**Data**:

1. We mostly use the OS\_Basic dataset. It has folders named as numbers each representing a rat.
2. Rats: 1, 3, 4, 6, 9, 11, 13
3. The OS stands for **O**bject **S**pace task. This task is to study cumulative memory formation. Novel tasks are thought to be first stored in the Hippocampus and then over time integrated in the prefrontal cortex. NREM sleep has been shown to be very important for this.  
   [Object Space Task — Genzel Lab](https://www.genzellab.com/object-space-task-1)  
   Link to paper: <https://doi.org/10.1371/journal.pbio.3000322>
4. Each Rat folder has condition folders, we work with OR\_N folders. OR\_N stands for Overlapping Novelty.
5. We have 5 post-trials for each dataset. The fifth is usually longer than others. These folders have recordings for Hippocampus and Prefrontal Cortex and also the sleep states.

**Sleep Scoring values**: The scoring files are arrays of numbers

* 1 - Awake
* 2 - Intermediate
* 3 - Non-REM
* 4 - Intermediate
* 5 - REM

**Filtering Considerations**:

1. FIR filter vs IIR Filter
2. Delta band = (0.1, 4) Hz

EMD Library: [Empirical Mode Decomposition in Python — emd 0.0.1.dev127 documentation](https://emd.readthedocs.io/en/stable/)

UMAP Library: [UMAP: Uniform Manifold Approximation and Projection for Dimension Reduction — umap 0.5 documentation](https://umap-learn.readthedocs.io/en/latest/)