholded statistical maps for prestimulus activity’s effects on SDT behavioral metrics, respectively (Fig 2, Fig S2, Fig S3).

**Linear Mixed Modeling/sub\*** contains 4-dim brain volumes, wherein each voxel value indicates an SDT behavioral metric calculated from one of the five trial groups based on prestimulus activity (Fig 2B-C , Fig S2, Fig S3)

**Trial-to-trial Variability** - unthresholded statistical maps for trail-to-trial variability at different time points conditioned by the magnitude of prestimulus activity in specific ROIs, respectively (Fig 3, Fig S4).

**Searchlight Category Decoding** - unthresholded statistical maps for decoding accuracy conditioned by the magnitude of prestimulus activity in specific ROIs, respectively (Fig 5B).

**Evoked Response –** unthresholded statistical maps for evoked response conditioned by the magnitude of prestimulus activity in specific ROIs, respectively (Fig S5).