
LAWRENCE OPREA, McGill University

Modeling perisaccadic traveling wave dynamics in the visual cortex

In normal vision our eyes rapidly flicker (saccade) between behaviourally pertinent objects in the environment. During ocular transit we become effectively blind as processing of motion-blurred images is suppressed in all parts of the visual system. Recent work in primates has shown that traveling waves of electrical activity occur in the visual brain area V4, after a saccade. These waves help to increase visual sensitivity and therefore may alleviate suppression. Our research goal is to create a neural network model to investigate the rapid dynamics of wave initiation and interaction with neurons. Previously, work has shown very fast switching between wave and synchronous states through the modulation of coupling kernels. We investigate the wave dynamics using an optical flow methodology that allows models of any dimensionality to be analyzed as 2D flows.