Confused Neurons

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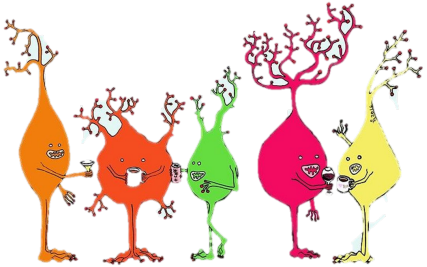
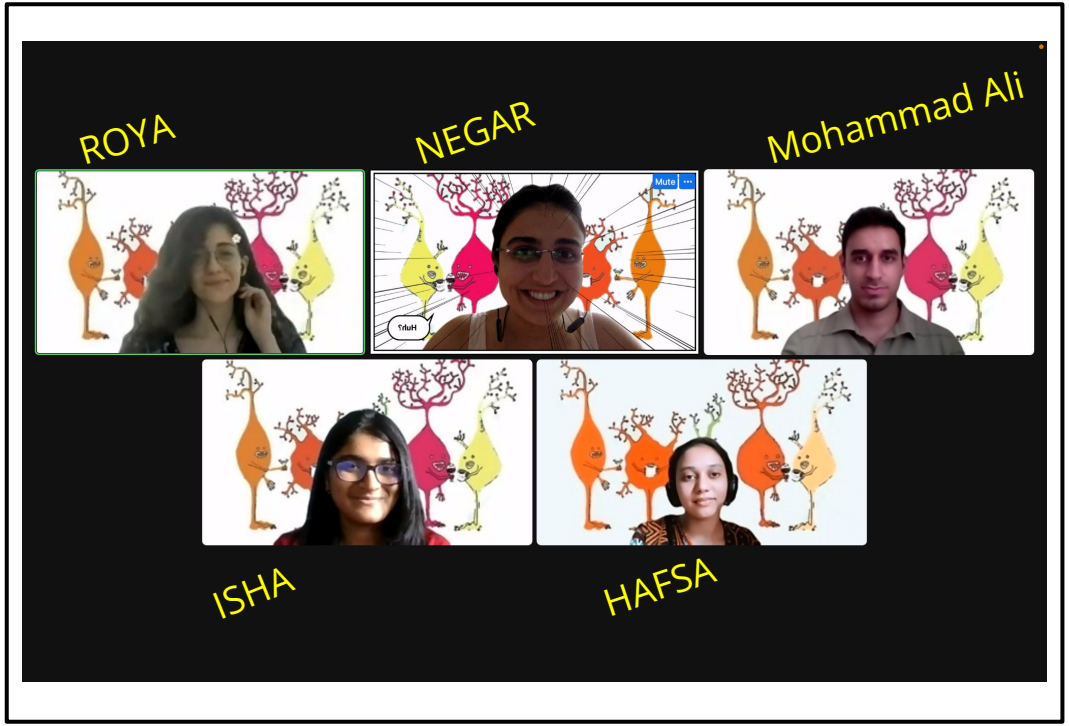
Our great TAs: Rishabh & Ritu

Group name :
Confused Neurons

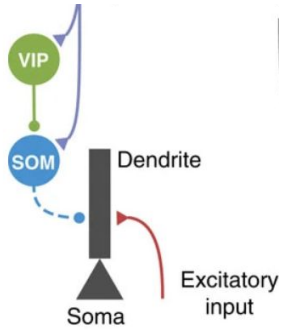


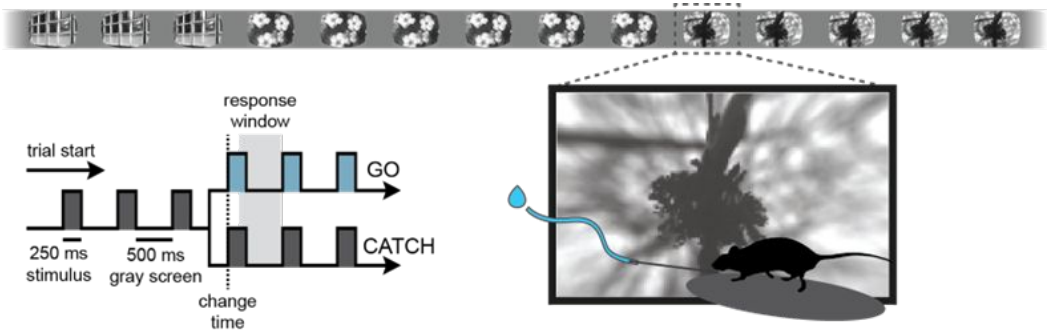
What have Allen's mice done?



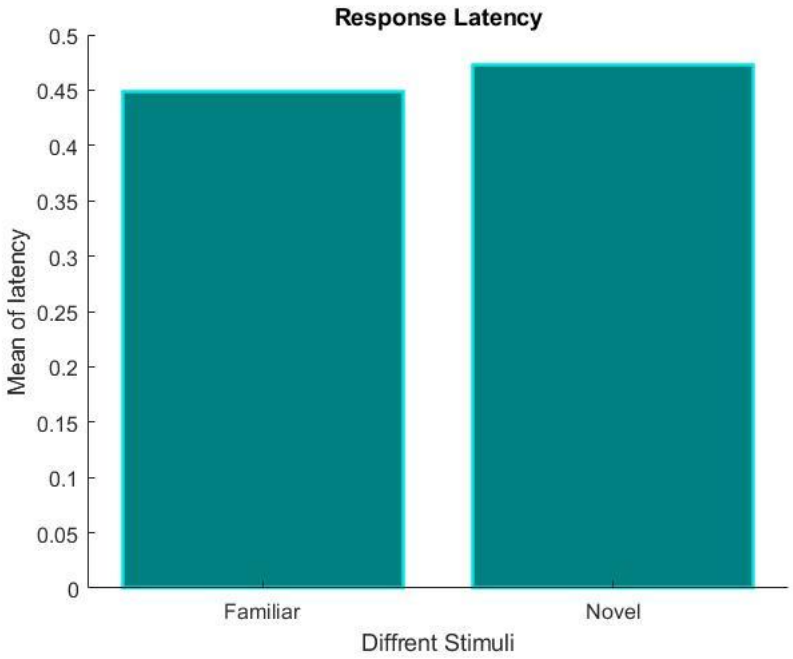
Questions:

- Is there a difference in response latency between novel sessions and familiar sessions?
- Can we show mice detection is better in Familiar sessions ?
- Can we use SST/VIP spiking activity to predict Hit and Miss trials?
- Can we use SST spiking activity to predict novel and familiar images?

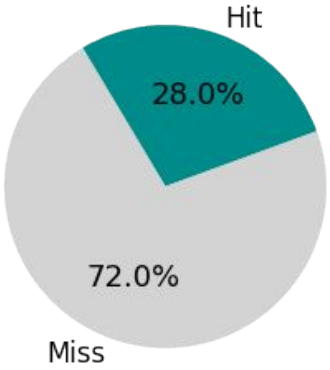




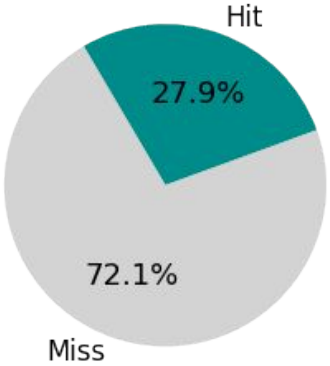
Behavioural Inference



Novel sessions

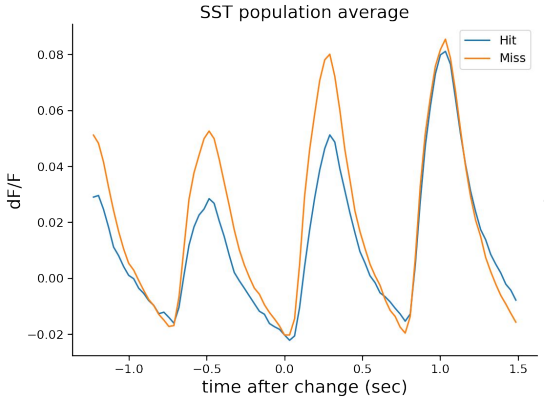


Familiar sessions

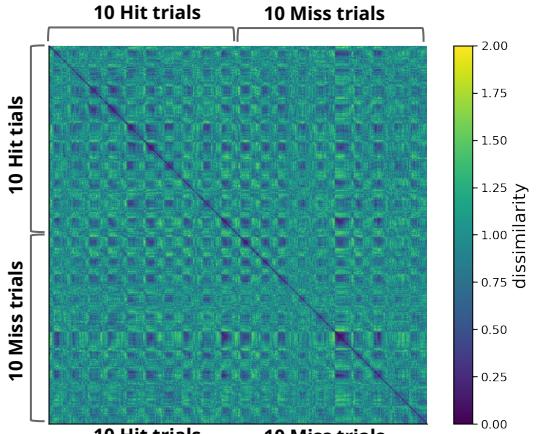


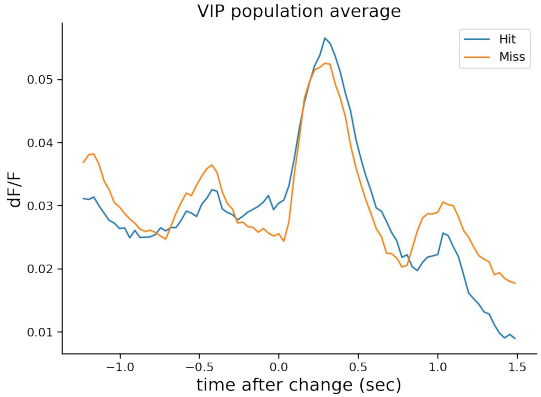
https://doi.org/10.1038/s41586-020-03171-x

Hit/Miss ,can be predicted?

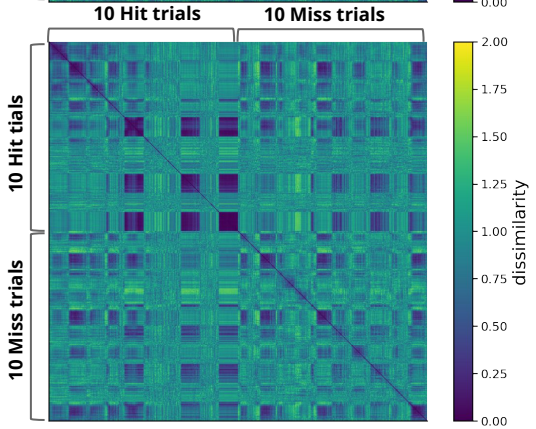


cosine similarity: 0.952

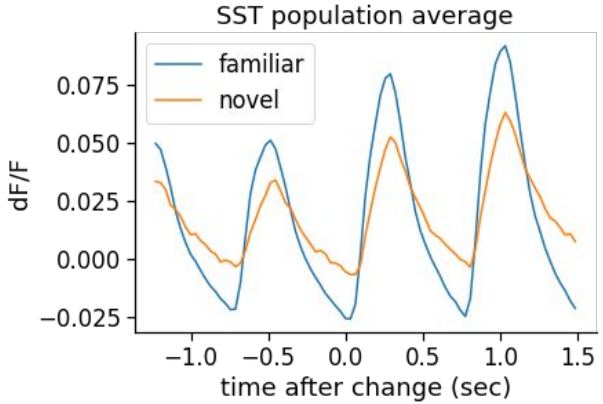


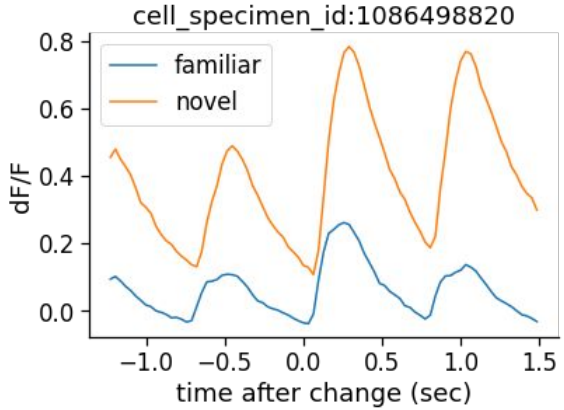


cosine similarity: 0.988

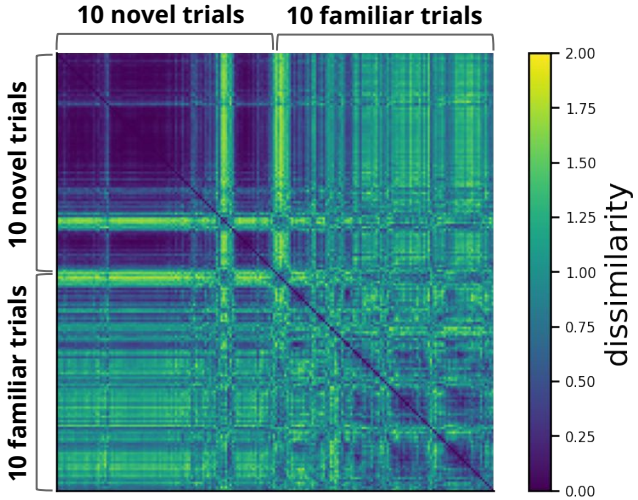


Familiar/Novel prediction



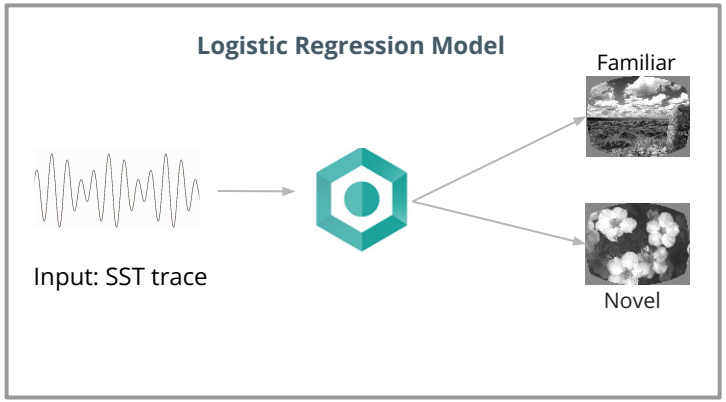


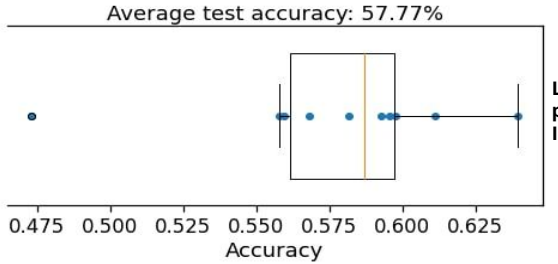
cosine similarity: 0.906



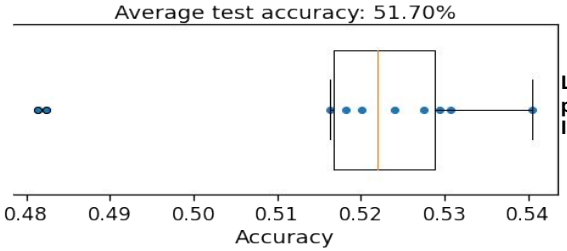
Prediction models

- Trying well known and simple model
- STT cells model behave the same with respect to the novel and familiar images?

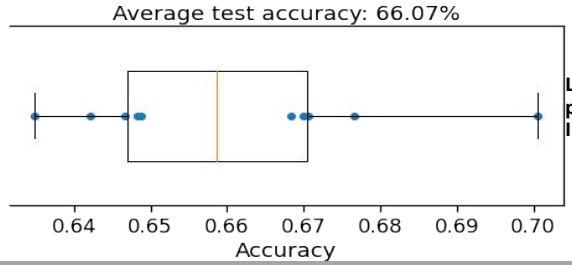




Logistic Regression Model to predict Hit-Miss trials
Input : SST trace



Logistic Regression Model to predict Hit-Miss trials
Input : VIP trace



Logistic Regression Model to predict Familiar-novel trials
Input : SST trace

Conclusion

- The activity of SST in novel and familiar trials was almost different.
- SST spiking activity could be used to predict stimuli in models related to vision.
- **Further study:** Comparing SST/VIP activity in pre-changed and changed trials would be helpful.