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CAPnet Satellite

"Perception and Action: Integration, computation and application"

New Student Centre, York University, Toronto, ON

Sunday, May 26th, 2019
9:00 AM to 5:30 PM

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RÉSEAU DE RECHERCHE EN SANTÉ DE LA VISION
VISION HEALTH RESEARCH NETWORK

Perception, Action and their interaction: Data, Models and Dysfunction

Program committee: Denise Henriques (York U., co-chair), Aarlenne Khan (U. Montreal., co-chair), Steven Prime (U. Saskatchewan), Erin Cressman (U. Ottawa), Erez Freud (York U.), Claudia Gonzalez (U. Lethbridge)

9:00 - 9:10	**Welcome & Acknowledgements (Denise Henriques)**
9:10 - 10:40	**Talk Session I – Sensory and perceptual processing (Chair: Denise Henriques)**
9:10 - 9:25	Reliance on central vs. peripheral vision for visual search in younger and older adults *Anne-Sophie Laurin[1], Julie Ouerfelli-Éthier[2], Laure Pisella[3], Aarlenne Z. Khan[2]* *[1]Department of Psychology, University of Montreal, [2]School of Optometry, University of Montreal, [3]ImpAct, INSERM UM1028, CNRS UMR 5292, Bron, France*
9:25 - 9:40	Altered large-scale organization of shape processing in visual agnosia *Erez Freud[1] & Marlene Behrmann[2]* *[1]Centre for Vision Research, York University; [2]Department of Psychology, Carnegie Mellon University*
9:40 - 9:55	Audiovisual Multisensory Processing in University Aged Adults with Attention-Deficit/Hyperactivity Disorder *Heather McCracken[1], Bernadette Murphy[1], James J. Burkitt[1], Cheryl M.Glazebrook[2], Paul Yielder[1,3]* *[1]Faculty of Health Sciences, University of Ontario Institute of Technology; [2] Faculty of Kinesiology and Recreation Management, University of Manitoba; [3]School of Medecine, Deakin University*
9:55 - 10:10	A mechanism for spatially and temporally varying neuronal responses to static, spatially varying stimuli *Jason E. Pina[1], G. Bard Ermentrout[2]* *[1]Department of Physics and Astronomy, York University; [2]Department of Mathematics, University of Pittsburg*
10:10 - 10:25	Thalamus coding strategies for representing natural self-motion *Jerome Carriot[1], Hamed Hooshangnejad[2], Graham McAllister[1], Isabelle Mackrous[1], Kathleen E. Cullen[2], Maurice Chacron[1]* *[1]Department of Physiology, McGill University; [2]Department of Biomedical Engineering, Johns Hopkins University*
10:25 - 10:40	Which aspects of size and distance for real objects are coded through the hierarchy of visual areas? *Margarita Maltseva[1], Derek Quinlan[1,2], Kevin Stubbs[1], Talia Konkle[3], Jody Culham[1]* *[1]Brain and Mind Institute, Western University, [2]Department of Psychology, Huron College, [3]Center for Brain Science, Harvard University*
10:40 - 11:00	**Coffee break**

11:00 - 12:15	**Talk Session II – Learning and Adaptation (Chair: Aarlenne Khan)**
11:00 - 11:15	Correcting together, but planning differently: Reaching with an abrupt versus gradual visuomotor distortion *Darrin O. Wijeyaratnam, Richard David Bishouty, Zacharie Cheng-Boivin, and Erin K. Cressman* *School of Human Kinetics, University of Ottawa*
11:15 - 11:30	Active movements with ambiguous visual stimuli induce perceptual learning *Giulia Sedda[1], Vittorio Sanguineti[1], Silvio P. Sabatini[1], David J. Ostry[2,3]* *[1]Department of Informatics, Bioengineering, Robotics and Systems Engineering, University of Genoa; [2]Department of Psychology, McGill University; [3]Haskins Laboratories, New Haven, Connecticut*
11:30 - 11:45	To the beat of my hand: Increased haptic feedback changes the body model. *Lara Coelho, Connor Way, Claudia L. R. Gonzalez* *Department of Kinesiology, University of Lethbridge*
11:45 - 12:00	Hierarchically-organized attentional sets bias both information-sampling and choices to feature values, feature dimensions, and contextual information during rule-based learning *Marcus R. Watson[1], Benjamin Voloh[2], Milad Naghizadeh[3], Thilo Womelsdorf[1,2]* *[1]Department of Biology, York University; [2]Department of Psychology, Vanderbilt University, [3]Department of Neuroscience, University of Lethbridge*
12:00-12:15	Effects of cognitive load on cortical oscillations during a pattern learning task using MEG and pupillometry *Silvia Isabella, Douglas O. Cheyne* *Institute of Medical Sciences and Institute of Biomedical Engineering, University of Toronto and Department of Neurosciences and Mental Health, Hospital for Sick Children*
12:15 - 1:00	**Lunch**
1.00 – 2.30	**Posters (list of posters following below)**
2:00-2:30	**Steering committee meeting**
2:30 - 4:00	**Talk Session III – Sensorimotor Integration (Chair: Erin Cressmann)**
2:30 - 2:45	Spinal Circuits Account for the Arm's Orientation to Support Efficient Reaching *Jeffrey Weiler, Paul Gribble, Andrew Pruszynski* *The Brain and Mind Institute, Western University*

2:45 - 3:00	Do Afferent and Efferent Signals Separately Contribute to Hand Location Estimates? *Bernard Marius 't Hart, Maria Nadine Ayala, Denise Y. P. Henriques* *Centre for Vision Research, York University*
3:00 - 3:15	Potential models of allocentric coding for reaching in naturalistic visual scenes *Parisa Abedi Khoozani[1], Paul R. Schrater[2], Dominik Endres[3], Katja Fiehler[4], Gunnar Blohm[1]* *[1]Centre for Neuroscience Studies, Queen's University; [2]Department , University of Minnesota, [3]Philipps-University Marburg, [4]Justus-Liebig University Giessen*
3:15 - 3:30	Neural mechanisms of integration of egocentric and allocentric gaze coding in monkey frontal eye fields *Vishal Bharmauria[1], Amirsaman Sajad[2], Xiaogang Yan[1], Hongying Wang[1], J. Douglas Crawford[1]* *[1]Centre for Vision Research, York University; [2]Vanderbilt Vision Research Center, Vanderbilt University*
3:30 - 3:45	Visual discrimination between complex objects gates early excitatory oculomotor projections during saccade task *Devin H. Kehoe, Mazyar Fallah* *Centre for Vision Research, York University*
3.45-4.00	In search of the larval zebrafish striatal homologue *Tod Thiele* *Department of Biological Sciences, University of Toronto Scarborough*

4:00 - 4:20	**Coffee Break**
4:20 - 5:30	**Keynote Lecture by Dr. Jody Culham** **"You can't pound a nail with a photo of a hammer: How real objects differ from images"** **Chair: Erez Freud**
5.30 -	**After satellite Social** **Shopsy's sports grill patio, York Lanes**

The main poster session will be during lunch hours; however, posters should be up for the entire day. We suggest that presenters in Poster Session I should be at their poster from approx. 1:00 - 2:00 pm, presenters in Poster Session II should be at their poster from approx. 1:30 – 2:30 pm. Poster boards are numbered

1:00 - 2:00	**Poster Session I – Cognitive/Perceptual Effects on Action**
1.	Re-evaluation of luminance evoked pupil response dynamics *Jonathan D. Coutinho[1], Jeff Huang[1], Philippe Lefèvre[2], Gunnar Blohm[1], Douglas P. Munoz[1]* *[1]Centre for Neuroscience Studies, Queen's University; [2]Department of Biomedical Engineering, Université Catholique Louvain*
2.	Familiar size effect on perceptual estimations of absolute size and absolute distance for real objects *Anna Rzepka*[1], Margarita Maltseva*[2,3], Kevin Stubbs[3], Derek Quinlan[3], Jocelyn Martin[2], Jody Culham[2,3]* *[1]Faculty of Science, Western University; [2]Department of Psychology, Western University; [3]Brain and Mind Institute, Western University*
3.	A spin on motor performance: the relationship between mental rotation and visuomotor rotation performance *Chad Vachon, Bernard Marius 't Hart, Denise Y. P. Henriques* *Centre for Vision Research, York University*
4.	No age limit: Sex differences in visuospatial tasks in older adults *Daniela Aguilar Ramirez, Jarrod Blinch, Claudia L. R. Gonzalez* *Department of Kinesiology, University of Lethbridge*
5.	Saccades vs. Novelty: the joint influence of saccades and repetition on perceived stimulus duration. *Amir Hossein Ghaderi, George Tomou, J. Douglas Crawford* *Centre for Vision Research, York University*
6.	Red Preferentially Strengthens Response Inhibition in a Stop Signal Paradigm where Color Change Occurs at a Spatially Separated Location *Gifty Asare, Saloni Phadke, Heather Jordan, Mazyar Fallah* *Centre for Vision Research, York University*
7.	Gain scaling adaptation in vestibular thalamus *Graham McAllister[1], Jerome Carriot[1], Jessica Brooks[1], Hamed Hooshangnejad[2], Kathleen E. Cullen[2], Maurice J. Chacron[1]* *[1]Department of Physiology, McGill University; [2]Department of Biomedical Engineering, Johns Hopkins University*
8.	Transsaccadic integration of multiple objects and the influence of stable allocentric cues *George Tomou, Xiaogang Yan, J. Douglas Crawford* *Centre for Vision Research, York University*
9.	Artifacts of Creative Effect and Adaptive Behaviour in People with Parkinson's Disease *Mollia M. Weidman, Sarah R. Ciantar, Alyssa Pagliuso, Joseph F. X. DeSouza* *Centre for Vision Research, York University*
10.	Perceived self-motion during a visual reorientation illusion *Meaghan McManus, Laurence R. Harris* *Centre for Vision Research, York University*

11.	Which Somatosensory Cue Affects the Perception of Self-Motion? *Nils-Alexander Bury, Michael Jenkin, Rainer Herpers, Laurence R. Harris* *Centre for Vision Research, York University*
12.	EEG-based decoding of task-dependent attention to object shape and surface features *Nina Lee, Lin Guo, Adrian Nestor, Matthias Niemeier* *Department of Psychology, University of Toronto Scarborough*
13.	It wasn't me: The role of source attribution on proprioceptive recalibration and updating predicted sensory consequences *Raphael Q. Gastrock, Shanaathanan Modchalingam, Chad Vachon, Bernard Marius 't Hart, Denise Y. P. Henriques* *Centre for Vision Research, York University*
14.	Decoding Convolutional Neural Networks using allocentric v. egocentric landmark task *Sohrab Salimian., Richard P. Wildes., J. Douglas Crawford* *Centre for Vision Research, York University*
15.	Manipulating perceived body size in healthy adults using galvanic vestibular stimulation and altered visual feedback *Sarah D'Amour, Deborah Alexe, Isabella Lim, Laurence R. Harris* *Centre for Vision Research, York University*
16.	Fine orientation processing in the tactile periphery *Vaishnavi Sukumar, J. Andrew Pruszynski* *Brain and Mind Institute, Western University*
17.	The Persistence of Expectation *Brandon Caie[1], Aarlenne Z. Khan[2], Paul Schrater[3], Gunnar Blohm[1]* *[1]Centre for Neuroscience Studies, Queen's University; [2]School of Optometry, University of Montreal; [3]Department of Psychology, University of Minnesota*

1:45 - 2:30	**Poster Session II – Eye, head and arm movements**
18.	Conscious aiming strategies override implicit adaptation to opposing visuomotor perturbations *Maria N. Ayala, Denise Y. P. Henriques* *Centre for Vision Research, York University*
19.	Motor skills are a building block for social skills in preschool children *Nicole A. van Rootselaar, Jonathan Ruiz, Jeffery McCormack, Fangfang Li, Robbin Gibb, Claudia L. R. Gonzalez* *Department of Kinesiology, University of Lethbridge*
20.	Spatial and temporal dynamics of delayed, volitional reaching *Alice Atkin, Anthony Singhal* *Department of Psychology, University of Alberta*
21.	Retention of previous adaptation underlies the spontaneous rebound in visuomotor adaptation *Ambika Tara Bansal, Bernard Marius 't Hart, Denise Y. P. Henriques* *Centre for Vision Research, York University*
22.	The influence of spatiotemporal structure on recall performance in memory-guided saccade sequences *Sharmini Atputharaj, David C. Cappadocia, Mazyar Fallah, J. Douglas Crawford* *Centre for Vision Research, York University*
23.	Functional connectivity for updating grasp plans for oriented objects across saccades: An fMRIa paradigm *Bianca R. Baltaretu[1], Simona Monaco[2], Jena Velji-Ibrahim[1], Gaelle N. Luabeya[1], J. Douglas Crawford[1]* *[1]Centre for Vision Research, York University; [2]Center for Mind/Brain Sciences, University of Trento*
24.	Effects of dance therapy on balance and affect in Parkinson's disease *Sarah Ciantar, Eden Champagne, Karolina Bearss, Rebecca Barnstaple, Josilyn Weidman, Benjamin Patrick, Tenzin Chosang, Olivia Morson, Joseph F.X. DeSouza* *Centre for Vision Research, York University*
25.	To reach or not to reach: Coordination of eye, head and hand movements during visually guided reach *Haider Al-Tahan, J. Douglas Crawford* *Centre for Vision Research, York University*
26.	Fast and slow processes in error-based motor learning differ with feedback but not age *Jennifer E. Ruttle[1], Bernard 't Hart[1], Andreas Straube[2], Thomas Eggert[2], Denise Y. P. Henriques[1]* *[1]Centre for Vision Research, York University, [2]Department of Neurology, Ludwig-Maximilians University*
27.	Time course and hierarchy of effector and grasp orientation representations revealed by EEG representational dissimilarity analysis *N Lin Lawrence Guo, Yazan Shamli Oghli, Adam Frost, Matthias Niemeier* *Department of Psychology, University of Toronto Scarborough*
28.	Dominant vs non-dominant hand differences in early somatosensory evoked potentials in response to a novel motor tracing task. *Mahboobeh Zabihhosseinian, Ryan Gilley, Danielle Andrew, Bernadette Murphy, Paul Yielder* *Faculty of Health Sciences, University of Ontario Institute of Technology*

29.	Population coding in central vestibular pathways during naturalistic stimuli *Mohammad Mohammadi[1], Graham McAllister[1], Isabelle Mackrous[1], Jerome Carriot[1], Kathleen E. Cullen[2], Maurice J. Chacron[1]* *[1]Department of Physiology, McGill University; [2]Department of Biomedical Engineering, Johns Hopkins University*
30.	Influence of Gaze Direction on Hand Location and Orientation in a Memory-Guided Alignment Task Gaelle N. Luabeya, Xiaogang Yan, J. Douglas Crawford *Centre for Vision Research, York University*
31.	Unbounded implicit motor adaptation *Shanaathanan Modchalingam, Marco Ciccone, Bernard Marius 't Hart, Denise Y. P. Henriques* *Centre for Vision Research, York University*
32.	How does Predictive Sensorimotor Control differ in people with high and low levels of autistic traits? *Tom Arthur[1], Gavin Buckingham[1], Mark Brosnan[2], Sam Vine[1]* *[1]Department of Sports and Health Sciences, University of Exeter; [2]Centre of Applied Autism Research, University of Bath*
33.	Decoding eye-head-hand coordination in primate premotor cortex during visually guided reaches. *Veronica Nacher, Harbandhan Arora, Vishal Bharmauria, Xiaogang Yan, Saihong Sun, Hongying Wang, J. Douglas Crawford* *Centre for Vision Research, York University*
34.	Saccadic adaptation in the presence of artificial central scotomas *Youngmin Song[1], Aarlenne Z. Khan[2]* *[1]Department of Anatomy and Cell Biology, McGill University; [2]School of Optometry, University of Montreal*

Keynote Lecture

You can't pound a nail with a photo of a hammer: How real objects differ from images

Dr. Jody Culham

Abstract:

Psychologists and neuroimagers commonly study perceptual and cognitive processes using images because of the convenience and ease of experimental control they provide. However, real objects differ from pictures in many ways, including the potential for interaction and richer information about distance (and thus physical size). Across a series of neuroimaging and behavioral experiments, we have shown different neural responses to real objects than pictures, in terms of the level and pattern of brain activation as well as visual preferences in infants and adults. Now that these results have shown quantitative and qualitative differences in the processing of real objects and images, the next step is to determine which aspects of real and virtual objects drive these differences.

Biosketch:

Dr. Jody Culham is a Professor in the Department of Psychology and Brain and Mind Institute at the University of Western Ontario. Her research uses cognitive neuroscience techniques to study how vision is used for perception and to guide actions. One theme of her work is bringing cognitive neuroscience closer to everyday life by investigating real actions upon real objects. Dr. Culham received a Bachelor's degree from the University of Calgary and a PhD from Harvard University. She did a postdoctoral fellowship at the University of Western Ontario before becoming a faculty member there.