**2020.03.24**

* Belief state quantification;

/Users/xudongwang/Documents/WORK/Xudong-s-Repository/Mfiles/Xudong/CuePositionTask/BeliefStateTest

- interpolation seems not to give more information

**2020.03.25**

* Continue the Belief quantification, result saved in /Users/xudongwang/Documents/WORK/CP task/CP2/BeliefState/Test1

**2020.03.27**

* Neural population dynamics, to correlate with the belief state;

**2020.03.28**

* To correlate neural population dynamics with belief state;
* PC 2 can be a relatively good index to classify states for some data sets like

AllRats\_CP\_20180920\_Rats\_1\_PSTH; using PCA\_first\_v4

* PC2 qualitatively but not quantitatively matches belief state.
* Belief state defined from only choice behavior might not reflect the true belief considering the impulsive behavior;

- not just reward period, consider other period;

- try other rats and other sessions;

**2020.03.31**

* Try the CP2 data for Rat 8

**2020.04.03**

* PCA\_first\_v5: including forced trials;
* PCA\_first\_v6: exclude forced trials;
* AllRats\_CP\_20200107\_Rats\_23689\_PSTH

**2020.04.08**

RSA\_first\_v2

**2020.04.09**

Talk with Tim:

1. RSA analysis: split the data;
2. PCA analysis: lump the data, and look at PC3;
3. Simpler regression.
4. Look at the OFC cells.

**2020.04.21**

1. RSA analysis:

**Q:** to remove the temporal confusion: positive correlation arises only because they are within the same time window.

* for multiple switching sessions (>3), this effect should be minimized.
* Split the data or compare in different blocks might clarify the problem.

Next step: to lump more data to see the results.

**2020.04.23**

**PCA analysis:**

1. Sample number less than variables in PCA, tested in PCA\_first\_v3; not very much difference.
2. Lumped all the sessions according to different conditions, and then PCA; PC1 – position; PC2 – reward; PC3 – latent state? PCA\_Batch\_All

* To compare the 10% trials with those within and across blocks;

**2020.05.04**

* **PCA analysis:**

1. Dynamic plot of PCs in different conditions;

**2020.05.13**

1. Finalize the PCA analysis; compare CP1 and CP2 for 90-10

CP1: PC1 - choice, PC2 – state; (PCA\_Batch\_All\_CP1)

CP2: PC1 – choice, PC2 – reward, PC3 – state; PCA\_Batch\_All\_CP1

1. RSA is not that easy; linear regression should be introduced to remove the position and reward effects.

**2020.05.18**

1. test the loading of PC3 and behavior;

2. remove the forced trials for Rat 8.

PCA\_first\_v4

**2020.05.29**

1. remove the forced trials; PCA\_first\_v4\_deforce, so no need of PCA\_first\_v6 (removed)

2. no benefit to project one session of data to the PCs from the lumped data.

**2020.05.30**

To do list:

1. Choice period;
2. Belief-state and PCs;

**2020.06.17**

To do list:

1. Generalization test;
2. RSA;

**2020.06.24**

1. Temporal drift test;

PCA: no conclusive results; but Generalization test result is interesting

LDA: next step to test first and second half of data