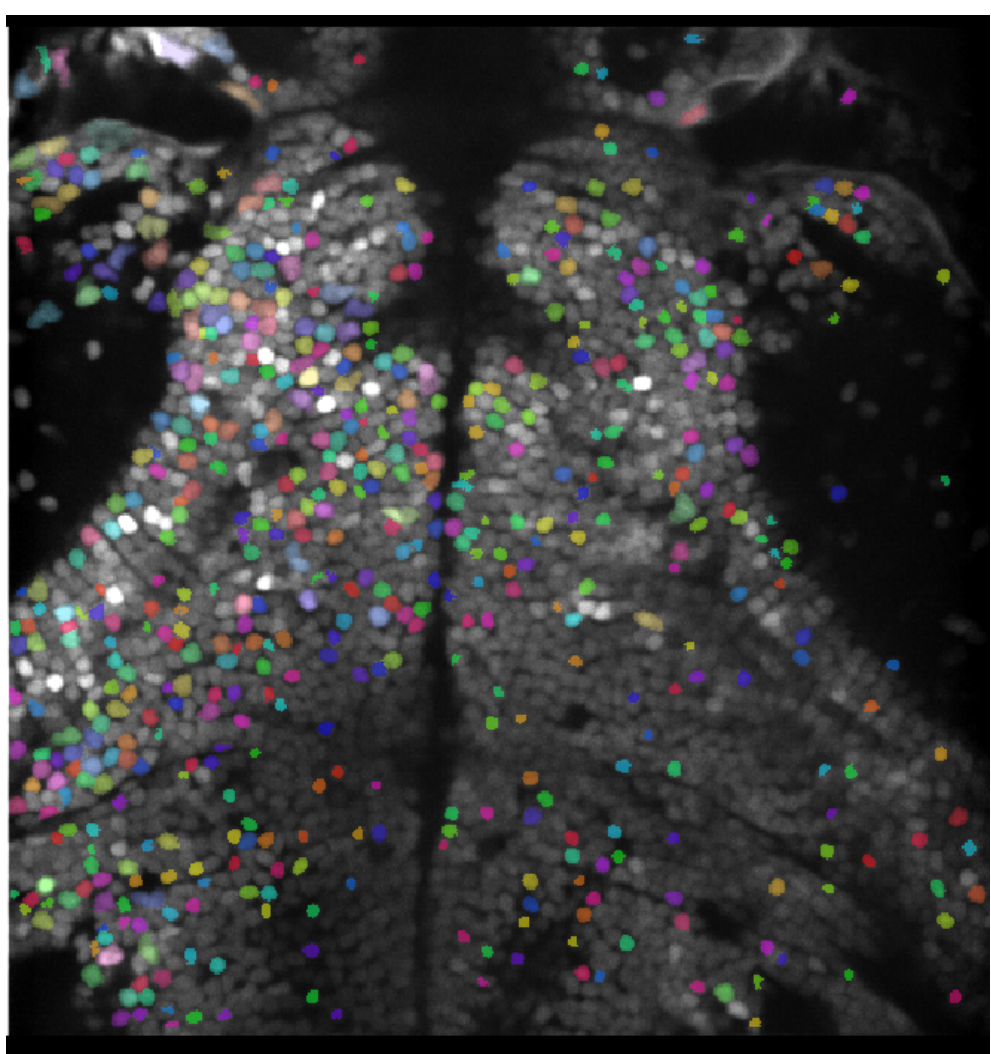


Color-blindness of direction-selective units in the optic tectum

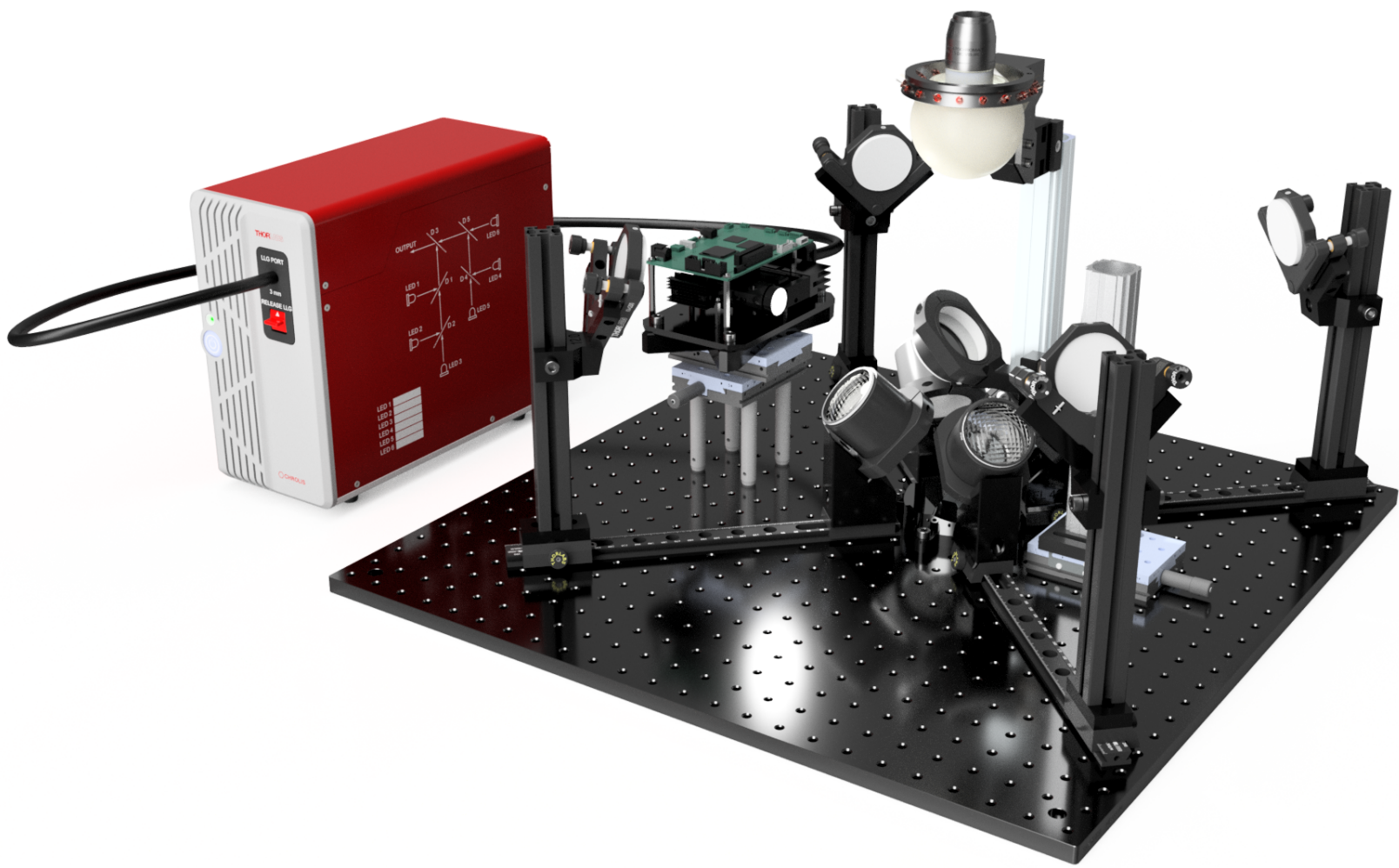
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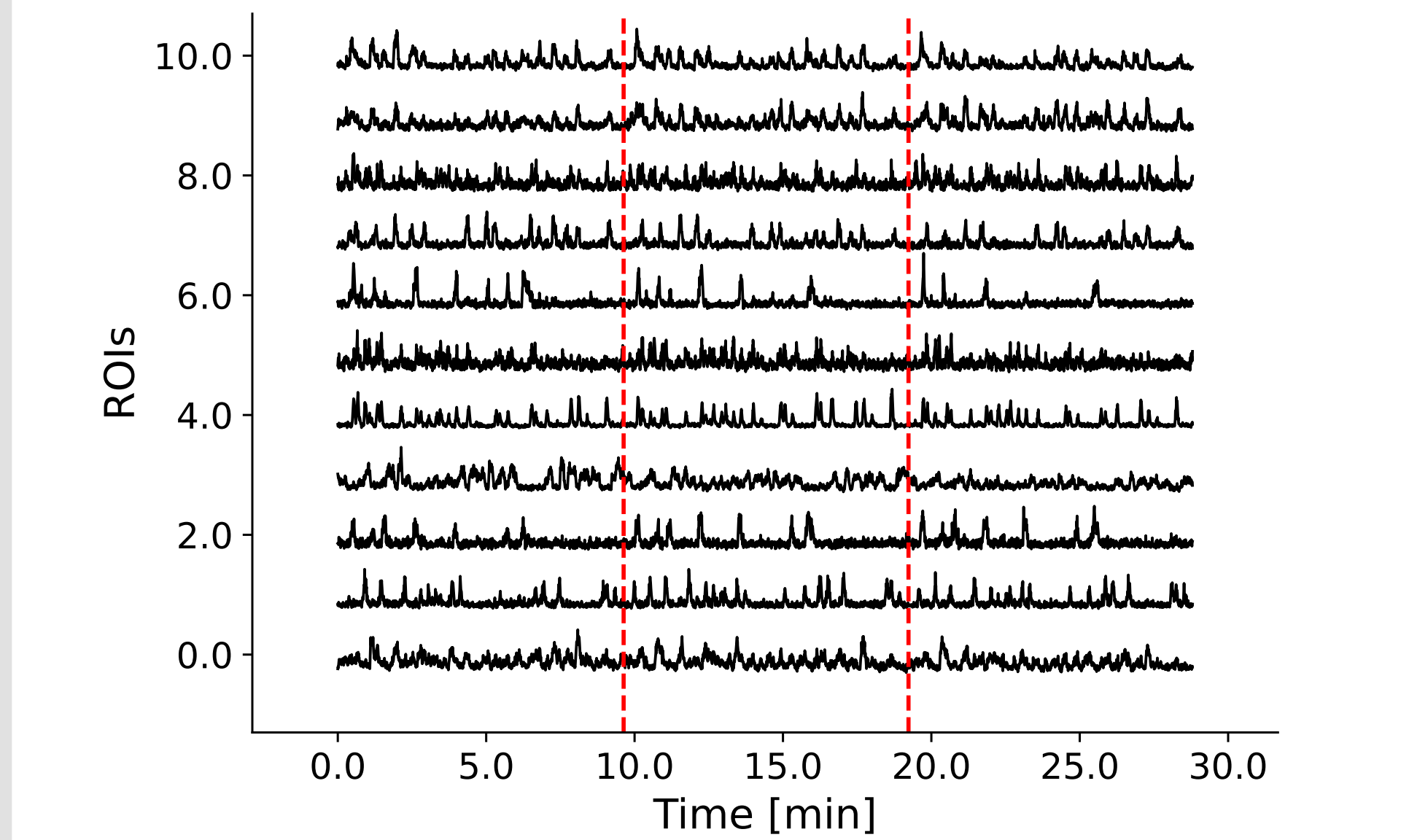
Introduction

Color has a big influence on motion vision in zebrafish. Michael B. Orger (2004) displayed that zebrafish in behavioural experiments show motion blindness to a grating of different colors, but little is known about the cortical structures conveying the „color-motion“ perception. We wanted to investigate the optic tectum of the zebrafish larvae with calcium imaging.

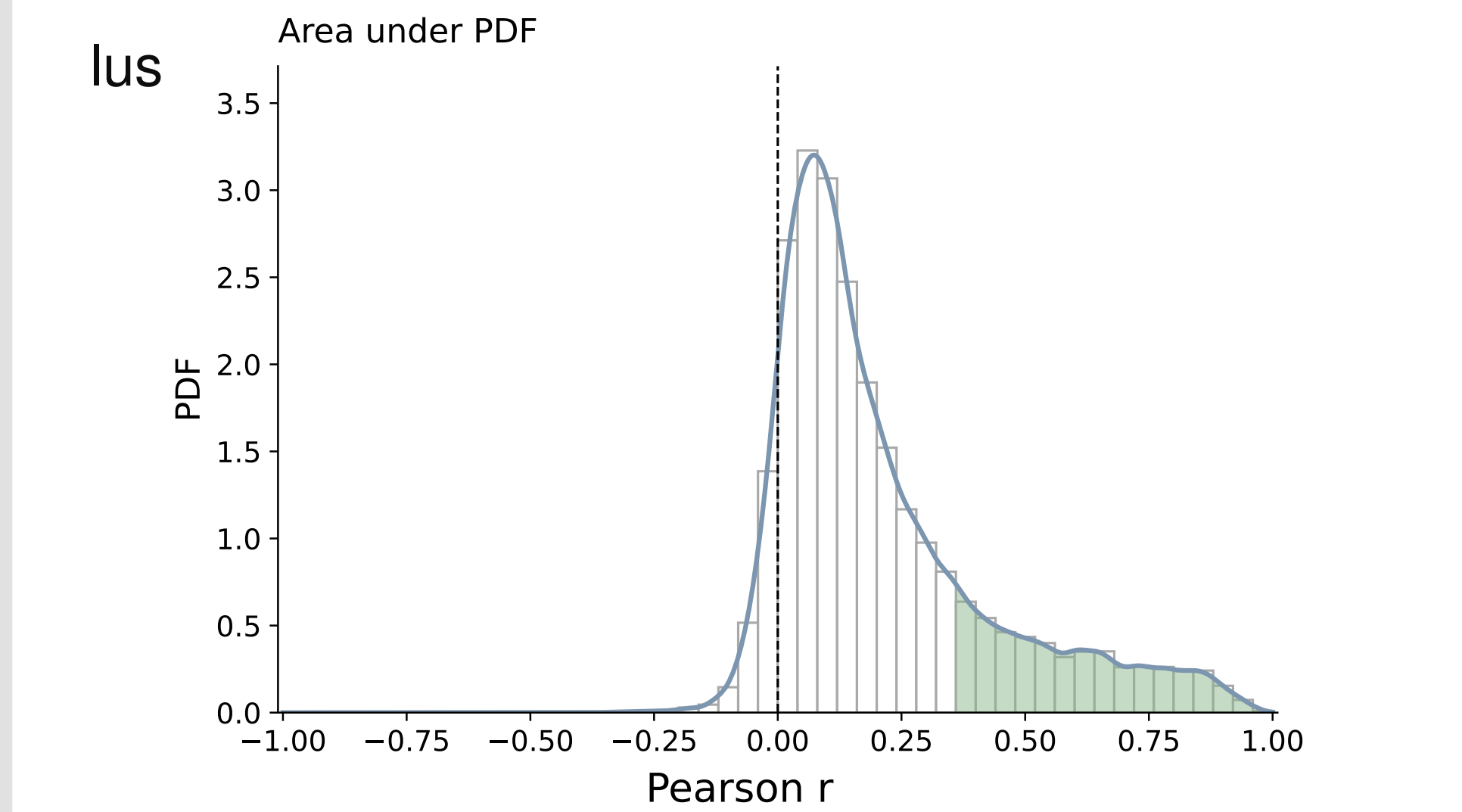


Preprocessing:

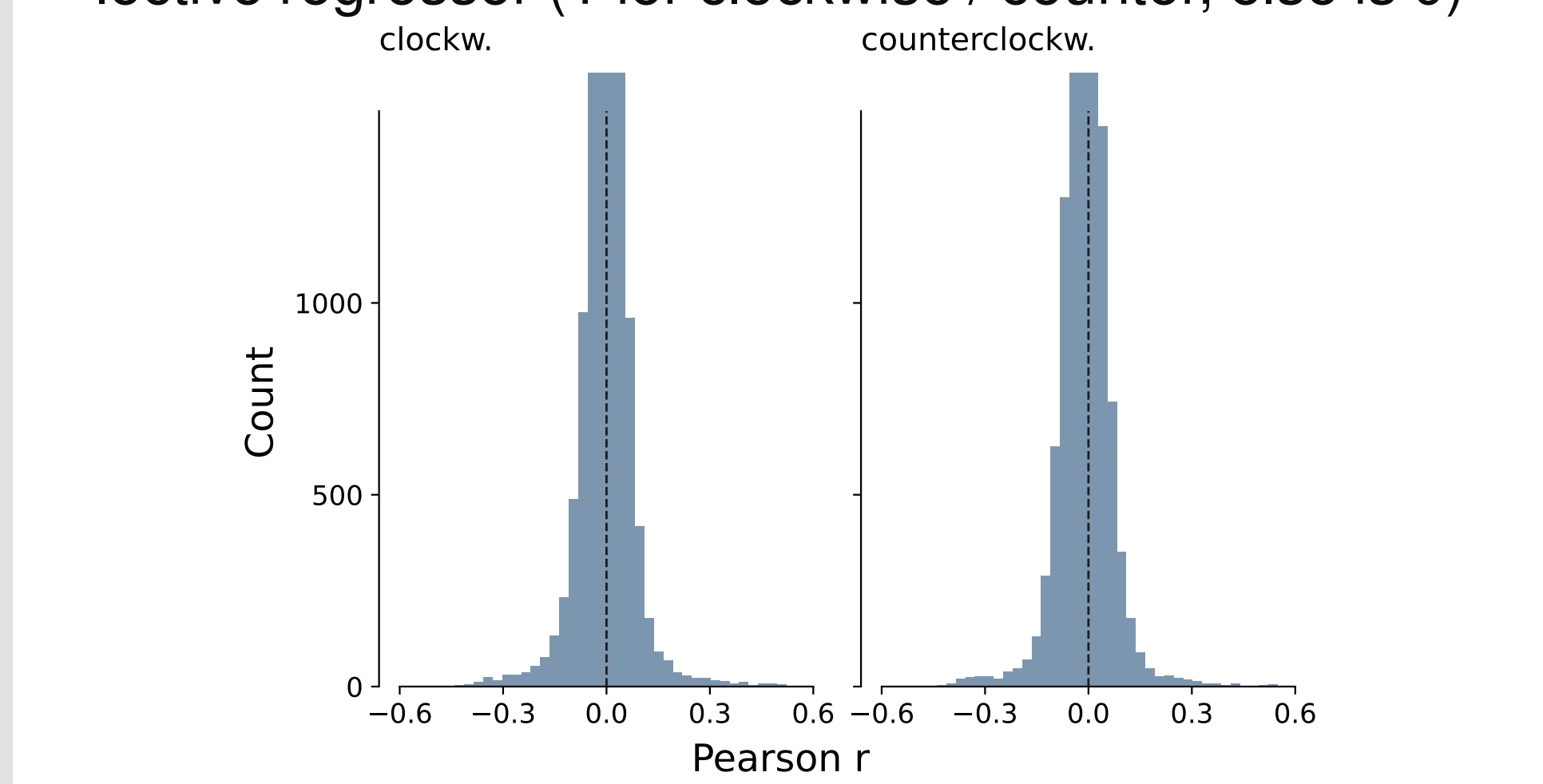
1. Region of Interests (ROI): corresponds to neurons with genetically. The lumiance F of the calcium imaging is calculated from the change of luminance normalized to the average luminance $F = \frac{\Delta F}{F}$.



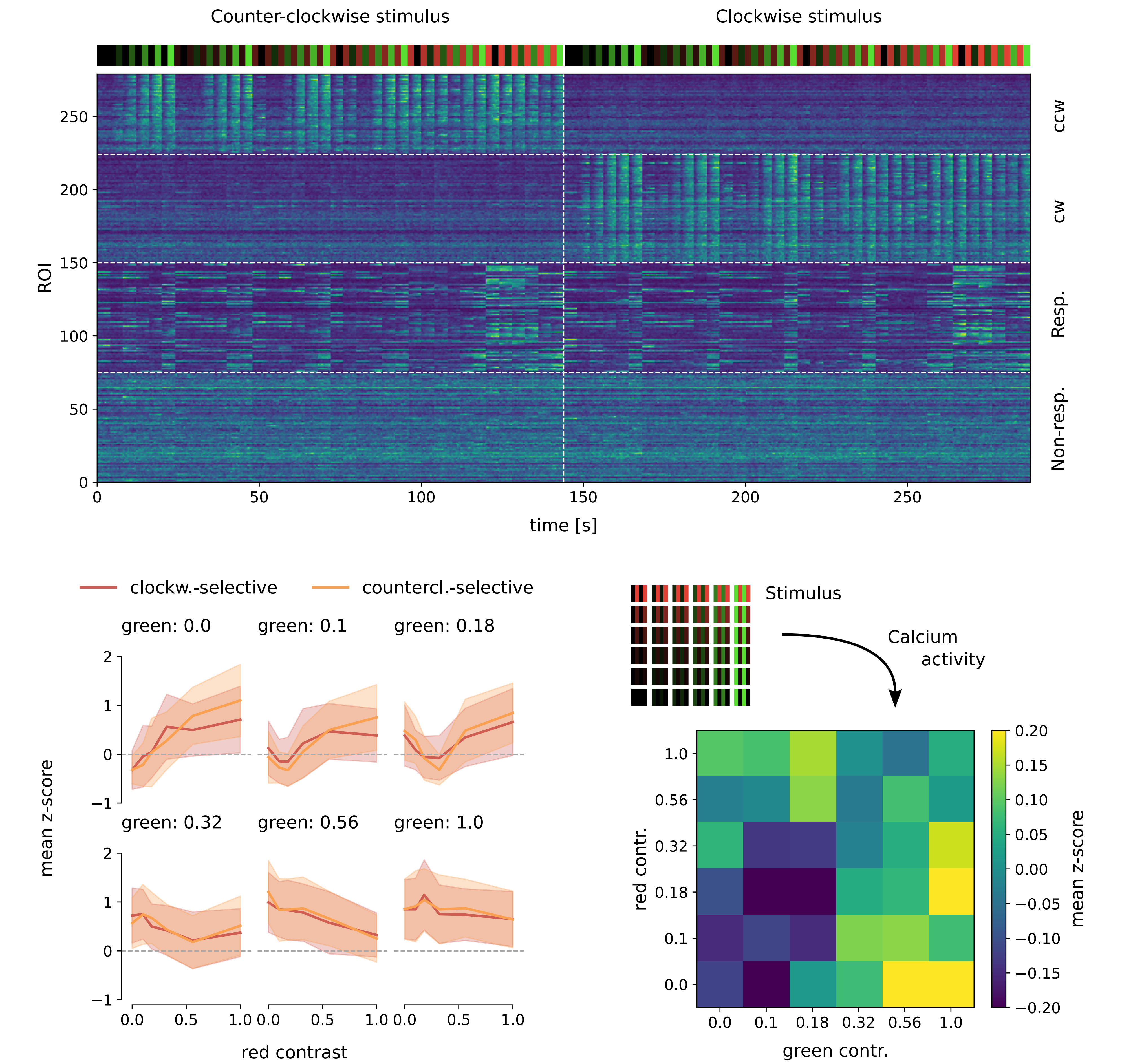
2. Active ROIs: To get the active ROIs we computed the correlation within 3 repeats of the same stimulus



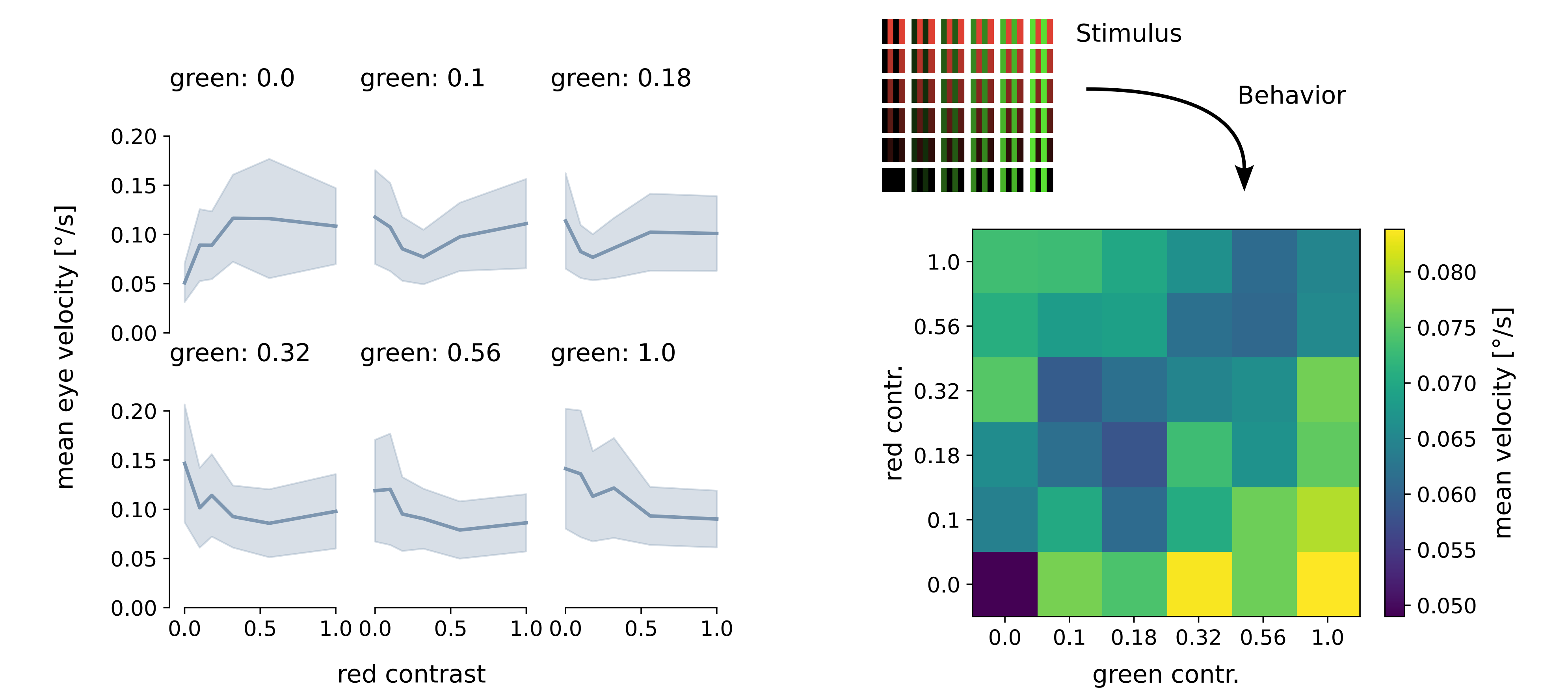
2. Direction selective ROIs: next Step was to search for ROIs that correlated with a direction selective regressor (1 for clockwise / counter, else is 0)



2-photon calcium imaging



Behavior



Conclusion

• The optic tectum is motion blind for various contrast levels