Motion blindness induced by color in zebrafish larvea Danio rerio



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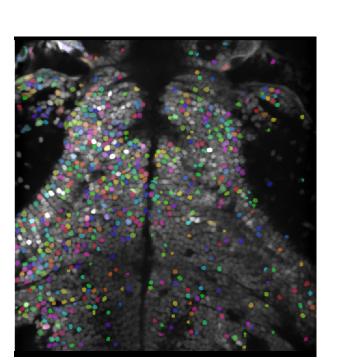
Introduction

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

figs/dsc_2193_02.jpg

Preprocessing:

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



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

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Detected modulations

We found phases of synchrony up to 50 Hz in $\triangle EODf$ that lasted for over 10 minutes. Synchronous modulations ranged from clearly distinguishable and steep rises to smooth modulations with low EODf increases.

figs/selected_modulations.pdf

figs/eventposition_2.pdf