

Research Seminar Series

THE DIVISION OF PSYCHOLOGY



No Interaction of First- and Second-order Signals in the Extraction of Global Motion and Optic Flow

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30 October 2009 (Friday) 2:30pm – 3:30pm

HSS Seminar Room 3 (HSS-B1-10)

Abstract

Edwards and Badcock (VisRes, 1995) argued for independent first-order (FO) and second-order (SO) systems up to and including the global-motion level. That study used luminance (which they called FO) and contrast (SO) modulated dots. They found that SO noise dots did not mask FO signal extraction while FO noise masked SO extraction. However, they argued this asymmetry was not due to a combined FO-SO pathway, but rather due to the fact that the luminance-modulated dots, being local variations in contrast, are both FO and SO stimuli. We test this claim of FO and SO independence by using a stimulus that can generate pure FO and SO stimuli, specifically one consisting of multiple Gabor patches (global-Gabor stimulus) in which the Gaussian envelopes are static and the carriers drift. The carrier can either be luminance modulated (FO) or contrast modulate (SO). Results show no cross-masking of FO noise on SO signal and vice-versa, thus supporting the hypothesis of independent FO and SO systems up to and including optic flow extraction level.

Biography

Born in Argentina, Dr. Carlos Cassanello went to and graduated from University of Illinois at Urbana-Champaign in October 1996 in physics, under the guidance of Professor Eduardo Fradkin, in theoretical condensed matter physics with thesis "Large-N quantum field theoretical methods applied to condensed matter physics (superconductivity and magnetism in low spatial dimensions)." He then worked two years in Universitat zu Koeln, Germany in theoretical condensed matter.

After that, he became interested in neural physiology and switched to neuroscience in 1999 when he joined the Sloan Center for Theoretical Neurobiology at UC San Francisco. There he joined the lab of Professor Steve Lisberger and worked on monkey electrophysiology, recording from area MT until 2003. He later became a Postdoc fellow at Columbia from 2004-2008 with Vincent Ferrera, working on awake behaving monkey electrophysiology studying area FEF (in the prefrontal cortex) and its involvement with eye movements. In June 2008 he moved to Australia National University, Canberra, Australia. There he works in the group of Mark Edwards and has been doing psychophysics of human visual system in the cognitive group of the department of Psychology, studying perception and detection of motion, form integration, segmentation, and low level vision in general.

~~~~~ **All Are Welcome** ~~~~~