

ModVis 2017

Wednesday, May 17

9:00a.m. - 12:00 p.m.: Session 1 - Neuroscience/Physiology

9:00-9:22: **Computational modeling of contrast sensitivity and orientation tuning in schizophrenia.** Steven M. Silverstein, Docia L. Demmin, Rutgers University - New Brunswick/Piscataway and James A. Bednar, The University of Edinburgh.

9:22-9:44: **Gabor limits and hyper-selectivity in the tuning of V1 neurons.** David J. Field and Kedarnath P. Vilankar, Cornell University.

9:44-10:06: **Evaluating and interpreting a convolutional neural net as a model of V4.** Dean A. Posipisil, Anitha Pasupathy and Wyeth Bair, University of Washington.

10:06-10:32: Break

10:32-10:54: **Spatial-temporal visible contrast energy predictions of detection thresholds.** Albert Ahumada, Andrew B. Watson and Jihyun Yeonan-Kim, NASA Ames Research Center.

10:54-11:16: **Unifying binocular, spatial, and spatio-temporal frequency integration in models of MT neurons.** Pamela M. Baker and Wyeth Bair, University of Washington - Seattle Campus.

11:16-11:38: **Modeling the neural circuitry underlying the behavioral and EEG correlates of attentional capture.** Chloe Callahan-Flintoft and Brad Wyble, The Pennsylvania State University.

11:38-12:00: **Comparing diverse V1 models on the same platform: Virtual V1sion.** Cheryl Olman, University of Minnesota - Twin Cities.

12:00-2:00: Lunch break.

2:00 p.m. - 5:00 p.m.: Session 2 - Objects and Features

2:00-2:22: **Modeling grip point selection in human precision grip.** Guido Maiello, Lina Klein, Vivian C. Paulun, and Roland W. Fleming, University of Gießen.

2:22-2:44: **Heuristics from statistics—modeling the behavior and perception of non-rigid materials.** Vivian C. Paulun and Roland W. Fleming, Justus Liebig University, Giessen.

2:44-3:06: **A computational account of a class of orientation illusions.** Dejan M. Todorovic, University of Belgrade, Serbia.

3:06-3:32: Break

3:32-3:54: **Modeling the mechanisms of reward learning that bias visual attention.** Jason Hays and Fabian Soto, Florida International University.

3:54-4:16: **Large-scale discovery of visual features for object recognition.** Drew Linsley, Sven Eberhardt, Dan Shiebler and Thomas Serre, Brown University.

4:16-4:38: **Role of the cost of plasticity in determining the features of fast vision in humans.** Maria M. Del Viva, Department Neurofarba, University of Florence; Renato Budinich, Institute for Numerical and Applied Mathematics, University of Göttingen; Laura Palmieri, Department Neurofarba, University of Florence; Vladimir S Georgiev, Department of Mathematics, University of Pisa; and Giovanni Punzi, Department of Physics, University of Pisa.

4:38-5:00: **Modeling distribution learning in visual search.** Andrey Chetverikov, University of Iceland.

Thursday, May 18th

9:00 a.m. - 12:00 p.m.: Session 3 - Color, Lightness and Methods

9:00-9:22: **Can cone signals in the wild be predicted from the past?** David H. Foster, University of Manchester, UK and Iván Marín-Franch, Universidad de Murcia, Spain.

9:22-9:44: **Color algebras.** Jeffrey B. Mulligan, NASA Ames Research Center.

9:44-10:06: **Positive or correlated channels in parallel race systems: help or hurt?** James T. Townsend¹, Ru Zhang², Yanjun Liu¹ and Michael J. Wenger³, ¹Indiana University, Bloomington, ²Department of Psychology, University of Colorado, ³University of Oklahoma, Norman Campus.

10:06-10:32: Break

10:32-10:54: **Modeling accommodation control of the human eye: chromatic aberration and color opponency.** Agostino Gibaldi, Steven A. Cholwiak, and Martin S. Banks, U.C. Berkeley.

10:54-11:16: **Edge integration and image segmentation in lightness and color: computational and neural theory.** Michael E. Rudd, University of Washington.

11:16-11:38: **Using classification images to understand models of lightness perception.** Minjung Kim, York University; Jason M. Gold, Indiana University - Bloomington; and Richard F. Murray, York University.

11:38-12:00: **Analyzing thresholds and efficiency with hierarchical Bayesian logistic regression.** Joseph W. Hout, Wright State University - Main Campus and Jennifer L. Bittner, Rutgers University - New Brunswick/Piscataway.

12:00-2:00: Lunch break.

2:00 p.m. - 5:30 p.m.: Session 4 - Scenes and Attention

2:00-2:22: **Scoring scene symmetry.** Morteza Rezanejad¹, John D. Wilder², Sven Dickinson², Allan Jepson², Dirk B. Walther², and Kaleem Siddiqi¹, ¹McGill University, ²University of Toronto.

2:22-2:44: **The role of symmetry in scene categorization by human observers.** John D. Wilder¹, Morteza Rezanejad², Sven Dickinson¹, Allan Jepson¹, Kaleem Siddiqi², and Dirk B. Walther¹, ¹University of Toronto, ²McGill University.

2:44-3:06: **Similarity-based fusion of MEG and fMRI discerns early feedforward and feedback processing in the ventral stream.** Yalda Mohsenzadeh¹, Radoslaw Martin Cichy², Aude Oliva¹, and Dimitrios Pantazis¹, ¹Massachusetts Institute of Technology, ²Free University Berlin.

3:06-3:26: Break

3:26-3:48: **Neural computation of statistical image properties in peripheral vision.** Christoph Zetsche¹, Ruth Rosenholz², Noshaba Cheema¹, Konrad Gadzicki¹, and Lex Fridman², ¹Uni. Bremen, ²MIT.

3:48-4:10: **Real time learning level assessment using eye-tracking.** Saurin S. Parikh and Hari Kalva. Florida Atlantic University.

4:10-4:30: Business meeting

4:30-4:50: Break

4:50-5:50: **Keynote – Mapping the spatio-temporal dynamics of vision in the human brain.** Aude Oliva, Massachusetts Institute of Technology.

Friday, May 19th

9:00-12:00 p.m.: Session 5 – Shapes and Depth

9:00-9:22: **Shape features underlying the perception of liquids.** Jan Jaap R. van Assen¹, Pascal Barla², and Roland W. Fleming¹. ¹Department of Psychology, Justus-Liebig-University Giessen, ²Inria - Bordeaux University - IOGS – CNRS.

9:22-9:44: **Perception of 3D symmetrical and near-symmetrical shapes.** Vijai Jayadevan, Aaron Michaux, Edward Delp and Zygmunt Pizlo, Purdue University.

9:44-10:06: **Determining visual shape features for novel object classes.** Yaniv Morgenstern, Philipp Schmidt, and Roland W. Fleming. Justus-Liebig-Universität Gießen.

10:06-10:32: Break

10:32-10:54: **Predicting fixations from deep and low-level features.** Matthis Kuemmerer, Tom S. A. Wallis, Leon A. Gatys, and Matthis Bethge, Tuebingen University.

10:54-11:16: **A single shape from multiple cues: how local and global information organizes shape inference.** Benjamin Kunsberg, Brown University and Steven W. Zucker, Yale University.

11:16-11:38: **Central and peripheral difference in perceptual bias in ambiguous perception using dichoptic stimuli --- Implications for the Analysis-by-Synthesis Process in Visual Recognition.** Li Zhaoping, University College London.

11:38-12:00: **Learning to identify depth edges in real-world images with 3D ground truth.** Krista A. Ehringer¹, Kevin T. Joseph¹, Wendy J. Adams², Erich W. Graf², and James H. Elder¹, ¹York University, ²University of Southampton.