MODVIS 2016 Program

Wednesday, May 11th

Cypress Room, Dolphin Beach Resort, 4900 Gulf Boulevard, St Pete Beach, FL

9:00-9:10 WELCOME

SESSION 1: Attention
Chair: Anne Sereno

9:10-9:35
Measuring and Modeling Shared Visual Attention
Jeffrey B. Mulligan, NASA Ames Research Center and Patrick Gontar, Technische Universitaet Muenchen

9:35-10:00
Precise measurements of perceptual attention filters for features
Peng Sun, Charles Chubb, Charles E Wright, Stefanie Drew, George Sperling, University of California Irvine.

10:00-10:25
Learning Object Representations for Modeling Attention in Real World Scenes
Alex Schwarz, Frederik Beuth and Fred H. Hamker, Chemnitz University of Technology

10:25-10:45 BREAK

SESSION 2: Eye-movements and Fixation
Chair: Anne Sereno

10:45-11:10
Focusing on Selection for Fixation
John K. Tsotsos, Calden Wloka and Yulia Kotseruba, York University

11:10-11:35
Modelling Short-Latency Disparity-Vergence Eye Movements Under Dichoptic Unbalanced Stimulation
Agostino Gibaldi, University of Genova; Guido Maiello, Northeastern University; Peter J. Bex, Northeastern University; and Silvio P. Sabatini, University of Genova

11:35-12:00
Using Deep Features to Predict Where People Look
Matthias Kümmerer, Matthias Bethge, University of Tuebingen

12:00-2:00 Lunch on your own

SESSION 3: Neural principles
Chair: Jeff Mulligan

2:00-2:25
A Learning Model for L/M Specificity in Ganglion Cells
Albert Ahumada, NASA Ames Research Center

2:25-2:50
A geometric approach to sparse coding yields insight into nonlinear responses
Kedarnath Vilankar; James Golden, Stanford University; and David Field, Cornell University

2:50-3:15
Spatial Synaptic Growth and Removal for Learning Individual Receptive Field Structures
Michael Teichmann and Fred H. Hamker, Chemnitz University of Technology

3:15-3:40
An Image-Based Model for Early Visual Processing
Heiko H. Schütt and Felix A. Wichmann, University of Tuebingen

3:40-4:00 BREAK

SESSION 4: Perceptual categorization
Chair: Jeff Mulligan

4:00-4:25
Choice-dependent Perceptual Biases
Long Luu and Alan A. Stocker, University of Pennsylvania

4:25-4:50
A mixture model demonstrates use of distinct strategies in a global motion direction task
Lanya Tianhao Cai and Benjamin T. Backus, SUNY College of Optometry

4:50-5:15
How Deep is the Feature Analysis Underlying Rapid Visual Categorization?
Sven Eberhardt, Jonah Cader and Thomas Serre, Brown University

Thursday, May 12th

Horizons Room, Tradewinds Resort, St Pete Beach, FL

SESSION 5: Cortical modeling
Chair: Zygmunt Pizlo

9:00-9:25
Towards a Unified Model of Classical and Extra-Classical Receptive Fields
David A. Mély and Thomas Serre, Brown University

9:25-9:50
Towards a Functional Explanation of the Connectivity LGN - V1
Marina Martinez-Garcia, Image Processing Lab. Universitat de Valencia; Borja Galan, Image Processing Lab. Universitat de Valencia; Luis M. Martinez, Instituto de Neurociencias CSIC; and Jesus Malo, Image Processing Lab. Universitat de Valencia

9:50-10:15
Derivatives and Inverse of a Linear-Nonlinear Multi-Layer Spatial Vision Model
Borja Galan, Image Proc. Lab. Univ. Valencia; Marina Martinez-Garcia, Im. Proc. Lab. Universitat de Valencia; Praveen Cyriac, UPF; Thomas Batard, UPF; Marcelo Bertalmio, UPF; and Jesus Malo, Image Processing Lab. Universitat de Valencia

10:15-10:40 BREAK

SESSION 6: Circuits in V1 Cortex
Chair: Zygmunt Pizlo

10:40-11:05
Modeling Response Properties Across the Orientation Map in Visual Cortex
Erin M. Koch, Jianzhong Jin, Jose-Manuel Alonso and Qasim Zaidi, Graduate Center for Vision Research, SUNY College of Optometry

11:05-11:30
Identifying Falsifiable Predictions of the Divisive Normalization Model of V1 Neurons
Tadamasa Sawada, School of Psychology, Higher School of Economics and Alexander A. Petrov, Department of Psychology, Ohio State University

11:30-12:00 Business meeting

12:00-2:00 Lunch on your own

SESSION 7: Scenes and objects
Chair: Qasim Zaidi

2:00-2:25
Modeling the Joint Distribution of Scene Events at an Edge
James Elder and Ying Li, York University

2:25-2:50
Disentangling the Roles of Junctions and Spatial Relations Between Contours for Scene Categorization
John Wilder, Dirk Walther, Allan Jepson and Sven Dickinson, University of Toronto.

2:50-3:15
Figure-Ground Organization using 3D Symmetry
Aaron Michaux, Vijai Jayadevan, Edward Delp and Zygmunt Pizlo, Department of Psychological Sciences, Purdue University.

3:15-3:40
3-D Shape Recovery from a Single Camera Image
Vijai Jayadevan, Aaron Michaux, Edward Delp and Zygmunt Pizlo, Purdue University

3:40-4:30 BREAK

SESSION 8: **KEYNOTE**
Chair: Qasim Zaidi

4:30-5:30
How is it possible that we infer shape from image information?
Steve Zucker, Yale University

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SESSION 9: Surface attributes
Chair: Sven Dickinson

9:00-9:25
Failure of surface color cues under natural changes in lighting
David H. Foster, University of Manchester and Iván Marín-Franch, Universitat de València and Universidad de Murcia, Spain

9:25-9:50
Parametrically Constrained Lightness Model Incorporating Edge Classification and Increment-Decrement Neural Response Asymmetries
Michael E. Rudd

9:50-10:15
Texture Modeling Using Convolutional Neural Networks
Leon A. Gatys, Alexander S. Ecker and Matthias Bethge, University of Tuebingen

10:15-10:40 BREAK

SESSION 10: Visual Information Processing
Chair: Sven Dickinson

10:40-11:05
Can Neuromorphic Computer Vision Inform Vision Science? Disparity Estimation as a Case Study
Guido Maiello, University College London; Manuela Chessa, University of Genoa; Peter J. Bex, Northeastern University; and Fabio Solari, University of Genoa

11:05-11:30
A neural circuit for visual information spreading
Gregory Francis, Purdue University

11:30-11:55
Virtual V1sion: A Collaborative Coding Project
Cheryl Olman, University of Minnesota - Twin Cities

11:55-12:00 Closing remarks