**Supplementary File 1: Comparison of Rayleigh statistic between the non-overlapping subset of neurons and the original neuron population. Significance assessed based on sampling from a uniform distribution. \* p<0.05, \*\*p<0.01, \*\*\*p<0.001**

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| **Rayleigh R-Statistic between tuning distributions** | **Non-Overlapping Neurons** | **Original Neuron Population** |
| Pert Epoch: Contra Tuning – Ipsi Tuning | Monkey P: R= 0.09  Monkey M: R=0.23\* | Monkey P: R=0.14  Monkey M: R=0.24\*\* |
| Steady-State Epoch: Contra Tuning – Ipsi Tuning | Monkey P: R=0.18  Monkey M: R=0.18 | Monkey P: R=0.14  Monkey M: R=0.24\*\* |
| Contra Loads: Perturbation Tuning – Steady-State Tuning | Monkey P: R=0.63\*\*\*  Monkey M: R=0.57\*\*\* | Monkey P: R=0.65\*\*\*  Monkey M: R=0.57\*\*\* |
| Ipsi Loads: Pert Tuning – Steady-State Tuning | Monkey P: R=0.55\*\*\*  Monkey M: R=0.44\*\*\* | Monkey P: R=0.5\*\*\*  Monkey M: R=0.44\*\*\* |