

# Neural codes for ‘neuroethogram’ in the macaque dorsomedial parietal cortex

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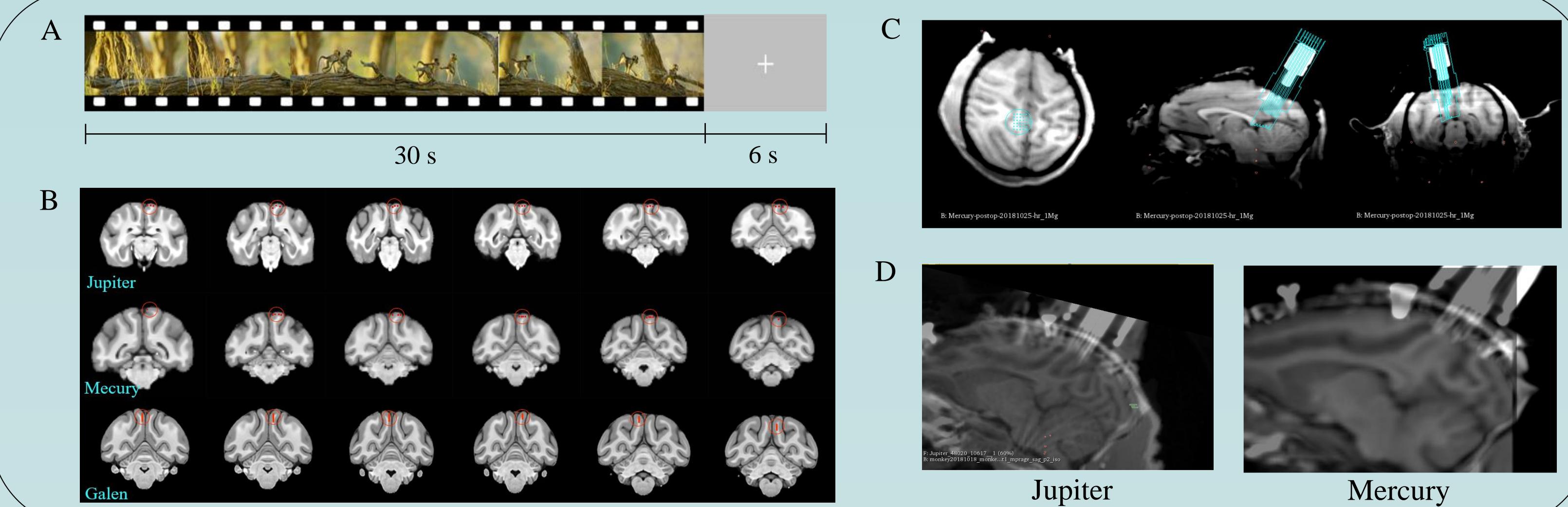
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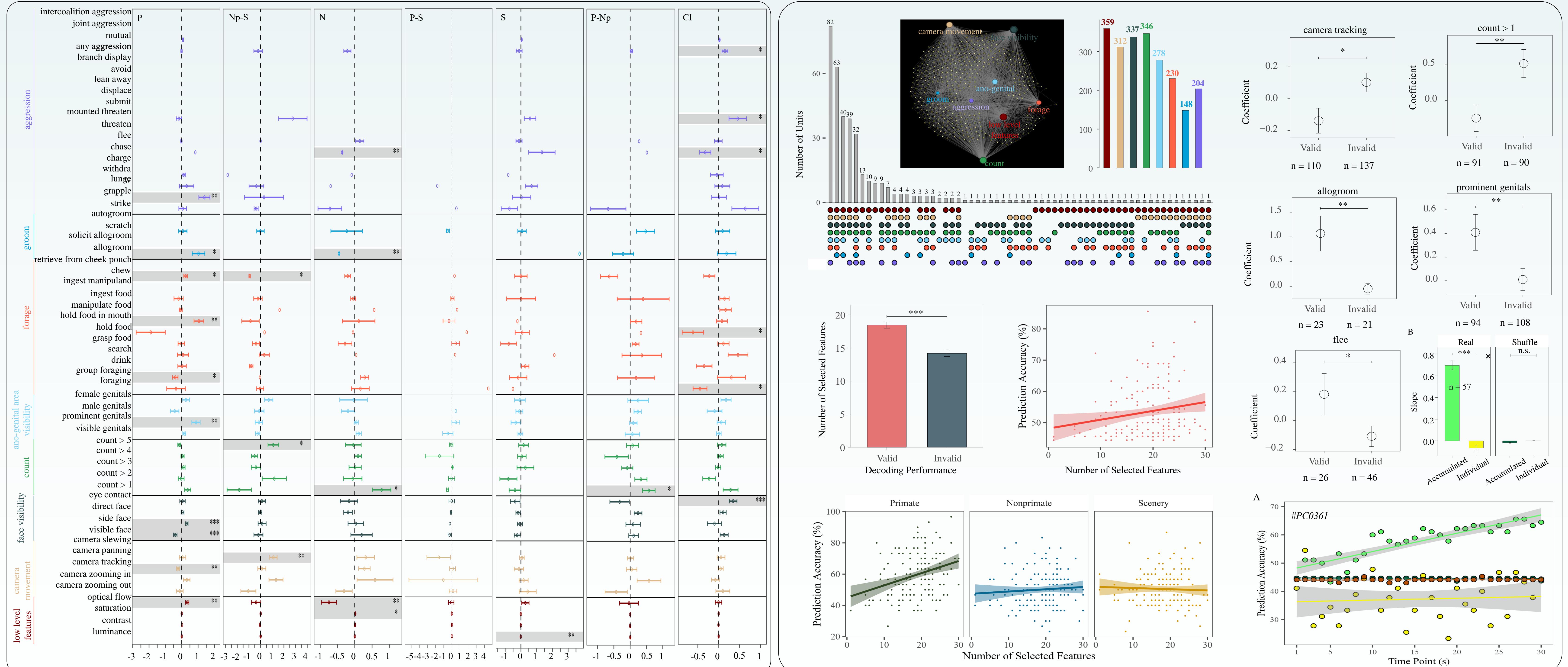
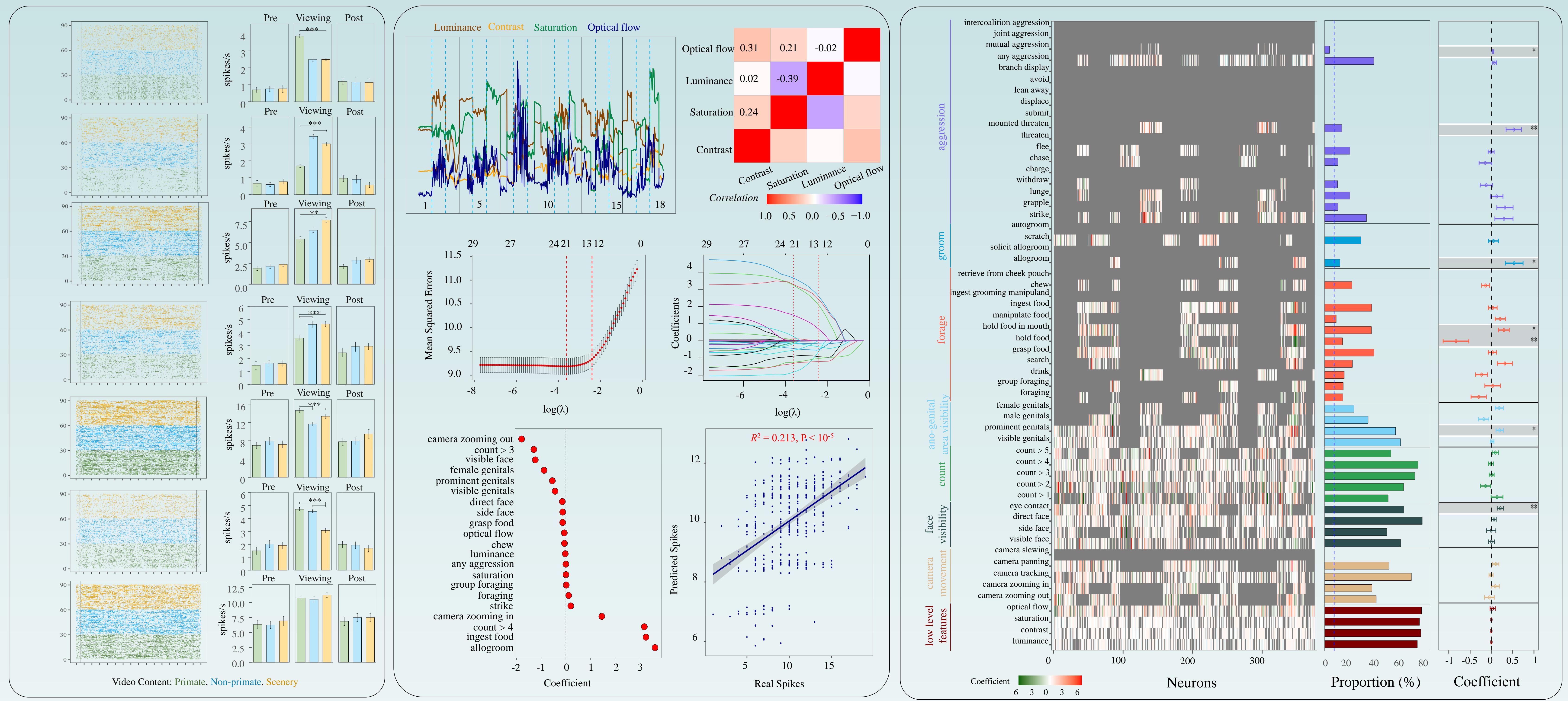
## Introduction

- The dmPPC plays critical roles in multifaceted cognitive processes, including visual-spatial attention and locomotion (Bartels et al., 2008), sensorimotor transformation, self-related processing (Cavanna & Trimble, 2006), and episodic memory formation and retrieval (Brodt et al., 2018), as well as an integral hub for extracting and scaffolding information in real-time from the environment (Reagh & Ranganath, 2021) as well as with other agents (Kravitz et al., 2011).
- Primate Area 7 is part of a social interaction network (Sliwa & Freiwald, 2017) and a posterior-medial memory network (Ranganath & Ritchey, 2012), we predict that dmPPC neurons process information embedded within complex behaviorally meaningful events in a multiplex manner.
- The primate precuneus plays an essential role in temporal information processing (Murray et al., 2014) involved in time estimation (Onoe et al., 2001) and temporal information integration of movies of up to 12 s (Hasson et al., 2008).

## Methods



## Results



## Conclusion

- Neural codes for “neuroethogram” in macaque dorsomedial parietal cortex
- Parietal neural codes exhibit mixed selectivity of event features
- Dorsomedial PPC neurons support a long temporal receptive window for episodes

## References

- Bartels, A., et al., (2008). Cerebral cortex. 2. Cavanna, A. E., & Trimble, M. R. (2006). Brain. 3. Brodt, S. et al., (2016). Proceedings of the National Academy of Sciences. 4. Kravitz, D. J., et al., (2011). Nature Reviews Neuroscience. 5. Reagh, Z. M., & Ranganath, C. (2021). BioRxiv. 6. Sliwa, J., & Freiwald, W. A. (2017). Science. 8. Ranganath, C., & Ritchey, M. (2012). Nature Reviews Neuroscience. 9. Murray, J. D., et al., (2014). Nature neuroscience. 10. Onoe, H., et al., (2001). Neuroimage. 11. Hasson, U., et al., (2008). Journal of Neuroscience.