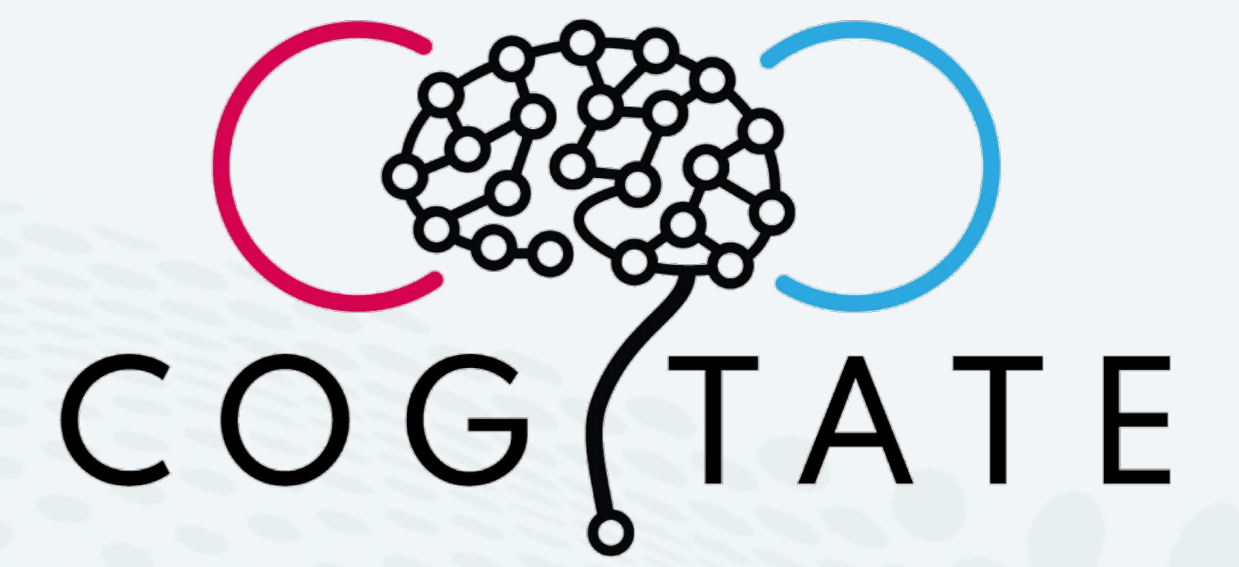


Testing the Global Neuronal Workspace and Integrated Information Theory via adversarial collaboration: introducing Cogitate's Experiment 2



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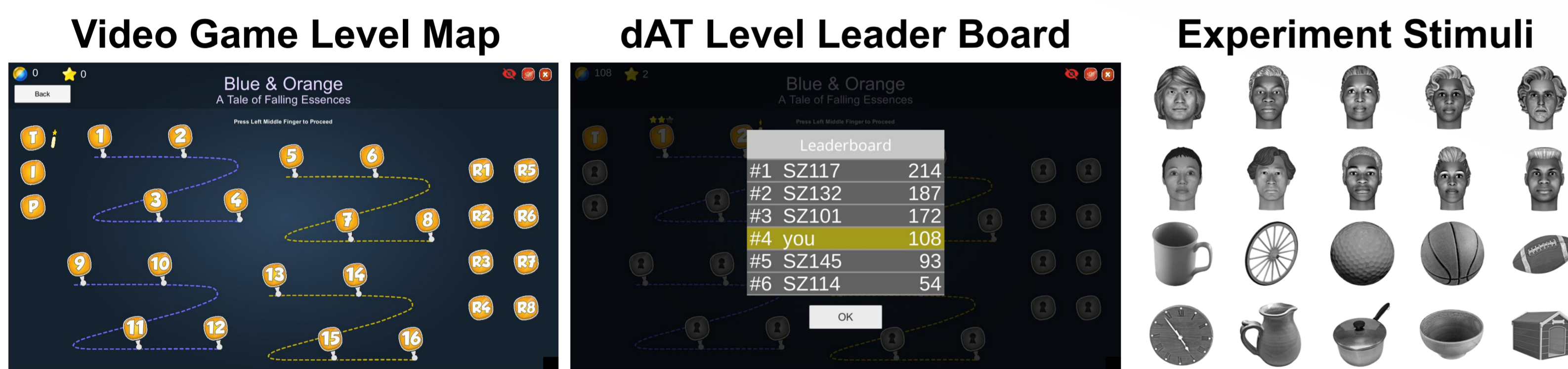
Introduction

- Testing theories of consciousness has become a major effort in the field¹
- For the second experiment aimed at testing Global Neuronal Workspace (GNW) and Integrated Information Theory (IIT), we developed a novel experimental paradigm, where attention is manipulated via a video game
- Here, we present the method and demonstrate its effectiveness in manipulating awareness of the stimuli

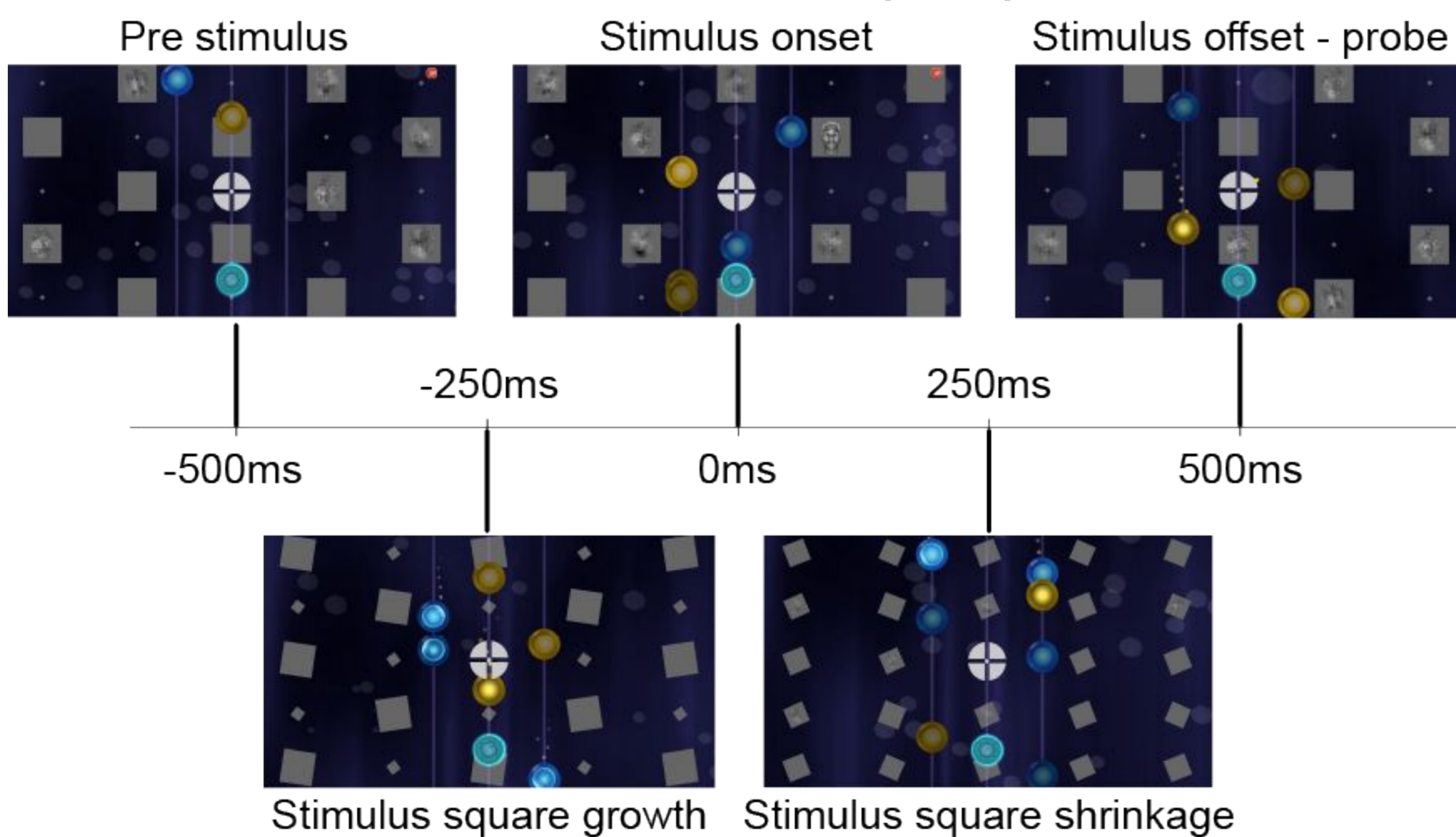
Methods

- Distracted-attention phase (dAT): observers play a game while periodically reporting their awareness of face and object stimuli
- Attended phase (AT): individual playbacks are presented, go/no-go task on face and object stimuli
- N=139 (fMRI: N=76, MEG: N=63)

Video Game Paradigm

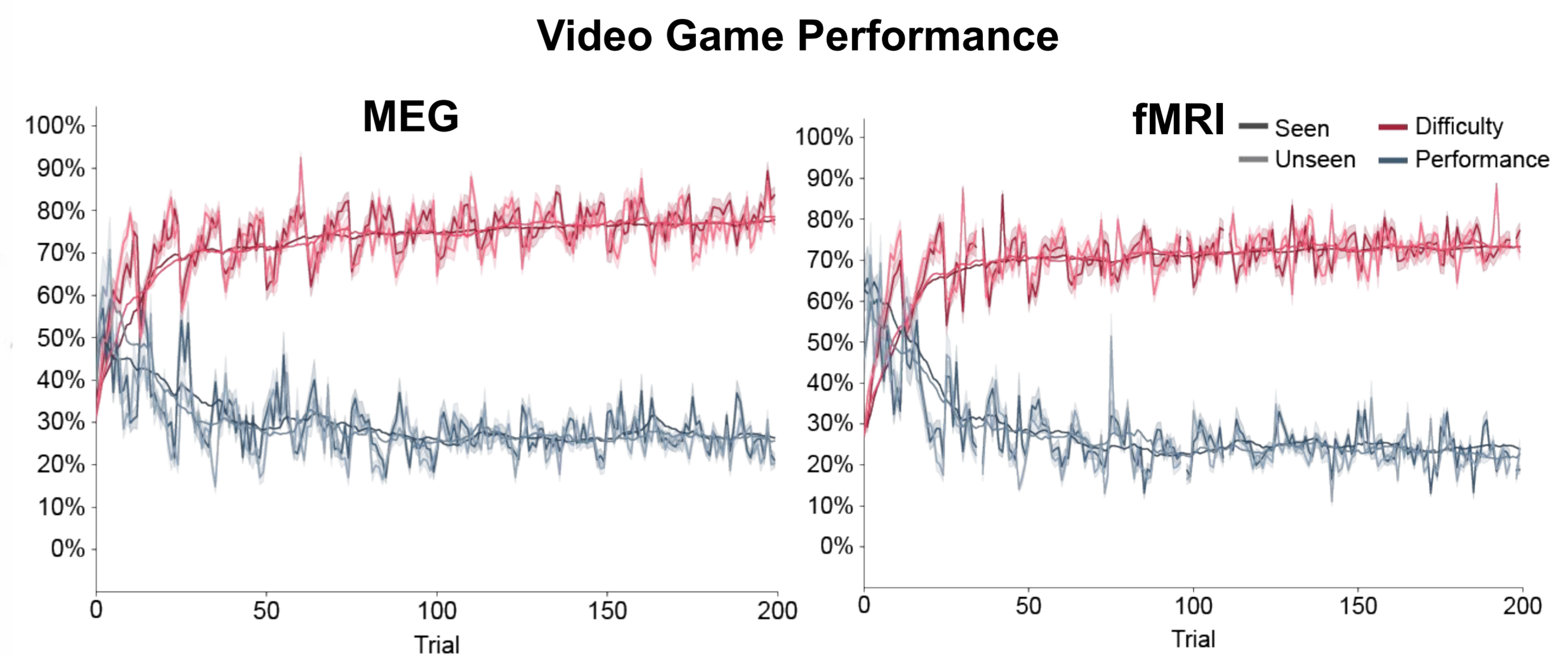


Distracted Attention (dAT) Trial

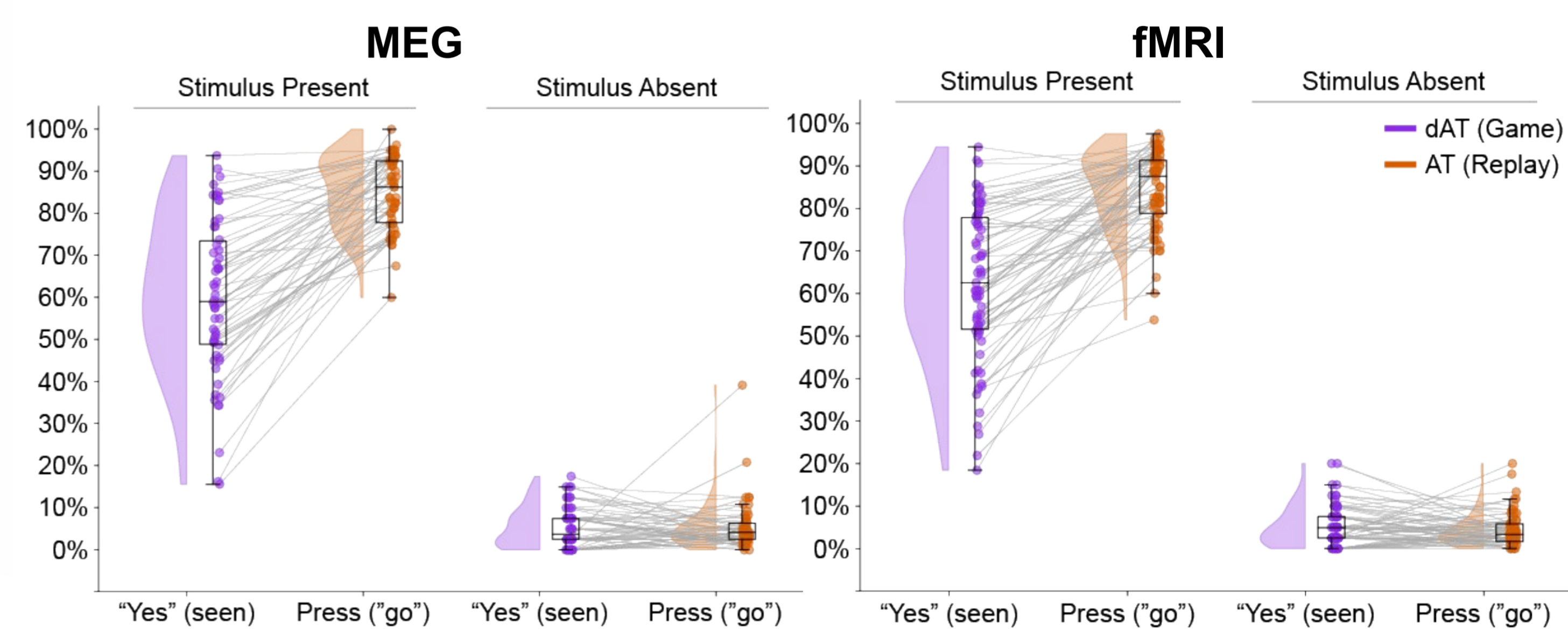


Results

Behavior

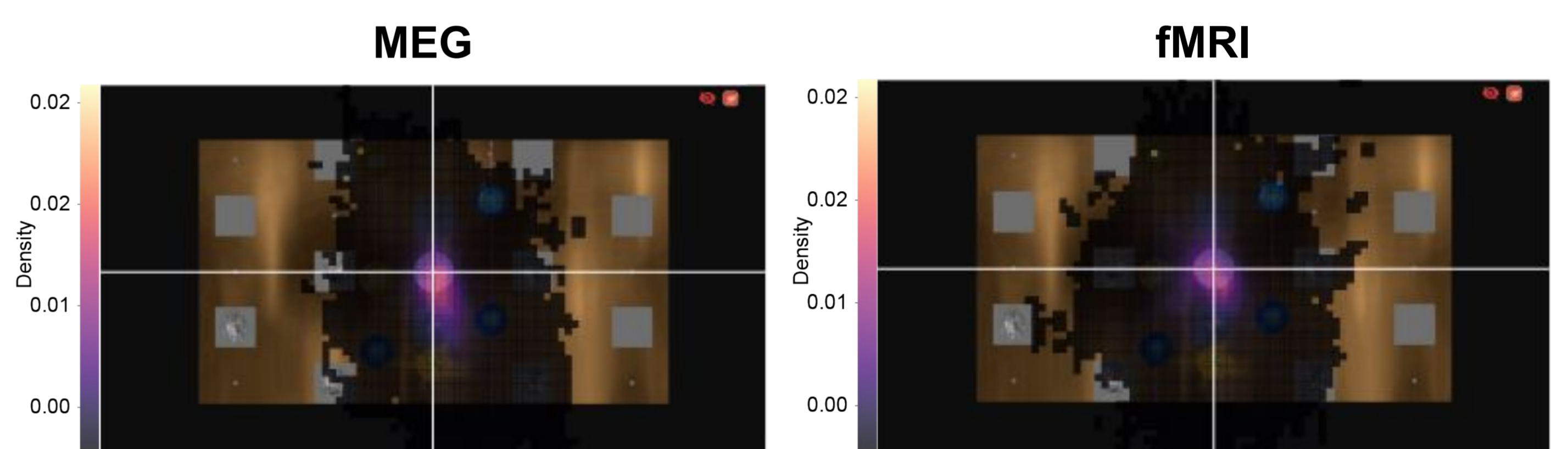


Awareness Reports

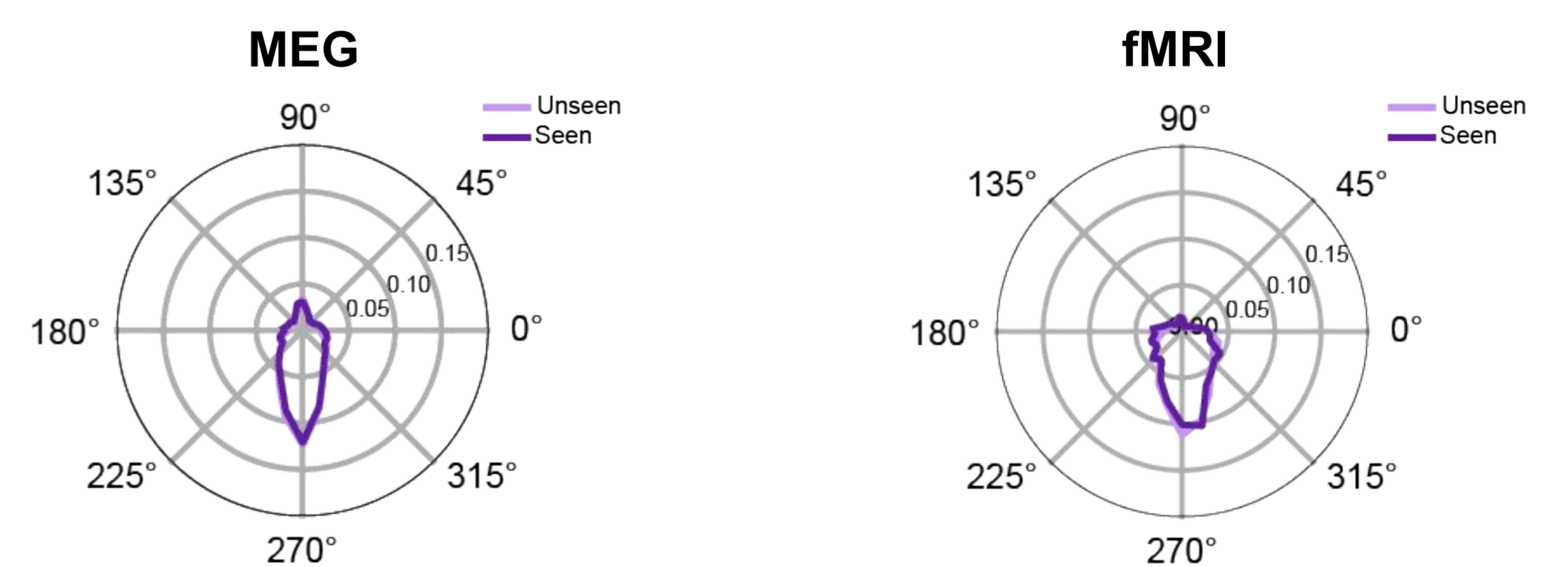


Eye Tracking

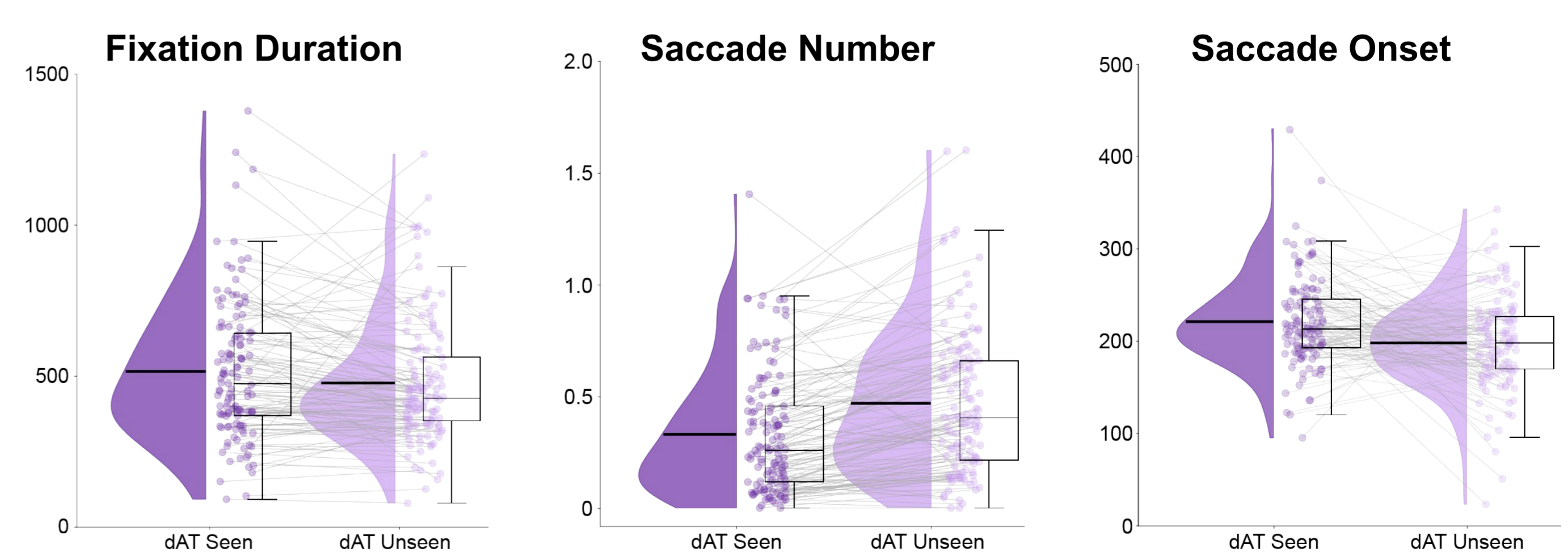
Fixation Behavior



Saccades



Seen/Unseen Differences



Discussion | Conclusion

- The video game is effective in manipulating awareness of background stimuli
- Adaptive difficulty maintained observers' engagement in time, with no difference between seen and unseen stimuli
- No difference in saccade direction between seen/unseen, overall fixation maintained
- However, the duration of fixation and saccade number and onset when the stimulus was presented did differ between seen/unseen stimuli

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Acknowledgements

COGITATE is supported by the Templeton World Charity Foundation Inc (TWCF0389).



References

[1] Cogitate Consortium, et al. (2025). Adversarial testing of global neuronal workspace and integrated information theories of consciousness. Nature, 1-10.



Pre-registration



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