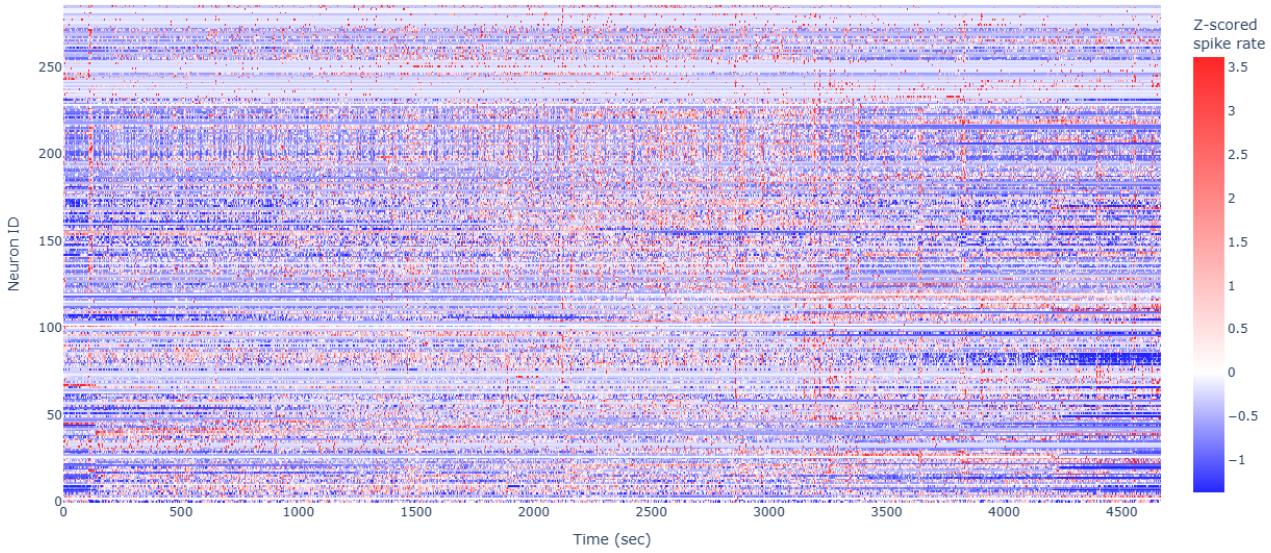
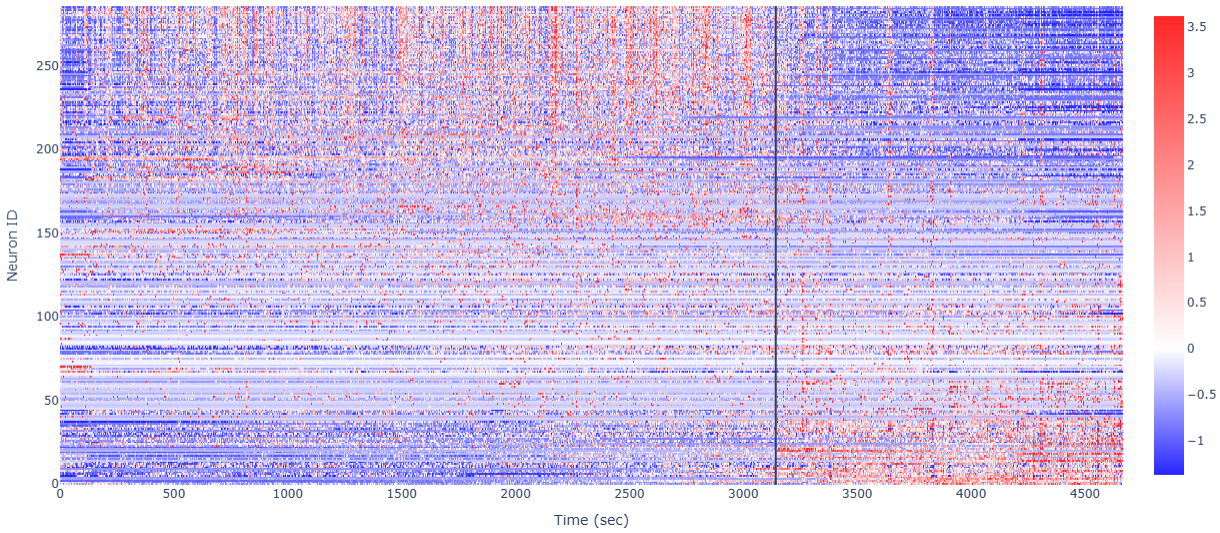
1.

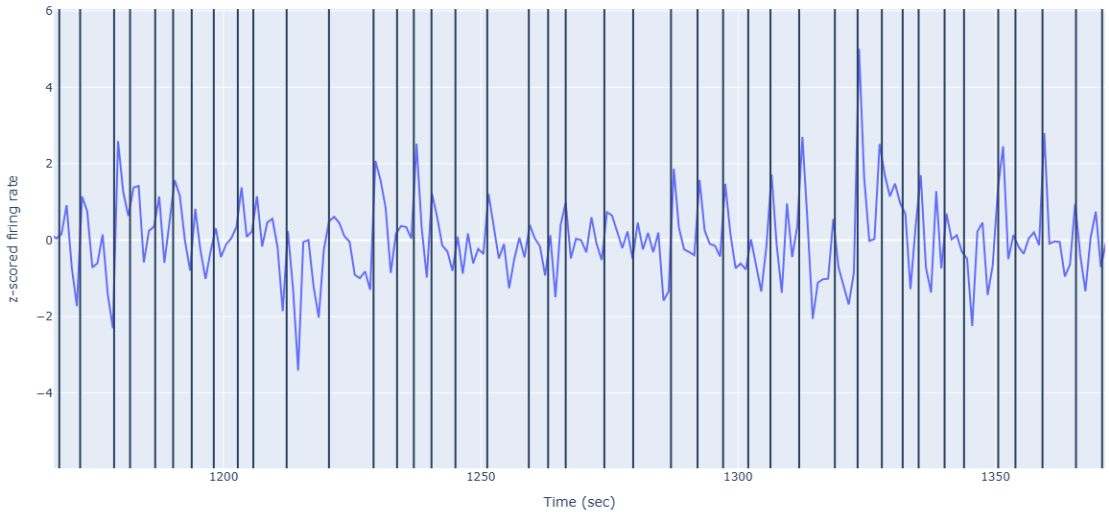


2. sorted_neurons_indices = np.argsort(u[:, 0])

activity_arrayZ_sorted = activity_arrayTZ[sorted_neurons_indices, :]



3. The first left singular vector projected onto the z-scored data matrix, i.e., y=u[0,:]@ activity_arrayTZ

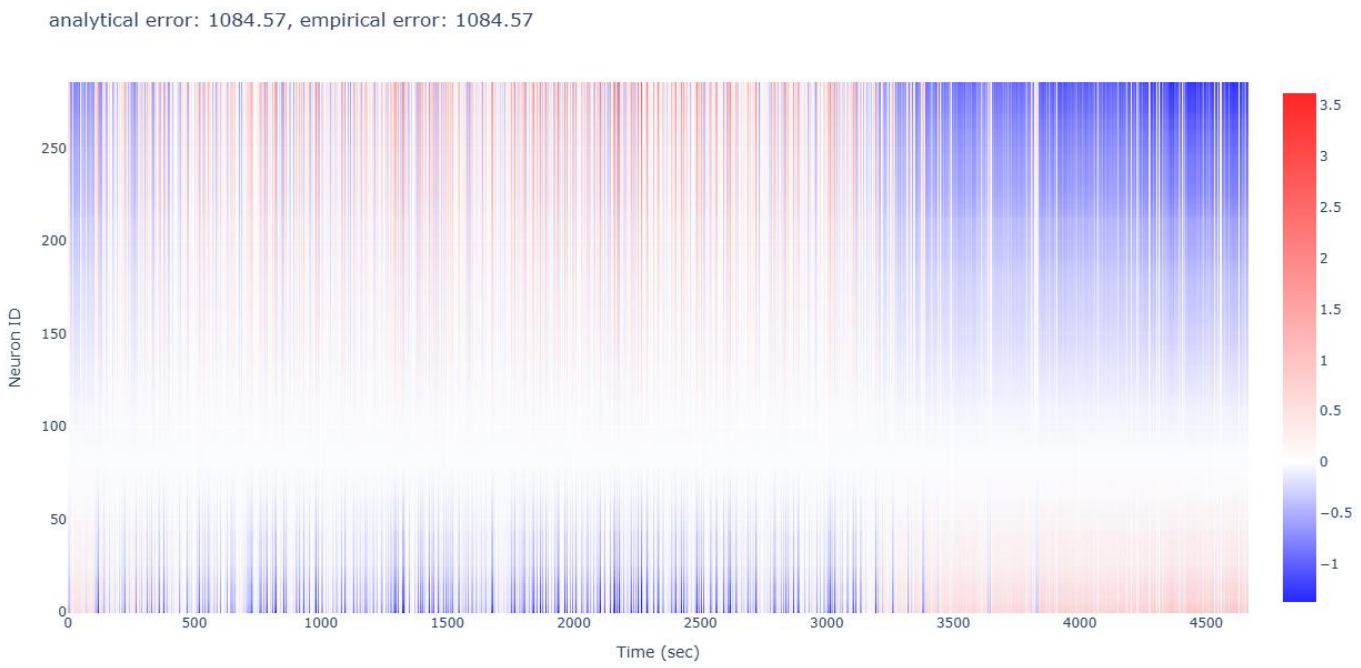


4.

```python
def truncate_svd(u, s, vh, n_components):

    truncated_svd = np.zeros((u.shape[0], vh.shape[1]), dtype=u.dtype)
    for i in range(n_components):
        truncated_svd += s[i]*np.outer(u[:, i], vh[i, :])
    return truncated_svd
```

n_components=1



n_components=2

n_components=5