

## MODVIS 2014

### VSS Satellite Workshop on Computational and Mathematical Models in Vision

Wednesday, May 14

#### 9am – 12pm: Motion, eye movements, and space perception

9:00-9:30: *Seeing space through time during natural post-saccadic fixation: Neural dynamics and the time-course of contrast sensitivity*, Michele Rucci

9:30-10:00: *A novel system for 3D/dichoptic presentation* Bo Cao, Arash Yazdanbakhsh

10:00-10:30: *Correlation between motion perception and pursuit eye movements*, Arash Yazdanbakhsh, Bo Cao

10:30-11:00: Break

11:00-11:30: *An optimal-tracking model provides a unifying account of motion and position perception*, Oh-Sang Kwon, Duje Tadin, David Knill.

11:30-12:00: *Modeling the integration of velocity information*, Alan Johnston

#### 12pm - 2pm: Lunch on your own

#### 2pm – 5pm: Sensitivity regulation

2:00-2:30: *Tilt normalisation may be explained by pre-adaptation to natural orientation statistics*, Kate Storrs

2:30-3:00: *A general behavioral tracking paradigm for estimating visual sensitivity using dynamic internal models*, Kathryn Bonnen, Johannes Burge, Jacob Yates, Jonathan Pillow, Larry Cormack

3:00-3:30: *A boundedly optimal state estimation and control model of detecting targets among salient distractors*, Joseph Houpt, Christopher Myers, Xiuli Chen, Richard Lewis, Andrew Howes, Nicole Jardine

3:30-4:00: Break

4:00-4:30: *Using binding theory to understand visual amplification via other sensory inputs in rattlesnakes, cats and humans*, Vince Billock

4:30-5:00: *A Modeling Manifesto*, Jeff Mulligan

#### 5:30 – 7:30: Reception, South Beach Lawn

## Thursday, May 15

### 9am – 12pm: Physiology and color

9:00-9:30: *How randomness in natural scenes governs surface color discrimination, detection, matching, and identification*, David Foster

9:30-10:00: *The primary visual cortex seen through the three stages of vision: encoding, selection, and decoding*, Zhaoping Li

10:00-10:30: *Color decoding by primate IT neurons: Identification and discrimination*, Qasim Zaidi, Kaitlin S. Bohon, Galina Gagin, Bevil Conway

10:30-11:00: Break

11:00-11:30: *The effect of etiological factors of amblyopia on the co-development of V1 maps*, Inna Tsirlin

11:30-12:00: *Computational analysis of neural-BOLD coupling of fMRI signals*, Christopher Tyler

### 12pm – 2pm: Lunch on your own

### 2pm – 4:30pm: Objects and surfaces

2:00-2:30: *Visually judged physical stability and center of mass of 3D objects*, Steven Cholewiak, Roland W. Fleming, Manish Singh

2:30-3:00: *Modeling high- and mid-level lightness percepts with a cortical edge integration theory*, Michael Rudd

3:00-3:30: *Computation of border-ownership reflecting consistency of surface properties*, Kogo Naoki, Vicky Froyen

3:30-4:00: Break

4:00-4:30: *The role of border-ownership in detecting kinetic occlusion*, Oliver Layton, Ennio Mingolla, Arash Yazdanbaksh

4:30-5:00: *Tangent bundle elastica for visual curve completion*, Ohad Ben-Shahar

## Friday, May 16

### **9am - 12pm: Shape perception and grouping**

9:00-9:30: *Bayesian Hierarchical Grouping: a framework for perceptual grouping*, Vicky Froyen, Jacob Feldman, Manish Singh

9:30-10:00: *A Bayesian theory constrained by efficient coding accounts for both attractive and repulsive perceptual biases*, Xue-Xin Wei, Alan Stocker

10:00-10:30: Break

10:30-11:00: *Relating the ecological statistics of natural shapes to curvature tuning in macaque area V4*, Ingo Freund, James H Elder

### **11:00-11:30: Business meeting and closing**