P2-K-39

Brain network signature of attention during cue-approach training predicts change in food preferences

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Background

- **CAT (cue-approach training)**[1] is known to shift choice behavior by targeting specific items during training[2, 3].
- Indirect evidence indicates the importance of **sustained attention** to items in changing choice behavior in CAT[2].
- Precise behavioral measure of sustained attention during CAT training is not available because of the design of the task.

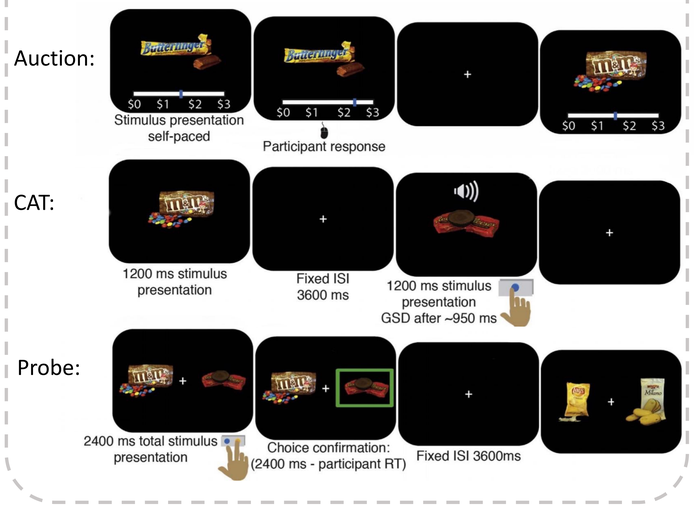
How do the attentional dynamics change across cue-approach training blocks?
How do brain network dynamics relate to attention dynamics during cue-approach training?

fMRI Data

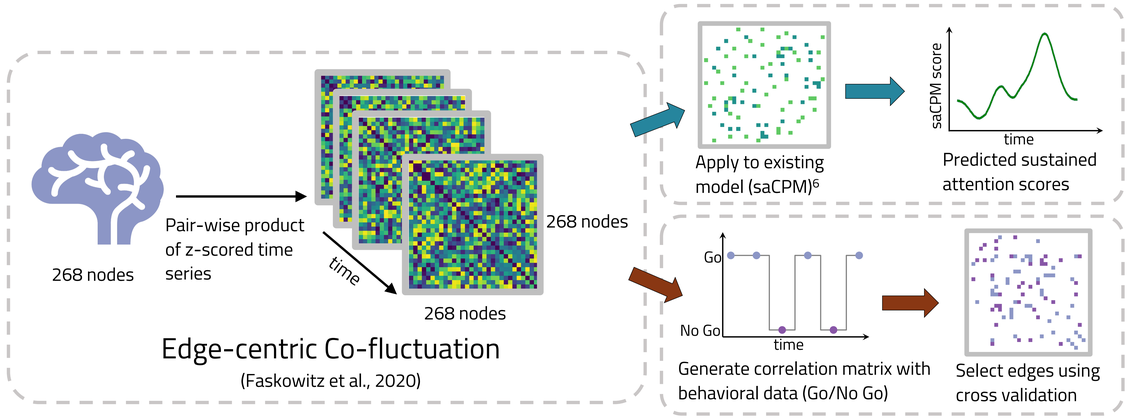
Data Source: CAT fMRI data with food items (N = 31) from Bakkour et al. (2017).

- 6 runs of training with 64 trials per run (5.2 min)
- 30% Go items, 70% No Go items

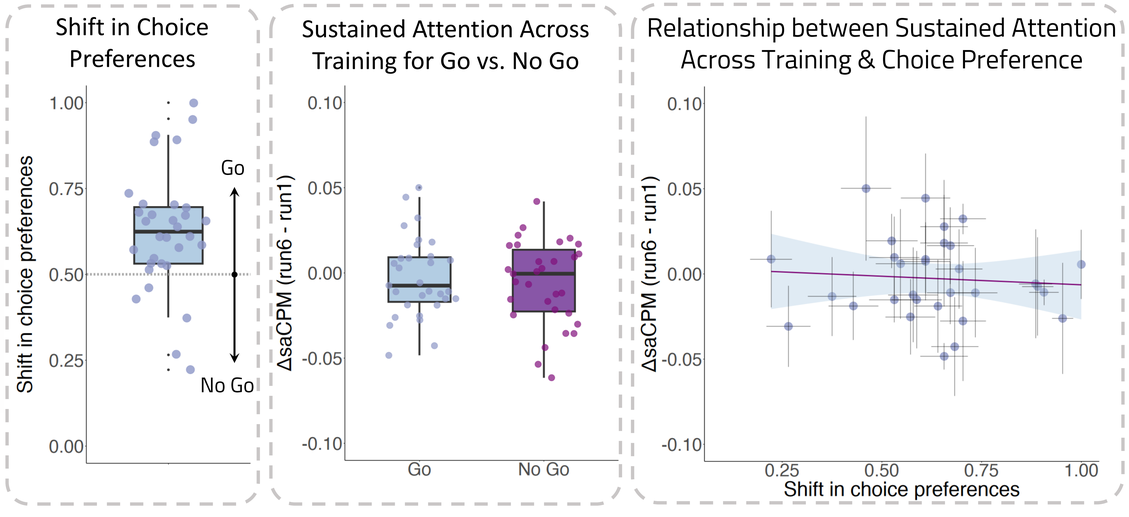
CAT task procedure



Quantifying brain interactions using co-fluctuation



No Relationship between trial-by-trial predicted sustained attention and training across blocks



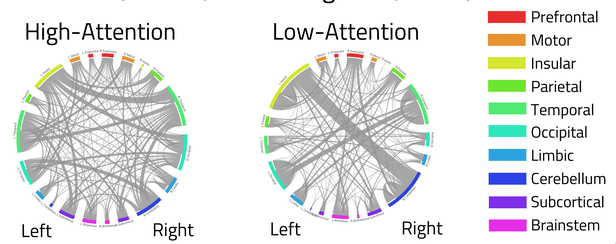
- No difference between Go vs. No Go in sustained attention across training ($t = 0.45$, $p = 0.65$)
- No relationship between sustained attention across training & choice preference ($\beta = 0.23$ [-0.19 — 0.66], $p = 0.29$)

Conclusions

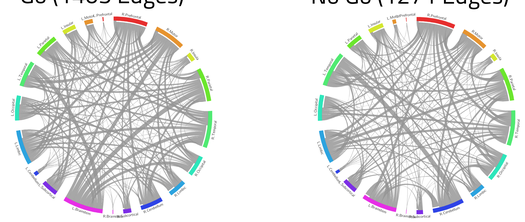
- Predicted sustained attention across training cannot explain shift in choice preferences.
- The overlap between the go/no go network and sustained attention network will be further explored to better understand the shared brain dynamics during attention tasks and CAT.

Co-Fluctuation Based Predictive Model (CFPM)

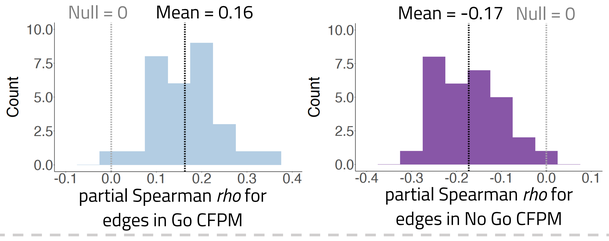
Sustained attention connectome-based predictive model (saCPM, Rosenberg et al., 2016)



Go/No Go CFPM



Internal Cross Validation for Go/No Go CFPM



# of Overlapped Edges

	High	Low
Go	39*	41***
No Go	41**	24

*significance assessed using hypergeometric function

- The trained CFPM distinguished between trials
- Go/No Go networks overlap with saCPM

References

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