York University

Office of the Vice-President Research & Innovation

CENTRE FOR VISION RESEARCH (CVR)
Annual Report
2015/16

1. Contact Information

Director: Laurence Harris
Telephone: x66108
Email: harris@yorku.ca
Campus Address: 1022 Sherman Health Sciences Centre
Admin. Contact: Teresa Manini manini@cvr.yorku.ca
ORU Website: http://cvr.yorku.ca

2. Charter dates:

First charter 1992; last renewal 2015

3. Mandate

Our mandate is to pursue interdisciplinary research and training in the broadly defined visual sciences and their applications. The sense of vision does not stand alone: it is the primary input not only for understanding the world around us, but also for guiding action in the world, for determining interaction with the world and inherently integrates with the other sensory processes. The CVR provides a simple and effective infrastructure that provides members with maximal freedom in pursuing their research programs while encouraging collaboration among members and across disciplines.

4. Membership and Governance

ACTIVE MEMBERS

HEALTH

Laurence Harris (Director, Psychology)
Scott Adler (Psychology)
Doug Crawford (Psychology)
Joe DeSouza (Psychology)
Mazyar Fallah (Kin)
Denise Henriques (Kin)
Kari Hoffman (Psychology)
Richard Murray (Psychology)
Shayna Rosenbaum (Psychology)

Lauren Sergio (Kin)
Jennifer Steeves (Psychology)
Dale Stevens (Psychology)
Christine Till (Psychology)
Laurie Wilcox (Psychology)

HEALTH & ENGINEERING
James Elder (Psychology and EECS)

HEALTH & SCIENCE
Georg Zoidl (Psychology and Biology)

ENGINEERING
Rob Allison (Associate Director, EECS)
Richard Hornsey (EECS)
Michael Jenkin (EECS)
Matthew Kyan (EECS)
John Tsotsos (EECS)
Rick Wildes (EECS)
LIBERAL ARTS AND PROFESSIONAL STUDIES
Jacob Beck (Philosophy)

SCIENCE
Chris Bergevin (Physics)
Keith Schneider (Biology)
Thilo Womelsdorf (Biology)

AMPD
Graham Wakefield (Digital Media, Visual Art and Art History)

OTHER MEMBERS
ASSOCIATE MEMBERS
Hiro Ono (Psychology)
David Martin Regan (Psychology)
Josee Rivest (Psychology, Glendon)
Michael Spetsakis (EECS)
Marty Steinbach (Psychology)
Fran Wilkinson (Psychology)
Hugh Wilson (Biology)

ADJUNCT MEMBERS
Michael Barnett-Cowan (Kin, Waterloo)
Suzanna Becker (Psychology, McMaster)

Pat Bennett (Psychology, McMaster)
Dirk Bernhardt-Walther (Psychology, U of T)
Jonathan Cant (Psychology, U of T, Scarborough)
Jennifer Campos (Toronto Rehabilitation Institute)
Douglas Cheyne (Medical Imaging, U of T)
Elizabeth Irving (Optometry, Waterloo)
Alan Jepson (Computer Science, U of T)
Jocelyn Keillor (NRC, Canada)
Behrang Keshavarz (Toronto Rehabilitation Institute)
Richard Mann (Computer Science, Waterloo)
Matthias Neimeier (Psychology, U of T)
Kathleen O'Craven (Psychology, U of T)
Jay Pratt (Psychology, U of T)
Brian Rogers (Psychology, Oxford, UK)
Alison Sekuler (Psychology, McMaster)
David Shore (Psychology, McMaster)
Andy Smith (Psychology, Royal Holloway, London, UK)
Wolfgang Stuerzlinger (School of Interactive Arts and Technology, SFU)
Niko Troje (Pychology and School of Computing, Queens)
Doug Tweed (Physiology, U of T)
Carol Westall (Hospital for Sick Children, Toronto)
Dave Williams (Southlake Regional Health Centre, Newmarket)
Agnes Wong (Ophthalmology and Vision Science, U of T)
Richard Zemel (Computer Science, U of T

GOVERNANCE

Director	Laurence Harris (Psychology)
Associate Director	Rob Allison (EECS)
Member	Doug Crawford (Psychology)
Member	Fran Wilkinson (Psychology, retired)
Member	Laurie Wilcox (Psychology)
Member	Richard Murray (Psychology)

5. Annual Activities in Fulfilling Mandate

MAJOR PROPOSALS

Several CVR members formed the core of the university's application to the Canada First Research Excellence Fund for the Vision: Science to Applications project, valued at $124,418,000.

CVR members are PIs in three CFI proposals (Womelsdorf: *Centre for Neuro-Behavioural Monitoring using Advanced Technologies* $5.2M; Sergio: *Neurorehabilitation for Better Brain Health*; and Jenkin: *Sensory Blanket and Interactive Displays* $8.6M) and are involved in an AMPD CFI application (*Motion Vocabularies for Advanced Motion Media Systems*). Each includes multiple CVR members.

CVR has been successful in NSERCs' CREATE program, with three run by CVR PIs (Elder, Wilson and Crawford). We are submitting an application on *Neuroimaging and Noninvasive Neuromodulation* (Steeves).

Elder has applied to the Ontario Research Fund for $4M for *Intelligent systems for sustainable urban motility* and to the MTO Highway Infrastructure Innovation Funding Program for *Automatic 3D Video Analytics for Traffic and Road Condition Assessment.*

EVENTS HOSTED AND ORGANIZED

Wilcox and Allison hosted an Industry panel workshop concerning the effect of High Frame Rates in Cinema at Pinewood studios (Toronto) (5 participants from York and 95 from other parts of Canada).

Crawford organized a retreat connected to the Brain in Action CREATE (75 attendees from York, Queens, Western, Marburg and Giessen Universities along with partners: Leo Burnett Canada, Venture Lab, DRDC).

Beck and Schneider organized a 2-day workshop on Attention and Conscious Perception at the York Philosophy Dept (55 York members, 25 other Canadians and 10 international visitors).

The CVR biennial International Conference took place in June (169 attendees including 20 international visitors and 39 from across Canada). Our annual CVR summer school attracted 32 participants including 6 international students and 6 from across Canada.

Rosenbaum organized a Seniors Housing Industry Workshop at York (20 attendees; 12 from outside York).

Elder organized a *Big Data and Intelligent Transportation Systems Panel, EAI International Conference on Big Data and Analytics for Smart Cities* which was attended by 30 people from across Canada.

Stevens organized a workshop on *MRI Preprocessing*, which had 15 attendees.

KNOWLEDGE MOBILIZATION/ENGAGEMENT/OUTREACH/TECHNOLOGY TRANSFER ACTIVITIES

JOINT PROJECTS WITH NON-ACADEMIC PARTNERS

Henriques is working with Neutun Labs to detect epileptic seizures with wearable devices. Sergio has commercialized a tablet-based functional assessment tool (with MaRS Innovation). Rosenbaum is working with Industry partner Axonify to optimize workplace training. DeSouza is in partnership with Canada's National Ballet School, a Dance for Parkinson's program, and with Les Grand Ballet Dance Movement therapy program. Elder is collaborating with several companies for projects on transport and smart cities. Wilcox and Allison are collaborating with partners in the film industry. Many of these will be strengthened by the CFREF project.

MEDIA

CVR members have appeared in multiple media outlets: Daily Planet and Global TV Toronto News (Sergio), Newsweek (Till), CBC Radio (Crawford). SYNAPSE DANCE documentary (De Souza; in Brooklyn and Canadian Film Festivals; won awards as best foreign short). De Souza's work with dance and dance therapy has been featured 11 times on internet sites. Harris' research on audio-visual distance was picked up by 38 internet sites and featured in a Scientific American blog.

INVITED TALKS

OUTREACH

CVR members have given 14 outreach talks with six talks at local libraries, and appearances at Science Fairs, and Brain Day (Waterloo). We gave two York Circle addresses (Rosenbaum and Steeves), and Wilson gave a public presentation to the Bluewater Association for Lifelong Learning (over 275 paying customers).

CANADIAN

We gave 9 invited talks at Canadian Universities including McGill, McMaster, U of T, Western, Queens, and Université de Montréal.

INTERNATIONAL

We gave 23 talks at universities throughout the world including in Mexico, Austria, Italy, Germany, France, UK (3) and USA (9).

KEYNOTES

CVR members were invited keynote speakers at the Neural Control of Movement (Crawford), LOVE (Harris), the Banff Annual Symposium in Cognitive Science (Steeves), and at Natural Environments, Tasks, and Intelligence in Austin, Texas (Murray).

Facilitating faculty or student research through mentorship

Our three CREATE grants contribute greatly to student mentorship. Rosenbaum directs the high school science exchange program (partner: Richmond Hill High School), and coordinates Clinical Neuropsychology in Psychology. Sergio coordinated the Neuroscience Graduate Diploma Program. Fallah, Zoidl, Crawford, Sergio, Womelsdorf, Schneider, and Hoffman were involved in developing the neuroscience undergraduate degree. We supervised 71 undergrad projects, 48 Masters, 72 PhD and 28 PDFs (Appendix 1). CVR members taught fifteen graduate courses amongst which *Applications in Vision Science* and *Fundamentals of Neuroscience* were team-taught.

Other research leadership activities

Rosenbaum served on the Hebb Lifetime Achievement Award Committee and is a member of the Board of Trustees of the Ontario Science Centre

GRANT BODIES

CVR members are members of the NSERC Evaluation Group for Biological and Life Sciences (Wilcox), NSERC Committee on Biological Systems and Functions (Zoidl), the U.S.-Israel Bi-national Science Foundation (Stevens), CIHR's college of reviewers (Harris, Hoffman, Sergio), the NIH ad hoc review panel (Hoffman), CFI Leaders Opportunity Fund Advisory Committee (Harris), MITACS College of Reviewers (Allison), and the US National Science Foundation (Steeves).

EDITORSHIPS

CVR members are editors for some of the most important journals in the field including *Journal of Vision* (Murray), *Perception* (Harris), *Computer Vision and Image Understanding* (Tsotsos), *Frontiers in Neuroscience* (Fallah), *Multisensory Research* (Harris), *Cognitive Processing* (Tsotsos), *International Journal of Biochemistry and Molecular Biology* (Zoidl), *ACM Transactions on Applied Perception* (Elder), *Frontiers in Human Neuroscience* (Rosenbaum) and

Journal of Alzheimer's Disease (Sergio). Elder and Tsotsos were guest editors for *Vision Research*.

6. Financial Position

(enclosed)

7. Space Utilization

(enclosed)

8. Objectives for Upcoming Year

FUNDING PROPOSALS ANTICIPATED FOR SUBMISSION BY APRIL 30, 2017

- Wilcox will apply for an ENGAGE and a CRD in collaboration with Qualcomm for $25,000 and $400,000 respectively.
- DeSouza will be applying for MJFF ($150k), NSERC ($20k) and SSHRC ($30k) funding.
- Crawford will apply for CIHR ($400k p.a).
- Beck SSHRC (insight, $90,000)
- Till has applied to NIH for an R21 ($297,000 US) on *The Impact of early life fluoride exposure on cognitive and behavioural outcomes in children*. The proposal was ranked at the 5th percentile and has been forwarded to the NIH review council for final funding approval; to be announced in June 2016. Thus, the status is "pending final approval". If this is approved there will be an associated grant from the Water Economics, Policy and Governance Network (WEPGN) for $20,000 on Neurodevelopmental outcomes in young children living in areas with fluoridated versus non-fluoridated public water.
- Till: CIHR grant ($105,000) on the impact of early life fluoride exposure on cognitive and behavioural outcomes in Canadian children.
- Fallah, NSERC, $50,000 p.a.
- Steeves is leading a CREATE application "*Neuroimaging and Noninvasive Neuromodulation*" which will involve CVR members Sergio, Stevens, Rosenbaum, Cant and 5 others.
- Bergevin (with : and Sunil Puria, Harvard Med.) Applying for NIH Support for Conferences and Scientific Meetings (Parent R13/U13) National Institutes of Health $40000 (USD) [NOTE: Harvard Medical School also agreed to give $10,000 on top of that too] (Submitted (very good scores received, but no official word back yet)
- Elder led a proposal for funding from the Estes Fund (http://www.psychonomic.org/estes-fund) for a two-day international workshop on

Bayesian Models of Perception. Our proposal made it to the second round but was not successful. We intend to resubmit this year.

- Elder: NSERC I2I $125,000
- Wildes: NIH ($5M) and CFI ($3M)
- Jenkin will apply for an NSERC Strategic Network Grant for $6M
- Jenkin will apply for an NSERC CRD for $30,000
- Stevens will apply for a CIHR project grant for $250,000
- Sergio: CFI-IF $2,300,000
- Sergio: CIHR chair $100,000

CONFERENCES, WORKSHOPS, EXHIBITS OR OTHER EVENTS TO BE HOSTED OR ORGANIZED BY APRIL 30, 2017, AND TARGET AUDIENCE

- November 4-5, 2016: Advancing the Science of Dance for Well-being : First National Symposium, target audience – admin, researchers, dancers, practitioners, policy makers, etc. (De Souza)
- CVR York Conference is planned for June 2017, target audience academics, industrialists, students.
- Crawford will co-chair the Gordon Research Conference on Eye Movements (with M Sommer) target audience: researchers
- CVR summer school June 6-10 2016 target audience: undergrad students interested in grad school
- Murray. Will organize a Symposium at *European Conference on Visual Perception*. Barcelona, Spain, August 28 – September 1, 2016 target audience: researchers
- Beck, Co-Coordinator (w/ K. Andrews), Origins of Logical Reasoning Workshop, May 5-6 2016, at York University target audience: researchers and philosophers
- Mechanics of Hearing conference (www.mechanicsof hearing.org) at Brock University organized by Bergevin (with Sunil Puria, Harvard) June 19-23, 2017 target audience: researchers, clinicians and students
- Bergevin has organized a Mini symposium on Advances in mathematical models of hearing (at the SIAM conference on the life sciences, Boston, July 11-14, 2016) target audience mathematicians, researchers
- Bergevin was vice chair at the Canadian Association of Physicists meeting in Ottawa in 2016 and will chair it next year at Queens. Target audience: physicists
- Edler has been asked to organize a session for the 2017 Annual Interdisciplinary Conference in Colorado. Target audience: students and researchers with a wide range of backgrounds

KNOWLEDGE MOBILIZATION/ENGAGEMENT/OUTREACH/TECHNOLOGY TRANSFER ACTIVITIES PLANNED

- Rick Wildes will deliver of prototype stereo algorithms to medical partner.
- The 2017 CVR conference will bring together industrial partners and academics to discuss knowledge mobilization. This could be connected to the CFREF application if successful.

VISITORS INVITED OR ANTICIPATED

- Dr Bruce Lanphear will be visiting Christine Till.
- Constanze Schmitt a PhD candidate from Marburg University will be visiting Crawford as a part of the CREATE IRTG program
- For the Origins of Logical Reasoning Workshop, the visiting speakers will include Josep Call (University of St. Andrews), Susan Carey (Harvard University), Christopher Peacocke (Columbia University), Michael Rescorla (University of California at Santa Barbara), and Hayley Clatterbuck (University of Rochester)
- Dr. Mayank Mehta (UCLA) (http://www.physics.ucla.edu/~mayank/index.html)
- Dr. Dana Ballard (Austin) (http://www.cs.utexas.edu/~dana/vrlab/research.html)
- Dr. Nachum Ulanovsky (Weizman Inst.) (http://www.weizmann.ac.il/neurobiology/labs/ulanovsky/laboratory-nachum-ulanovsky)
- Dr. Uri Hasson (Princeton) (http://www.hassonlab.com/#!about/cjg9)
- Robert Sekuler (Brandeis)
- Randolph Blake (Vanderbilt)

9. Other relevant items the Director wishes to include

We are delighted this year to welcome new members Matthew Kyan (Lassonde), Graham Wakefield (AMPD), and Jacob Beck (LA&PS). This expands our faculty base to include AMPD and LA&PS and further increases our involvement with Lassonde. We have also added new adjuncts from Toronto Rehabilitation Institute and the University of Waterloo.

We are proud to acknowledge some particular achievements of our members: Doug Crawford is the winner of Canadian Physiological Society Sarrazin Award Lecture. John Tsotsos won the Sir John William Dawson Medal of the Royal Society of Canada. John Tsotsos gave an Invited interview in the *Q&A* section of *Current Biology*. Shayna Rosenbaum was elected a member of the New Scholars, Artists, and Scientists of the Royal Society of Canada and has also been

elected to the Board of Trustees of the Ontario Science Centre (Ontario Ministry of Tourism, Culture, and Sport public appointment).

The CVR has had a very successful year. Members have brought over $4M to York in individual funding and have facilitated group grants totaling over $23M ($5M in the reporting period) (see appendices below). We have published approximately 130 peer-reviewed publications and are currently training 227 undergrads, graduate students and postdoctoral fellows.

We look forward to a prosperous and productive 2016/7 and are holding our collective breath for the outcome of the CFREF application, which we anticipate will catapult us to an even higher level of success.

10. Appendix 1 – Additional Information about Progress in Fulfilling Mandate

PUBLICATIONS	
ACTIVE MEMBERS	
SUMMARY	127 peer reviewed publications
Use the "Insert Citation" button to add citations to this document. Allison, Rob	1. Palmisano, S. A., Hill, H., & Allison, R. S. (2016). The nature and timing of pseudoscopic experiences. *i-Perception*, 7(1), 2041669515625793. doi:10.1177/2041669515625793 2. Suryakumar, R. & Allison, R. (2016). Accommodation and pupil responses to random-dot stereograms. *Journal of Optometry*, 9(1), 40–46. doi:http://dx.doi.org/10.1016/j.optom.2015.03.002 3. Vinnikov, M., Allison, R. S., & Fernandes, S. (2016 (in press)). Impact of Depth of Field Simulation on Visual Fatigue: Who are Impacted? and How? *International Journal of Human-Computer Studies*. 4. Wilcox, L., Allison, R. S., Helliker, J., Dunk, A., and Anthony, R. (2015). Evidence that viewers prefer higher frame rate film. *ACM Transactions on Applied Perception (TAP)*, 12(4): Article 15, doi: 10.1145/2810039. 5. Allison, R. S. and Wilcox, L. M. (2015). Perceptual tolerance to stereoscopic 3d image distortion. *ACM Transactions on Applied Perception*, 12(3), Article 10: 1-20, doi: 0.1145/2770875 6. Palmisano, S. A., Allison, R. S., Schira, M. M., & Barry, R. J. (2015). Future Challenges for Vection Research: Definitions, Functional Significance, Measures and Neural Bases. *Frontiers in Psychology Research, Perception Science,* 6, 193. doi:10.3389/fpsyg.2015.00193 7. Walker, S. M., Shan, J., & Allison, R. S. (2016). Hard Real-Time General-Purpose Robotic Simulations of Autonomous Air Vehicles. In *AIAA Modeling and Simulation Technologies Conference, AIAA SciTech* (AIAA 2016-1667). doi:10.2514/6.2016-16 8. Marianovski, M., Wilcox, L., and Allison, R. S. (2015). Evaluation of the impact of high frame rates on legibility in S3D film. In *ACM SIGGRAPH Symposium on Applied Perception (*pp. 67-73). doi:10.1145/2804408.2804411.

	9. Zhao, J., Bunn, F. E., Perron, J. M., Shen, E., & Allison, R. S. (2015 (in press)). Gait Assessment using the Kinect RGB-D Sensor. In *37th Annual IEEE Engineering in Medicine and Biology Conference* (pp. 6679 – 6683). doi:10.1109/EMBC.2015.7319925.
Beck, Jacob	1. Analogue Magnitude Representations: A Philosophical Introduction." *The British Journal for the Philosophy of Science*, 66, 2015, pp. 829–855. 2. "El Requisito de Generalidad y la Estructura del Pensamiento" [Spanish translation and reprinting of "The Generality Constraint and the Structure of Thought"]. In *Conceptos, Lenguaje y Cognición*, M. Aguilera, L. Danón, & C. Scotto (eds.), Córdoba, Argentina: Editorial de la Universidad Nacional de Córdoba, 2015, pp. 225–281.
Bergevin, Chris	1. Bergevin C, Manley GA, & K˙oppl C (2015) Otoacoustic interrelationships of the barn owl. Mechanics of Hearing: Protein to Perception, AIP Conf. Proc. 1703, 090011 2. Bergevin C & Salerno A (2015) Dynamics of spontaneous otoacoustic emissions. Mechanics of Hearing: Protein to Perception, AIP Conf. Proc. 1703, 090024 3. Bergevin C, Meenderink SWF, van der Heijden M, & Narins, PM (2015) Slow dynamics of the amphibian tympanic membrane. Mechanics of Hearing: Protein to Perception, AIP Conf. Proc. 1703, 060001 4. Manley GA, K˙oppl C, & Bergevin C (2015) Common substructure in otoacoustic emission spectra of land vertebrates. Mechanics of Hearing: Protein to Perception, AIP Conf. Proc. 1703, 090012
Crawford, Doug	1. Monaco, S., Buckingham, G., Sperandio, I., & Crawford, J. D. (2016) Editorial: Perceiving and Acting in the real world: from neural activity to behavior Frontiers in Human Neuroscience 10, 179, 2016 2. Dash, S., Alipour-Nazari, S., Yan, X., Wang, H., & Crawford, J. D (2016). Superior colliculus responses to attended, unattended, and spatially updated saccade targets during smooth pursuit eye movement. *Frontiers in Systems Neuroscience* http://dx.doi.org/10.3389/fnsys.2016.00034 3. Sajad, A., Sadeh, M., Yan, X., Wang, H., & Crawford, J. D. (2016). Transition from Target to Gaze Coding in Primate Frontal Eye Field During Memory Delay and Memory-Motor Transformation. *eNeuro* 3 (2), ENEURO. 0040-16.2016 *4.* Mohsenzadeh, Y, Dash S & Crawford, J. D. (2016). A state space model for spatial updating of remembered visual targets during eye movements. *Frontiers in Human Neuroscience* *5.* Sadeh, M., Sajad, A., Wang, H., Keith, G. P., Yan, X., & Crawford, J. D. (2015) Spatial transformations between superior colliculus visual and motor responses during head-unrestrained gaze shifts. *European Journal of Neuroscience* EJN-2014-12-22318. *6.* Sajad, A., Sadeh, M., Keith, G. P., Yan, X., Wang, H., Crawford, J. D.(2015) Visual-Motor Transformations within Frontal Eye Fields During Head-Unrestrained Gaze Shifts in the Monkey *Cerebral Cortex* 2015 Oct;25(10):3932-52. 7. Malik, P., Dessing, J., & Crawford, J. D. (2015) Role of Early Visual Cortex in Trans-Saccadic Memory of Object Features *Journal of Vision* JOV-04547-2014 *8.* Daemi M., & Crawford, J. D. (2015) A Kinematic Model for 3-D Head-Free Gaze-Shifts *Frontiers in Computational Neuroscience. Article ID: 118183*
DeSouza, Joe	1. Bar RJ & DeSouza JFX. Tracking plasticity: Effects of long-term rehearsal in experts encoding music to movement. *PLoS ONE*, *11(1)*, e0147731. http://dx.doi.org/10.1371/journal.pone.0147731 2. DiNota PM, Levkov G, Bar R & DeSouza JFX. Lateral occipitotemporal cortex (LOTC)

	activity is greatest while viewing dance compared to visualization and movement: learning and expertise effects. *Experimental Brain Research*. http://dx.doi.org/10.1007/s00221-016-4607-7 3. Chan JL, Kucyi A & DeSouza JFX (2015) Stable Task Representations under Attentional Load Revealed with Multivariate Pattern Analysis of Human Brain Activity. *Journal of Cognitive Neuroscience*, 1-12. http://dx.doi.org/10.1162/jocn_a_00819 4. Dhami P, Moreno S & DeSouza, JFX (2015) New Framework for Rehabilitation - Fusion of Cognitive and Physical Rehabilitation: The Hope for Dancing. *Frontiers in Psychology*, *5*, 1478-1471. http://dx.doi.org/10.3389/fpsyg.2014.01478 5. Olshansky MP, Bar RJ, Fogarty M & DeSouza JFX (2015) Supplementary motor area (SMA) and auditory cortex activation in an expert break-dancer during visualized dance to music. *Neurocase, 21(5)*, 607-17. http://dx.doi.org/10.1080/13554794.2014.960428 6. Kshtriya S, Barnstaple R, Rabinovich, D, & DeSouza, JFX. (2015). Dance and Aging: A Critical Review of Findings in Neuroscience. *American Journal of Dance Therapy,* http://dx.doi.org/10.1007/s10465-015-9196-7 7. Barnstaple RE, Rabinovich D, DeSouza JFX (In Press) Can expert dancers be a springboard to examine neurorehabilitation via dance? In: Oxford Anthology of Hip Hop Dance Studies (Fogarty M, Johnson I, eds). Oxford: Elsevier. 8. Chan JL, Kucyi A, DeSouza JFX (2015) Oculomotor system. In: Brain Mapping: An Encyclopedic Reference (Toga AW, Mesulam MM, Kastner S, eds). Oxford: Elsevier.
Elder, James	1. Drewes, J., Goren, G., Zhu, W. & Elder, J.H. (2016). Recurrent processing in the formation of shape percepts. *J. Neuroscience* vol. 36, no. 1, 185-192 2. Elder, J.H. (2015). Bridging the dimensional gap: Perceptual organization of contour into two-dimensional shape. In J. Wagemans, ed., *Oxford Handbook of Perceptual Organization*, Oxford University Press, Oxford UK. 3. Elder, J.H., Victor, J. & Zucker S.W. (2016). Editorial: Understanding the statistics of the natural environment and their implications for vision. *Vision Research*, 120, 1-4
Fallah, Maz	1. Perry, CJ, Tahiri A, and Fallah M (2014) Feature integration within and across the visual streams occurs at different processing stages. *J. Vision* 14(2). 2. Perry CJ and Fallah M (2014) Feature integration and object representations along the dorsal visual stream hierarchy. *Frontiers in Computational Neuroscience* 8(84) 3. Perry CJ, Sergio LE, Crawford JD, Fallah M (2015) Hand placement near the visual stimulus improves orientation selectivity in v2 neurons. *J. Neurophysiology* DOI: 10.1152/jn.00919.2013
Harris, Laurence	1. D'Amour S, Pritchett LM, Harris LR (2015) "Bodily illusions disrupt tactile sensations" *Journal of Experimental Psychology: Human Perception and Performance* 41 (1): 42-49 2. Hoover A, Harris LR (2015) "The role of viewpoint on body ownership" *Exp Brain Res.* 233: 1053-1060 3. Hoover AEN, Harris LR (2015) "Disrupting vestibular activity disrupts body ownership" *Multisensory Research* 28: 581-590 4. Harris LR, Carnevale MJ, D'Amour S, Fraser LE, Harrar V, Hoover AEN, Mander C, Pritchett LM "How our body influences our perception of the world" *Frontiers in Psychology* 6:819. doi: 10.3389/fpsyg.2015.00819 5. Ferrè ER, Harris LR (2015) "Introduction to Vestibular Cognition Special Issue: Progress in Vestibular Cognition" *Multisensory Research* 28: 393-396 **6.** Jaekl P, Seidlitza J, Harris LR, Tadin D. (2015) "Audiovisual delay as a novel cue to

	visual distance" PLoS ONE 10(10): e0141125. doi:10.1371/journal.pone.0141125 **7.** Fraser LE, Makooie B, Harris LR (2015) "The subjective visual vertical and the subjective haptic vertical access different gravity estimates" PLoS ONE 10(12) e0145528. Doi: 10.137/journal.pone.0145528 8. Carnevale MJ, Harris LR (2016) "Which way is up for a high pitch?" *Multisensory Research 29: 113-132* 9. D'Amour S, Harris LR (2016) "Testing tactile masking between the forearms" *Journal of Visualized Experiments (108), e53733, doi:10.3791/53733* 10. D'Amour S, Harris LR (2016) "Arm position modulates long-distance tactile masking between the arms" Experimental Brain Research 234: 569-575 11. Grove PM, Robertson C, Harris LR (2016)"Disambiguating the stream/bounce illusion with inference" Multisensory Research. 29: 453-464 12. Hoover AEN, Elzein Y, Harris LR (in press) "Left-handers show no self-advantage when identifying delayed visual feedback concerning an active movement" *Experimental Brain Research* Epub ahead of publication DOI 10.1007/s00221-016-4595-7
Henriques, Denise	1. Ayala, M., Henriques, D.Y.P. Concurrent adaptation to opposing visuomotor rotations by varying hand and body postures. Exp Brain Res, 233, 3433-45, 2015. 2. Leone, F.T., Monaco, S., Henriques, D.Y., Toni, I., Medendorp, W.P. Flexible reference frames for grasp planning in human parietofrontal cortex. eNeuro, doi: 10.1523/ENEURO.0008-15.2015. 3. Clayton, H.A., Henriques, D.Y.P. Proprioceptive precision is impaired in Ehlers-Danlos Syndrome. Springerplus, 4, 323, 2015 4. Cressman, E.K., Henriques, D.Y.P. Generalization patterns for reach adaptation and proprioceptive recalibration differ after visuomotor learning. J Neurophysiology; 114(1) :354-65, 2015.
Hoffman, Kari	*1.* Wynn JS, Bone M, Dragan MC*, Hoffman KL, Buchsbaum BR and Ryan JD (in press) Selective scanpath repetition during memory-guided visual search *Visual Cognition DOI:10.1080/13506285.2016.1175531* *2.* Leonard TK*, Mikkila JM, Gerrard JL, Kaping D, Patel S, Eskandar E, Womelsdorf T, Hoffman KL (2015) Sharp wave ripples during visual exploration in the primate hippocampus. ***The Journal of Neuroscience*** 35(44):14771-14782 *doi: 10.1523/JNEUROSCI.0864-15.2015*
Hornsey, Richard	1. Cyrus Minwalla, Paul Thomas, Kristopher Ellis, Richard Hornsey, Sion Jennings, "Range Performance Evaluation from the Flight Tests of a Passive Electro-Optical Aircraft Detection Sensor for Unmanned Aircraft Systems", Journal of Unmanned Vehicle Systems, Published on the web 4 February 2016, 10.1139/juvs-2014-0022
Jenkin, Michael	1. Lam, J., Kapralos, B., Kanev, K., Collins, K., Hogue, A. and Jenkin, M. Sound localization on a horizontal surface: virtual and real sound localization. *Virtual Reality 19 (3-4). 213-222, 2015*. 2. Forooshani, P. and Jenkin, M. Sensor coverage with a heterogeneous fleet of autonomous surface vessels, Proc. IEEE International Conference on Information and Automation, 571-576, Lijiang, China. 3. Jenkin, M. and Dymond, P. An infection algorithm for leader election: Experimental results fora chain. Proc. IEEE International Conference on Information and Automation, 222-226, Lijiang, China. 4. Dubrowski, A., Kapralos, B., Kanev, K. and Jenkin, M. Interprofessional critical care

	training: interactive virtual learning environments and simulations. Proc. IEEE Int. Conf. on Information, Intelligence, Systems and Applications, Corfu, Greece, 2015. 5. Codd-Downey, R., and Jenkin, M. RCON: dynamic mobile interfaces for command and control of ROS-enabled robots. Proc. 12th. Int. Conf. on Informatics in Control, Automation and Robotics. Colmar, France, 2015.
Kyan, Matthew	1. P. Muneesawang, N. M. Khan, M. Kyan, R. B. Elder, "A Machine Intelligence Approach to Virtual Ballet Training," IEEE MultiMedia, vol. 22, no. 4, pp. 80-92, Oct.-Dec. 2015. doi: 10.1109/MMUL.2015.73 2. B. Vuong, P. Skowron, T. R. Kiehl, M. Kyan, L. Garzia, C. Sun, and Yang, V. X. (2015). Measuring the optical characteristics of medullo-blastoma with optical coherence tomography. Biomedical optics express, 6(4), 1487-1501 3. M. Kyan, G. Sun, H. Li, L. Zhong, P. Muneesawang, B. Elder and L. Guan, "An Approach to Ballet Dance Training through MS Kinect and Visualization in a CAVE Virtual Reality Environment", ACM Transactions on Intelligent Systems and Technology(TIST), 6(2)
Murray, Richard	*1.* Murray, R. F. (in press). Classification images in a very general decision model. *Vision Research.* 2. Kim, M., Wilcox, L. M., & Murray, R. F. (in press). Perceived 3D shape toggles perceived glow. *Current Biology* 3. Murray, R. F., Patel, K., & Yee, A. (2015). Posterior probability matching and human perceptual decision making. *PLOS Computational Biology, 11*(6): e1004342. 4. Pritchett, L. M., & Murray, R. F. (2015). Classification images reveal decision variables and strategies in forced choice tasks. *Proceedings of the National Academy of Sciences of the U.S.A., 112*(23), 7321-7326.
Rosenbaum, Shayna	*1.* Lenton-Brym, A., Kurczek, J., Rosenbaum, R.S., & Sheldon, S. (2016). A new method for assessing the impact of medial temporal lobe amnesia on the characteristics of generated autobiographical events*. Neuropsychologia, 85,* 35-43. *2.* Ryan, J.D., D'Angelo, M.C., Kamino, D., Ostreicher, M., Moses, S.N., & Rosenbaum, R.S. (2016). Relational learning and transitive expression in aging and amnesia. *Hippocampus, 26,* 170-184. 3. Petrican, R., Saverino, C., Rosenbaum, R. S., & Grady, C.L. (2015). Individual differences in negative emotion experience predict variations in functional brain architecture. *Neuroimage, 123,* 80-88. *4.* Petrican, R., Rosenbaum, R.S., & Grady, C.L. (2015). Neural activity patterns evoked by a spouse's incongruent emotional reactions when recalling marriage-relevant experiences. *Human Brain Mapping, 36,* 4164-4183. 5. Petrican, R., Rosenbaum, R. S., & Grady, C.L. (2015). Expressive suppression and neural responsiveness to nonverbal affective cues. *Neuropsychologia, 77,* 321-330. 6. D'Angelo, M.C., Kacollja, A., Rabin, J.S., Rosenbaum, R.S., Ryan, J.D. (2015). Unitization supports lasting performance and generalization on a relational memory task: Evidence from a new developmental amnesic case. *Neuropsychologia, 77,* 185-200. 7. Herdman, K.A., Calarco, N., Moscovitch, M., Hirshhorn, M., & Rosenbaum, R.S. (2015). Impoverished descriptions of familiar routes in three cases of hippocampal amnesia. *Cortex, 71,* 248-263. *8.* Petrican, R., Todorov, A.T., Burris, C.T., Rosenbaum, R.S., & Grady, C.L. (2015). The look that binds: Partner-directed altruistic motivation and biased perception in married couples. *Journal of Nonverbal Behavior, 39,* 165-179.

	9. Rosenbaum, R.S., Cassidy, B.N., & Herdman, K.A. (2015). Patterns of preserved and impaired spatial memory in developmental amnesia. *Frontiers in Human Neuroscience, 9, 196.*
Schneider, Keith	1. Grigorian A, McKetton L, Schneider KA. In press. Reduced connectivity in the primary visual pathway in human albinism. *Journal of Visualized Experiments*. 2. McKetton L, Williams J, Viviano JD, Yücel YH, Gupta N, Schneider KA. 2015. High-resolution structural magnetic resonance imaging of the human subcortex *in vivo* and postmortem. *Journal of Visualized Experiments* 106: e53309. 3. DeSimone K, Viviano JD, Schneider KA. 2015. Population receptive field analysis reveals new retinotopic maps in the human subcortex. *Journal of Neuroscience* 35: 9836–984 4. Giraldo-Chica M, Hegarty JP, Schneider KA. 2015. Morphological differences in the lateral geniculate nucleus associated with dyslexia. *NeuroImage: Clinical* 7: 830–836. 5. Viviano JD, Schneider KA. 2015. Interactions of the human thalamic reticular nucleus. *Journal of Neuroscience* 35: 2026–2032.
Sergio, Lauren	1. Black A, Sergio LE, Macpherson AK (2016) The Epidemiology of Concussions: Number and nature of concussions and time to recovery among female and male Canadian varsity athletes 2008-2011. Clinical Journal of Sport Medicine (in press) 2. Gorbet DJ, Sergio LE (i2015) The neural correlates of dissociating the spatial directions of eye and arm movements. Behav Brain Res. 2015 Nov 14. pii: S0166-4328(15)30283-7. doi: 10.1016/ j.bbr.2015.11.012 3. Brown J, Dalecki MS, Hughes C, Macpherson AK, Sergio LE (2015) Cognitive-motor integration deficits in young adult athletes following concussion. BMC Sports Science, Medicine, and Rehabilitation 2015 Oct 19;7:25. doi: 10.1186/s13102-015-0019-4. 4. Granek JA, Sergio LE (2015) Different brain pathways for strategic control versus sensorimotor recalibration: Evidence from a dual task reach paradigm. J. Neurophysiol. Aug;114(2):1298-309 5. Perry CJ, Sergio LE, Crawford JD, Fallah M (2015) Hand placement near the visual stimulus improves orientation selectivity in V2 neurons. J. Neurophysiol. 113(7):2859-2870. 6. Hawkins KL, Goyal A, Sergio LE (2015) Diffusion tensor imaging correlates of cognitive-motor decline in normal aging and increased Alzheimer's disease risk. J. Alz. Dis. 44(3):867-878 (if:4.151).
Steeves, Jennifer	1. Rafique, SJ., Solomon-Harris, L., & Steeves, J.K.E. (2015) Connectivity of object and scene processing: consecutive TMS and fMR-Adaptation. *Neuropsychologia, 79(Pt. A)*, 86-96, doi: 10.1016/j.neuropsychologia.2015.10.027 2. Moro, S.S., Kelly, K.R., McKetton, L., Gallie, B.L. & Jennifer K.E. Steeves. (2015) Evidence of multisensory plasticity: Asymmetrical medial geniculate body in people with one eye *Neuroimage: Clinical, 9,* 513-518. 10.1016/j.nicl.2015.09.016 3. Kelly, K., DeSimone, K., Gallie, B.L. & Steeves, J. (2015) Altered brain morphology following long-term survival from early monocular enucleation. *Neuroimage :Clinical*, 7, 297-305, doi:10.1016/j.nicl.2014.11.020.
Stevens, Dale	1. Stevens, W. D., Tessler, M. H., Peng, C. S., & Martin, A. (2015). Functional connectivity constrains the category-related organization of human ventral occipitotemporal cortex. *Human Brain Mapping*, *36*, 2187-2206.
Till, Christine	1. Amato MP, Krupp LB, Charvet LE, Penner I-K, **Till C**. Pediatric multiple sclerosis: Cognition and mood. Neurology, *in press*.

	2. Till C, Nogeura A, Verhey LH, O'Mahony J, Yeh A, Mah J, Sinopoli KJ, Brooks BL, Aubert-Broche B, Collins DL, Narayana S, Arnold D, Banwell BL. Cognitive and behavioural functioning in children six months after an acute demyelinating syndrome. Journal of International Neuropsychological Society, *in press*. **3.** Akbar N, Giorgio A, Till C, Sled JG, Doesburg SM, De Stefano N, Banwell B. (2016). Alterations in functional and anatomical connectivity in pediatric-onset multiple sclerosis, PLOS ONE 11(1): e0145906. doi:10.1371/journal.pone.0145906. **4.** Akbar N, **Till C,** Sled JG, Binns MA, Doesburg SM, Aubert-Broche B, Collins L, Araujo D, Narayanan S, Lysenko M, Banwell B. (2015). Altered resting-state functional connectivity in pediatric-onset MS and relations to structural damage and cognition, Multiple Sclerosis Journal, published online Sept 11, 2015 before print. **5.** Akbar N, Banwell B, Sled JG, Binns MA, Doesburg SM, Rypma B, Lysenko M, **Till C**. (2015). Brain activation patterns and cognitive processing speed in patients with pediatric-onset multiple sclerosis. Journal of Clinical and Experimental Neuropsychology, 38(4):393-403. 6. Weier W, **Till C,** Yeh EA, Fonov V, Arnold DL, Banwell B, Collins L. (2015) Contribution of the cerebellum to cognitive performance in children and adolescents with multiple sclerosis. *Multiple Sclerosis Journal*, published online July 22, 2015 before print.
Tsotsos, John	1. Tsotsos, J.K., Attention and Cognition: Principles to Guide Modeling, for Computational and Cognitive Neuroscience of Vision, Ed. by Q. Zhao, Springer *2.* James Kilner, Bernhard Hommel, Moshe Bar, Lawrence W. Barsalou, Karl J. Friston, Jürgen Jost, Alexander Maye, Thomas Metzinger, Friedemann Pulvermüller, Marti Sanchez-Fibla, John K. Tsotsos, and Gabriella Vigliocco , Action-Oriented Models of Cognitive Processing: A little less cogitation a little more action please, Ernst Strüngmann Forum on *Where's the Action? The Pragmatic Turn in Cognitive Science (to appear).* 3. Bajscy, R., Aloimonos, Y., Tsotsos, J.K., Active Perception Revisited, *Autonomous Robots* *4.* Tsotsos. J.K., Kotseruba, I., Wloka, C., A Focus on Selection for Fixation, *Journal for Eye Movement Research* 5. Kostavelis, I., Charalampous, K., Gasteratos, A., Tsotsos, J.K., Robot Navigation via Spatial and Temporal Coherent Semantic Maps, *Engineering Applications of Artificial Intelligence* 48, 173-187, 2016 6. Wang, B., Tsotsos, J.K., Dynamic Label Propagation for Semi-supervised Multi-class Multi-label Classification, *Pattern Recognition* 52, 75-84 2016 (*online Oct, 19, 2015)* 7. Bruce, N., Wloka, C., Tsotsos, J.K., On Computational Modeling of Visual Saliency: Understanding What's Right and What's Left, Special Issue on Computational Models of Visual Attention, *Vision Research,* Volume 116, Part B, November 2015, Pages 95-112 8. Bylinskii, Z., DeGennaro, E., Rajalingham, R., Ruda, H., Zhang, J., Tsotsos, J.K., Towards the quantitative evaluation of visual attention models, Special Issue on Computational Models of Visual Attention, *Vision Research*,Volume 116, Part B, November 2015, Pages 258-268 9. Tsotsos, J.K., Computational Abstraction Towards a Theory of the Brain, Invited book review of Brain Computation as Hierarchical Abstraction, by D.H. Ballard, MIT Press, in *Current Biology* 25 (16), R697-R700, 2015
Wilcox, Laurie	1. Wilcox LM, Allison RS, Helliker J, Dunk B, Anthony RC (2015) Evidence that Viewers

	Prefer Higher Frame Rate Film. *Transactions on Applied Perception, 12, 4.* DOI: http://dx.doi.org/10.1145/2810039 2. Allison RS and Wilcox LM (2015) Perceptual tolerance to stereoscopic 3D image distortion. *Transactions on Applied Perception, 12, 3.* DOI: http://dx.doi.org/10.1145/2770875 3. Deas LM and Wilcox LM (2015) Perceptual grouping via binocular disparity: The impact of stereoscopic good continuation. *Journal of Vision*, *15 (11) 1-13* doi:10.1167/15.11.11.
Wildes, Rick	1. C. Feichtenhofer, A. Pinz and R. P. Wildes, Dynamic scene recognition with complementary spatiotemporal features, IEEE Transactions on Pattern Analysis and Machine Intelligence (PAMI), to appear, 2016. 2. H. Gao and R. P. Wildes, Background Image Modelling for Change Detection, York University Technical Report EECS-2016-01, January 7, 2016. 3. C. Feichtenhofer, A. Pinz and R.P. Wildes, Dynamically encoded actions based on spacetime saliency, Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2015. 4. S. M. Kang and R. P. Wildes, The n-Distribution Bhattacharyya Coefficient, York University Technical Report EECS-2015-02, March 9, 2015.
Womelsdorf, Thilo	1. Balcarras M, Womelsdorf T (2016) A flexible mechanism of rule selection enables rapid feature-based reinforcement learning in new environments. Frontiers in Neuroscience doi: 10.3389/fnins.2016.00125. 2. Voloh B, Womelsdorf T (2016) A role of phase-resetting in coordinating large scale neural oscillations during attention and goal-directed behavior. Frontiers in Systems Neuroscience doi: 10.3389/fnsys.2016.00018. 3. Lewis C, Bosman C, Womelsdorf T, Fries P (2016) Stimulus induced visual cortical networks are recapitulated by spontaneous local and inter-areal synchronization. PNAS, Proceedings National Academy of Science, USA 13(5): 606-15. 4. Balcarras M, Ardid S, Kaping D, Everling S, Womelsdorf T (2016) Attentional selection can be predicted by reinforcement learning of task-relevant stimulus features weighted by value-independent stickiness. Journal of Cognitive Neuroscience. 28(2):333-49. 5. Womelsdorf T, Everling S (2015) Long-Range Attention Networks: Circuit Motifs Underlying Endogenously Controlled Stimulus Selection. Trends in Neurosciences 38(11):682-700. 6. Leonard TK, Mikkila JM, Eskandar E, Gerrard JL, Kaping D, Patel SR, Womelsdorf T, Hoffman KL (2015) Sharp wave ripples during visual exploration in the primate hippocampus. Journal of Neuroscience 35(44): 14771-82. 7. Oemisch M, Westendorff S, Everling S, Womelsdorf T (2015) Inter-areal spiketrain correlations of anterior cingulate and dorsal prefrontal cortex during attention shifts. Journal of Neuroscience 35(38):13076-89. 8. Micheli C, Kaping D, Westendorff S, Valiante TA, Womelsdorf T (2015) Inferior-frontal cortex phase synchronizes with the temporal-parietal junction prior to successful change detection. Neuroimage. 119:417-31. 9. Voloh B, Valiante TA, Everling S, Womelsdorf T (2015) Theta gamma coordination between anterior cingulate and prefrontal cortex indexes correct attention shifts. PNAS, Proceedings National Academy of Science, USA 112(27):8457-62. 10. Skoblenick K, Womelsdorf T, Everling S (2015) Ketamine alters outcome-related local

	field potentials in monkey prefrontal cortex. Cerebral Cortex (*accepted, 18th May 2015*). 11. Ardid S, Vinck M, Kaping D., Marquez S, Everling S, Womelsdorf T (2015) Mapping of functionally characterized cell classes onto canonical circuit operations in primate prefrontal cortex. Journal of Neuroscience. 35(7): 2975–2991. 12. Chan J, Koval M, Womelsdorf T, Lomber S, and Everling S (2015) Dorsolateral Prefrontal Cortex Deactivation in Monkeys Reduces Preparatory Beta and Gamma Power in the Superior Colliculus. Cerebral Cortex. 25(12):4704-14. 13. Shen C, Ardid S, Kaping D, Westendorff S, Everling S, Womelsdorf T (2015). Anterior cingulate cortex cells identify process-specific errors of attentional control prior to transient prefrontal-cingulate inhibition. Cerebral Cortex 25(8):2213-28.
Zoidl, Georg	1. Turimella SL, Bedner P, Skubal M, Vangoor VR, Kaczmarczyk L, Karl K, Zoidl G, Gieselmann V, Seifert G, Steinhäuser C, Kandel E, Theis M. Characterization of cytoplasmic polyadenylation element binding 2 protein expression and its RNA binding activity. Hippocampus. 2015 25(5):630-42 2. Hippocampal Hyperexcitability in Fetal Alcohol Spectrum Disorder: Pathological Sharp Waves and Excitatory/Inhibitory Synaptic Imbalance. Meera Ramani, MSc; Josh Dian, MSc; Carlos M Florez, MD; Shanthini Mylvaganam, PhD; James Brian, PhD; James Reynolds, PhD; Bhushan Kapur, D.Phil, C.Chem; Georg Zoidl, PhD; Michael O Poulter, PhD; Peter L Carlen, MD. Exp Neurol. 2016 280:70-79. Doi 10.1016/j.expneurol.2016.03.013 3. Differential expression of astrocytic connexins in a mouse model of prenatal alcohol exposure. Meera Ramani, Shanthini Mylvaganam, Michal Krawczyk, Lihua Wang, Christiane Zoidl, James Brien, James N. Reynolds, Bhushan Kapur, Michael O. Poulter, Georg Zoidl, Peter L. Carlen. Neurobiol Dis. 2016 Mar 4;91:83-93. doi: 10.1016/j.nbd.2016.02.022
ASSOCIATE MEMBERS	
SUMMARY	12 peer reviewed publications
Ono, Hiro	1. Ono, H., & Saqib, Y. (2015). The reference point for monocular visual direction can, sometime, be one of the eyes rather than the cyclopean eye. *Perception*, 44(5), 597–603. doi:10.1068/p7934
Wikinson, Fran	1. Wilson, H.R., & Wilkinson, F. (2015). From orientations to objects: Configural processing in the ventral stream. *Journal of Vision,* 15(7) :4. doi: 10.1167/15.7.4 2. Logan, A., Wilkinson, F., Wilson, H.R., Gordon, G., & Loffler, G. (2016). The Caledonian Face Test: A new test of face discrimination. *Vision Research,* 119, 29-41. doi:10.1016/j.visres.2015.11.003 3. Wilkinson, F., Haque, Y., Or, C.-F., Gottlieb, A.S., & Wilson, H.R. (in press) Detection of Periodic Motion Trajectories: Effects of Frequency and Radius. In press *Journal of Vision*
Wilson, Hugh	1. Wilson, H. R. (2015) Large-scale neural networks: vision. in *Encyclopedia of Computational Neuroscience*, ed. J. Milton. Springer, New York. 2. Morin, K., Guy, J.. Habak, C., Wilson, H. R., Pagani, L., Mottron, L. & Bertone, A. (2015) Atypical face perception in autism: a point of view? *Autism Res.* 8, 497-506. 3. Wilson, H. R. & Propp, R. (2015) Detection and recognition of angular frequency patterns. *Vision Res.* 110, 51-56. 4. Wilson, H. R. & Wilkinson, F. (2015) From orientations to objects: Configural

	processing in the ventral stream. *Journal of Vision*, 15(7):4, 1-10. doi: 10.1167/15.7.4. 5. Darr, M. & Wilson. H. R. (2015) Masking with faces in central visual field under a variety of temporal schedules. *Vision Res.* 116, 1-12. 6. Gao, X., Maurer, D. & Wilson, H. R. (2015) The PCA learning effect: An emerging correlate of face memory during childhood. *Cognition* 143, 101-107. 7. Wilson, H. R. & Fung, J. (2016) Effect of motion discontinuities on discrimination of periodic trajectories. *Journal of Vision*, 16(3):24, 1-8. 8. Logan, A. J., Wilkinson, F., Wilson, H. R., Gordon, G. E. & Loffler, G. (2016) The Caledonian face test: a new test of face discrimination. *Vision Res.*119, 29-41.

GRANTS			
GROUP GRANTS		total	Total in reporting period
SUMMARY GROUP GRANTS TOTAL		$23,090,833	$5,047,024
CREATE	Wilson + 9 others	$1,650,000	$300,000
CREATE	Crawford + 9 others	$1,650,000	$300,000
Multiple Sclerosis Scientific Research Foundation	Brenda Banwell (PI) (Christine Till co-i)	$4,653,000	$1,500,000
CREATE	Elder + 9 others	$1,650,000	$300,000
BRAIN	L. Guan + Elder + 1	$20,000	$20,000
BRAIN/ORF	An + Wildes + others	$3,500,000	$500,000
BRAIN Canada Platform Grant	Zoidl co-I	$2,600,000	$33,200
BRAIN Canada	Hoffman PI + 6 others	$1,500,000	$500,000
CIVDDD/ORF	Elder + Wildes + others	$183,833	$58,000
NSERC	Popovic PI + Hoffman + 4 others	$487,000	$487,000
NSERC strategic project grant	Dudek + Jenkin + 9 others	$5,000,000	$1,000,000
Canadian Institute for advanced research	Geoff Hinton, Wilson + 8 others	$197,000	$48,824
ACTIVE MEMBERS		total	Total in reporting period
SUMMARY	NSERC CHIR CFI Other TOTAL		$1,065,664 $747,550 $683,500 $1,772,342 $4,269,056
Allison, Rob	DRDC (with Laurie Wilcox NSERC CU121 (with Wilcox) 2013/15	$147,045 $420, 648	$49,015 $210,324

	NSERC discovery	$145,000	$29,000
Beck, Jacob	American Council of Learned Societies	$35,000 US	$35,000 US
Bergevin, Chris	NSERC Discovery Grant NSERC USRA York Minor Research Award	$145,000	$29,000 $4,500 $3,500
Crawford, Doug	CIHR NSERC discovery Tier 1 CRC	$1,000,935 $280,000 $1,400,000	$200,817 $56,000 $200,000
DeSouza, Joe	None disclosed		
Elder, James	NSERC discovery MTO HIFFP	$180,000 $69,919	$36,000 $69,919
Fallah, Maz	None disclosed		
Harris, Laurence	NSERC discovery Canadian Space Agency Deutsche Zentrum für Luft und Raumfahrt (co-I) CFI IOF	$246,000 $795,000 €250,000 $235,000	$49,000 $159,000 $50,000 $47000
Henriques, Denise	NSERC discovery NSERC with a co-i	$200,000 $25,000	$40,000 $25,000
Hoffman, Kari	Krembil Foundation Alzheimer's Society NSERC discovery	$445,000 $150,000 $145,000	$148,000 $75,000 $29,000
Hornsey, Richard	NSERC Discovery	$11,000	$22,000
Jenkin, Michael	NSERC discovery Univ Shizuoka (with Kapralos)	$145,000 $15,000	$29,000 $15,000
Kyan, Matthew	NSERC discovery	$270,000	$54,000
Murray, Richard	NSERC discovery	$160,000	$32,000
Rosenbaum, Shayna	OCE NSERC discovery	$25,000 $165,000	$25,000 $33,000
Schneider, Keith	NSERC discovery	$135,000	$27,000
Sergio, Lauren	NSERC discovery NERC engage CIHR	$140,000 $18,250 $472,500	$28,000 $18,250 $94,500
Steeves, Jennifer	Multi-User MRI Computing Cluster and Visual Projection System NSERC RTI NSERC discovery	$73,290 $155,000	$73,290 $31,000
Stevens, Dale	CFI ORF (CFI-JELF matching) CFI IOF NSERC discovery York	$150,000 $150,000 $40,500 $120,000 $5,000	$150,000 $150,000 $40,500 $25,000 $5,000
Till, Christine	Academic Innovation Fund (AIF) – Category II (Community Service Learning).	$5,000	$5,000

	Exploration Fund. North York General Hospital. York University: seed grant	$7,200 $9,595	$7,200 $9,595
Tsotsos, John	CRC Office of Naval Research NSERC discovery US Airforce	$1,400,000 $59,280 $301,500 $462,000	$233,333 $59,280 $60,300 $462,000
Wilcox, Laurie	CIMVHR (2 coapps) 2015/18 DRDC (with Rob Allison) NSERC CU121 (with Allison) 2013/15 NSERC discovery 2012/2020	$180, 203 $147.045 $420, 648 $320,000	$69,000 $49,015 $210,324 $40,000
Wildes, Rick	NSERC discovery OCE	$110,000 $40,000	$22,000 $20,000
Womelsdorf, Thilo	CIHR (with co-is from York, Yale, Nijmegen, Western) CIHR (New Investigators) NSERC (discovery)	$882,080 $300,000 $160,000	$176,416 $75,000 $32,000
Zoidl, Georg	CIHR/CRC NSERC discovery CFI-LOF CFI-IOF Zealand Pharma	$1,000,935 $155,000	$200,817 $31,000 $268,000 $28,000 $24,000
ASSOCIATE MEMBERS			
Ono, Hiro	NSERC discovery	$125,000	$25,000
Wilson, Hugh	NSERC discovery	$719,545	$79,664

STUDENTS MENTORED	
ACTIVE MEMBERS	
SUMMARY	Undergraduates 71 Masters 48 PhD 72 PDF 28 RA 8
Allison, Rob	1. Lesley Deas (with Laurie Wilcox) PDF 2. Yoshitaka Fujii (with Laurie Wilcox) PDF 3. Pearl Guterman PhD 8 4. Jingbo Zhao PhD 2 5. Margarita Vinnikov PhD (defended) 6. Sidrah Laldin MA 3 7. Cyan Kuo MSc 1

	8. Arhum Sultana MSc 2 9. Robin Archer u/g 10. Alexandra Seay u/g 11. Tonny Lay u/g 12. Anna Kiselva u/g 13. Parisa Heravi u/g
Beck, Jacob	1. Joshua Mugg PhD (defended)
Bergevin, Chris	1. Larissa McKetton (York, Biology, PhD student) 2. Narges Johnghorban (York, Physics, MSc student) 3. Luke Chung (York, Physics, undergrad) 4. Gabriel Beningo (York, Physics, undergrad) 5. Andrei Mouraviev (York, Physics, undergrad) 6. Jonathan Hoggarth (UBC, Biophysics, undegrad) 7. Neil McCall (York, Biohysics, undergrad) 8. Dmitry Neymark (York, Biohysics, undergrad) 9. Tongle Feng (high school student)
Crawford, Doug	1. David Cappadocia PhD 2. Mehdi Daemi PhD 3. Morteza Sadeh PhD 4. Ying Chen PhD (defended) 5. Amirsaman Sajad PhD 6. Bianca-Ruxandra Baltaretu MSc 7. Jirui Li MSc 8. Yalda Mohsenzadeh PDF 9. Sharmini Athputharaj u/g 10. Saihong Sun u/g 11. Xiaognag Yan RA 12. Hongying Wang RA
DeSouza, Joe	1. Levkov, Gaby MSc (defended) 2. Beben, Karolina PhD 2 3. Di Noto, Paula Phd 5 4. Leger, Charles Phd 2 5. Rabinovich, Debora Phd 2 6. Andrews, Ruth-Anne MA1 7. Barnstaple, Rebecca MA2 8. Olshansky, Michael MA (defended) 9. McKnight, Robert MA1 10. Savija, Nevena MSc 3 11. Simone, Stephanie u/g 12. Simans-Cherniavsky, Allen u/g 13. Gabriel, Grace u/g 14. Shaw, Kiera u/g 15. Garzaro, Isabel u/g 16. Roman, Juliana u/g 17. Owe, Brenda u/g 18. Behboudi, Minou u/g 19. Honarparvar, Faraz u/g 20. Martin, Kaili-Larissa u/g

	21. Guida, Victoria u/g
Elder, James	1. Ryan Dowling u/g 2. Juan Loja u/g 3. Amanpreet Walia u/g 4. Yiming Qian PhD 1 5. Nada el Assal MA 2 6. Galina Goren MA 3 7. Paria Mehrani PhD 5 8. Eduardo Corral Soto PhD 8 9. Emilio Almazan PDF 10. Ingo Frund PDF 11. Bob Hou Research Scientist
Fallah, Maz	1. Devin Heinze Kehoe MA1 2. Shawn Blizzard MSc1 3. Sara Pardisnia MSc2 4. Puneet Arora MSc2 5. Carolyn Perry PhD4 6. Sang-Ah Yoo PhD2 7. Henna Asrar u/g 8. Prakash Amanasooriya u/g 9. Selvi Ayalbut u/g 10. Melvin Liu u/g
Harris, Laurence	1. Yasmeenah Elzein MA1 2. Sarah D'Amour PhD 2 3. Lindsey Fraser PhD 2 4. Meaghan McManus PhD 2 5. Adria Hoover PhD 5 6. Lisa Pritchett PhD (defended) 7. Andrew Lauzon u/g 8. Shauna Spirling u/g
Henriques, Denise	1. Jennifer Ruttle MA 1 2. Maria Ayala PhD 1 3. Ahmed Mostafa PhD 1 4. Holly Clayton PhD 4 5. Marius ;t Hart PDF 6. Nonna Khan u/g 7. Tahmoor Naeem u/g
Hoffman, Kari	1. Timothy Leonard PhD 3 2. Jonathan Mikkila MA 2 3. Ahmed Hussin PhD 1 4. Andrea Gomez PDF 5. Omid Talakoub PDF 6. Rodrigo Montefusco PDF
Hornsey, Richard	1. Paul Thomas, Research Associate
Jenkin, Michael	1. Robert Codd-Downey MSc 3 2. Masoud Sefid Hoveidar MSc 2

	3. Parisa Mojiri Forooshani MSc (completed) 4. Enas Al Tarawneh MSc 1
Murray, Richard	1. John Wilder PDF 2. Minjung Kim PhD 5 3. Lisa Prichett PhD 5 (minor paper) 4. Kevin Desimone PhD 5 (minor paper) 5. Khushbu Patel u/g 6. Nicola Farnworth u/g 7. Anudhi Munasinghe u/g
Rosenbaum, Shayna	1. Foujan Minooei Saberi u/g 2. Mahsa Nasseri u/g 3. Jaime Cazes u/g 4. Lior Krimus u/g 5. Kiarash Salehigilani u/g 6. Gabriela Gonzalez, Graduate Research Assistant 7. Yarden Levy u/g 8. Yasha Amani u/g 9. Leslie Vesely u/g 10. Eliana Weiss u/g 11. Jenkin Mok, MA 1 12. Steven Baker MA 2 13. Katie Herdman PhD 3 14. Nicole Carson PhD 4 15. Donna Kwan PhD (complete) 16. Jennifer Rabin PhD (complete) 17. Rachel Newsome PDF 18. Alice Kim PDF 19. Raluca Petrican PDF (complete) 20. Jake Kurczek PDF (complete) 21. Jason Ozubko PDF (complete)
Schneider, Keith	1. Larissa McKetton PhD 4 2. Kevin DeSimone PhD 4 3. Debra Soh PhD 4 4. Ibrahim Malik u/g 5. Anahit Grigorian MA (defended)
Sergio, Lauren	1. Marc Dalecki PDF 2. Johanna Hurtubise PhD2 3. Raquel Marinho PhD 2 4. Mani Kang MSc 2 5. David Albines PhD 1 6. Alanna Pierias MSc 1 7. Andrea Cavaliere u/g 8. Alice van Wijngaarden u/g
Steeves, Jennifer	1. Stefania Moro PhD 4 2. Sara Rafique PhD 1 3. Francisco Parreira PhD 1 4. Nikita Wong MA 1 5. Sagana Vijayarah u/g

	6. Margaret Tracht u/g 7. Calvin Leung u/g 8. Ben Schachar u/g 9. Khaldon Abbas u.g
Stevens, Dale	1. Stephanie Brown-Lavoie PhD 5 2. Lily Solomon-Harris PhD 2 3. Naail Khan MA 2 4. Jonathan Mikkila MA2 5. Vladyslava Replete u/g 6. Carlo Iaboni u/g 7. Andrew Lauzon u/g 8. Jennifer Gabel RA
Till, Christine	1. Emily Barlow-Krelina MA2 2. Elisea De Somma MA 1 3. Magdalena Lysenko PhD 4 4. Nadine Akbar PhD, Univ Toronto (defended) 5. Ameeta Dudani PhD (defended) 6. Bravina Kuni PhD (defended) 7. Ashley Malin PhD 1 8. Mahsa Sadeghi u/g 9. Rachael Lyon u/g
Tsotsos, John	1. Avella Gonzalez, O PDF 2. Sengupta, R., PDF 3. Bachoo, A., Research associate 4. Kotseruba, Y. Resarch associate 5. Leung, E., PhD (since 2005) 6. Wloka, C. PhD 4 7. Biparva, M PhD 3 8. Rasouli, A. PhD 2 9. Solbach, M. PhD 1 10. Yoo, S-A., PhD 2 co-supervised by M. Fallah,(Kin) 11. Stager, S., (Innsbruck Austria) (co-supervised by J. Piater). 12. Kotseruba, I. MSc 4 13. Kunic, T.MSc 1 14. Abid, O. MSc 1 15. Wu, Y., MSc 3 16. Halatchev, V MSc 3 17. Sahdev, R. MSc 1
Wilcox, Laurie	1. Megan Goel u/g 2. Brittney Hartle MA2 3. Matthew Cutone PhD1 4. Aishwarya Sudhama MSC1 5. Michael Marianovski MSC2 6. Lesley Deas (with Rob Allison) PDF 7. Yoshitaka Fujii (with Rob Allison) PDF
Wildes, Rick	1. Hang Gao MSc 2. Andrew Speers PhD 3. Soo Kang PhD 4. Christoph Feichtenhofer PhD 5. Isma Hadji PhD

Womelsdorf, Thilo	1. Kelsi Smith u/g (co-supervised with DeSouza) 2. Danielle Rangel Paradela u/g 3. Mahsa Nasseri (co-supervised with Rosenbaum) 4. Sang-Ah Yoo, (co-supervised with Hoffman) 5. Alireza Tajadod u/g 6. Zemina Meghji, u/g 7. Szu-Han (Steven) Chen (u/g) 8. Asal Nady (co-supervised with Zoidl) 9. Benjamin Voloh (MSc completed) 10. Matthew Balcarras (PhD completed) 11. Mariann Oemisch (PhD) 12. Tobias Möhler (candidate Dr. rer. nat), Co-Supervised with ITRG 13. Seyed Ali Hassani (MSc cand.) 14. Marzyeh Azimi (MSc cand.) 15. Benjamin Voloh (PhD cand.) 16. Stephanie Westendorff (PDF completed) 17. Dr. Markus Watson (PDF) 18. Dr. Veronica Nacher (PDF)
Zoidl, Georg	1. Paige Whyte-Fagundes PhD1 2. Cherie Brown PhD 1 3. Ryan Siu PhD 1 4. Nickie Sarafin PhD2 5. Elena Dominguez Gerez (Universidad Autónoma de Madrid) 6. Asal Nady (u/g completed) 7. Anna Kotova u/g
ASSOCIATE MEMBERS	
Wikinson, Fran	1. Natalie Slavat (u/g) 2. Linda Lillakas (Resaearch Associate)
Wilson, Hugh	1. Marwan Daar (PhD6) 2. Linda Lillakas (Research Associate)

	Visitors hosted	**Affiiliation**	**Country**	**Status (e.g., faculty, student)**	**Duration of visit**	**Space provided (e.g., your lab)**
	SUMMARY		Canada France Germany Israel Italy Japan Serbia Spain Switzerland	16 1 3 1 1 3 1 1 1		

			UK USA	3 7		
1	Wendy Adams	University of Southhampton	UK	Faculty	3 weeks	CVR
2	Deborah Giaschi	UBC	Canada	Faculty	2 weeks	Wilcox lab
3	Rowan Candy	University of Indiana	USA	Faculty	1 day	
4	Celine Barreau	Mount Holyoak	USA	Student	3 months	National Ballet School
5	Ezgi Arikan	Marbourg University	Germany	Student	3 months	harrislab
6	Anna Heuer	Philipps-Universitat Marburg	Germany	PhD candidate	4 months May 29, 2014 – October 2, 2014	Office space and lab space
7	Colin Hawco	CAMH	Canada	Research Scientist	1 year	Steeveslab
8	Wayne Wu	Carnegie Mellon University	USA	Faculty	2 Days	
9	Britt Anderson	University of Waterloo	Canada	Faculty	2 Days	
10	Marisa Carrasco	New York University	USA	Faculty	2 Days	
11	Elizabeth Cutrone	New York University	USA	Grad Stud	2 Days	
12	Trey Boone	University of Pittsburgh	USA	Grad Stud	2 Days	
13	James Stazicker,	University of Reading	UK	Faculty	2 Days	
14	Dirk Kerzel	University of Geneva	Switzerland	Faculty	2 Days	
15	Ned Block	New York University	USA	Faculty	2 Days	
16	Ken Kihara	Kagoshima University	Japan	faculty	1 year	CVR Lab, office in SHSRC
17	Elena Dominguez Gerez	Universidad Autónoma de Madrid	Spain	Student	1 year	ZoidlLab
18	Christian Naus,	University of British	Canada	Faculty	1 day	ZoidlLab

		Columbia,				
19	Dale Laird	Western University	Canada	Faculty	1 day	ZoidlLab
20	David C. Spray	Albert Einstein College for Medicine	USA	Faculty	3 days	ZoidlLab
21	Leonid Browm	U Guelph	Canada	Faculty	1 day	
22	Ian Bruce	McMaster	Canada	Faculty	1 day	
23	Cecile Fradin	McMaster	Canada	Faculty	1 day	
24	Tara Moriarty	U of T	Canada	Faculty	1 day	
25	Craig Simmons	U of T	Canada	Faculty	1 day	
26	Sylvain Williams	McGill	Canada	faculty	1 day	Hoffmanlab
27	Kamen Kaney	U Shizuoka	Japan	faculty	1 month	Office in SHSRC
28	Paul Whalen	Dartmouth College	USA	faculty	3 days	StevensLab
29	Kiochi Shimono	Tokyo university of Mercantile Marine Etchujima	Japan	faculty	6 months	OnoLab
30	Robin Kramer	U York, UK	UK	faculty	1 day	WilsonLab
31	Jay Pratt	U of T	Canada	faculty	1 day	
32	Julio Martinez-Trujillo	Western	Canada			
33	Roland Fleming	University of Giessen	Germany	faculty	3 days	
34	Shaul Hochstein	Hebrew University	Israel	faculty	1 day	
35	Michael Barnett-Cowan	Waterloo	Canada	faculty	1 day	
36	Simon Thorpe	Toulouse	France	faculty	2 days	

37	Behrang Keshawarz	Toronto Rehab	Canada	faculty	1 day	
38	Dejan Todorovic	University Belgrade	Serbia	faculty	1 day	
39	David Burr	University of Pisa	Italy	faculty	3 days	
40	Sven Dickinson	University of Toronto	Canada	faculty	1 day	

11. Appendix 2 – Individual Member Contributions (up to five most notable items only for each member)

INDIVIDUAL CONTRIBUTIONS	
ACTIVE MEMBERS	
Allison, Rob	1. Vinnikov, M., Allison, R. S. and Fernandes, S. (submitted), Gaze-contingent Auditory Attention: Virtual Cocktail Party, *ACM TOCHI.* 2. Vinnikov, M., Allison, R. S., & Fernandes, S. (2016 (in press)). Impact of Depth of Field Simulation on Visual Fatigue: Who are Impacted? and How? *International Journal of Human-Computer Studies*. 3. Wilcox, L., Allison, R. S., Helliker, J., Dunk, A., and Anthony, R. (2015). Evidence that viewers prefer higher frame rate film. *ACM Transactions on Applied Perception (TAP)*, 12(4): Article 15, doi: 10.1145/2810039. 4. Allison, R. S. and Wilcox, L. M. (2015). Perceptual tolerance to stereoscopic 3d image distortion. *ACM Transactions on Applied Perception*, 12(3), Article 10: 1-20, doi: 0.1145/2770875 5. Palmisano, S. A., Allison, R. S., Schira, M. M., & Barry, R. J. (2015). Future Challenges for Vection Research: Definitions, Functional Significance, Measures and Neural Bases. *Frontiers in Psychology Research, Perception Science,* 6, 193. doi:10.3389/fpsyg.2015. 00193
Beck, Jacob	1. Organized the Attention and Conscious Perception Workshop *2.* Received the ACLS Fellowship ($35,000 USD) that bought me out of teaching for the Fall 2015 semester. *3.* Published Analogue Magnitude Representations: A Philosophical Introduction." *The British Journal for the Philosophy of Science*, 66, 2015, pp. 829–855. *4. Presented* "Is Perception Analog?" at the Workshop on Analog Contents and Magnitudes, Centre for Philosophical Psychology and European Network for Sensory Research, University of Antwerp, November 2015 *5. Presented* "Marking the Perception–Cognition Boundary at the Top-Down Influences Workshop, University of Glasgow, September 2015
Bergevin, Chris	1. We are almost guaranteed to get a NIH grant for the 2017 Mechanics of Hearing Conference 2. Establishing a new collaboration with a research lab at Sunnybrook

	(http://www.lmp.utoronto.ca/research/faculty-research-database/dabdoub-alain) 3. Slow-going, but getting this collaboration with Western wrapped up on absolute pitch (along with our own Larissa McKetton) [see http://www.yorku.ca/cberge/images/2015asaBergevin.pdf] 4. Establishing a new collaboration with a research lab at UofT (http://cml.mie.utoronto.ca/doku.php) dealing with electrical measurements in microfluidic devices
Crawford, Doug	1. Scientific Director for HBCV now VISTA (Inc. Submission of CFREF grant) 2. Director of Brain in Action CREATE Program (Inc. Organizing International Retreat) 3. CAPnet National Coordinator (Inc. Successful Satellite Conference). 4. Publication of 8 Refereed Journal Articles. 5. Awarded 2016 CPS Sarazin Lectureship.
DeSouza, Joe	1. our first study following 8 months of learning of dance choreography in professional ballerinas Bar RJ & DeSouza JFX. Tracking plasticity: Effects of long-term rehearsal in experts encoding music to movement. PLoS ONE, 11(1), e0147731. http://dx.doi.org/10.1371/journal.pone.0147731 2. our results of neuroimaging in people with Parkinson's disease is followed by producer Karen Suzuki and funded by BravoFacts profiled in SYNAPSE DANCE documentary which was picked to be played in the Brooklyn Film Festival, Canadian Film Festival and one awards as best foreign short. 3. our first neuroimaging study using computational MVPA in a dual attentional anti-saccade task Chan JL, Kucyi A & DeSouza JFX (2015) Stable Task Representations under Attentional Load Revealed with Multivariate Pattern Analysis of Human Brain Activity. Journal of Cognitive Neuroscience, 1-12. http://dx.doi.org/10.1162/jocn_a_00819 4. our review paper describing how dance is the new rehabilitation combining exercise & music Dhami P, Moreno S & DeSouza, JFX (2015) New Framework for Rehabilitation - Fusion of Cognitive and Physical Rehabilitation: The Hope for Dancing. Frontiers in Psychology, 5, 1478-1471. http://dx.doi.org/10.3389/fpsyg.2014.01478 5. Two invited talks at meetings on ARTS & MUSIC used in healthcare is opening new doors for our translational lab work
Elder, James	1. Submitted major grant Proposal: Intelligent Systems for Sustainable Urban Mobility 2. Organised CVR International Conference on Perceptual Organization 3. Led NSERC CREATE DAV Program 4. J. Neuroscience publication Drewes, J., Goren, G., Zhu, W. & Elder, J.H. (2016). Recurrent processing in the formation of shape percepts. J. Neuroscience vol. 36, no. 1, 185-192. 5. Edited Special Issue of Vision Research "Understanding the statistics of the natural environment and their implications for vision"

Harris, Laurence	1. Oversaw installation of the Tumbled Room and Sphere from my CFI 2. Obtained new funding from CSA for my next space adventure 3. Published 12 papers 4. Facilitated a major application to the Canada First Research Excellence Fund 5. Saw Lisa Pritchett successfully defend her PhD
Henriques, Denise	1. I was on maternity leave for May – October 2015. 2. My publications Ayala et al, and Cressman & Henriques 3. NSERC grant & Engage
Hornsey, Richard	• While most of my time has been spent on establishing the Lassonde School of Engineering, some of these activities have positively affected CVR I am particularly thinking of the recruitment of recent and future CVR faculty members.
Jenkin, Michael	* CFI NOI for the Sensory Blanket approved by York and allocated $8.6M envelope * NSERC SNG NOI for NCFRN Part 2 (NCMRN) submitted * BISE manuscript on the perceptual effect of long-duration hypogravity submitted to NPG Microgravity
Murray, Richard	1. Pritchett & Murray (2015), publication in *Proceedings of the National Academy of Sciences* 2. Kim, Wilcox, & Murray (in press), publication in *Current Biology* 3. invited to be Editor at *Journal of Vision* 4. invited talk at *Natural Environments, Tasks, and Intelligence*, U. Texas at Austin 5. NSERC Discovery Grant renewed, 2016-2021
Rosenbaum, Shayna	1. Elected member of Board of Trustees, Ontario Science Centre (Ontario Ministry of Tourism, Culture, and Sport public appointment) 2. NSERC grant (PI): "fMRI and patient studies of remote spatial and episodic memory," $165,000 3. Development of High School Science Exchange Program (partner: Richmond Hill High School) 4. Development and Coordinator of Clinical Neuropsychology Stream, Department of Psychology, York University 5. Publication of: Herdman, K.A., Calarco, N., Moscovitch, M., Hirshhorn, M., & Rosenbaum, R.S. (2015). Impoverished descriptions of familiar routes in three cases of hippocampal amnesia. *Cortex, 71,* 248-263.
Schneider, Keith	1. Viviano JD, Schneider KA. 2015. Interactions of the human thalamic reticular nucleus. *Journal of Neuroscience* 35: 2026–2032. *2.* DeSimone K, Viviano JD, Schneider KA. 2015. Population receptive field analysis reveals new retinotopic maps in the human subcortex. *Journal of Neuroscience* 35: 9836–9847. 3. Giraldo-Chica M, Hegarty JP, Schneider KA. 2015. Morphological differences in the lateral geniculate nucleus associated with dyslexia. *NeuroImage: Clinical* 7: 830–836. 4. Attention and perception workshop (co-organized with Beck)
Sergio, Lauren	1. NSERC grant

	2. Research commercialization 3. Brown J, Dalecki MS, Hughes C, Macpherson AK, Sergio LE (2015) Cognitive-motor integration deficits in young adult athletes following concussion. BMC Sports Science, Medicine, and Rehabilitation 2015 Oct 19;7:25. doi: 10.1186/s13102-015-0019-4. 4. Hawkins KL, Goyal A, Sergio LE (2015) Diffusion tensor imaging correlates of cognitive-motor decline in normal aging and increased Alzheimer's disease risk. J. Alz. Dis. 44(3):867-878 (if:4.151). 5. Granek JA, Sergio LE (2015) Different brain pathways for strategic control versus sensorimotor recalibration: Evidence from a dual task reach paradigm. J. Neurophysiol. Aug;114(2):1298-309
Stevens, Dale	*1.* Grant: CFI – John R. Evans Leadership Fund (JELF)/Ontario Research Funds/Infrastructure Operation Funds: Total $340,500 *2. Grant: NSERC- Discovery Grant: 5-year; $120,000* *3.* Publication: Stevens, W. D., Tessler, M. H., Peng, C. S., & Martin, A. (2015). Functional connectivity constrains the category-related organization of human ventral occipitotemporal cortex. *Human Brain Mapping*, *36*, 2187-2206. 4. Invited Research Talk: Cognitive Neurology Rounds, Beth Israel Deaconess Medical Centre, Harvard Medical School, Boston, MA. September 23, 2015. 5. Invited Research Talk: Department of Psychology Colloquium, Brandeis University, Waltham MA. September 25, 2015.
Till, Christine	**1.** Development of a strong collaboration with co-investigators who provide additional expertise in epidemiology, environmental health, and toxicology to ensure success related to my research that is of high public health relevance. Over the past year, I have set up collaborations with three independent research teams (Statistics Canada; Health Canada, and the ELEMENT team, which is focused on the study of prenatal chemical exposures in a Mexican cohort) to expand our work related to fluoride and neurodevelopmental outcomes. **2. NIH grant** examining the relationship between water fluoridation and neurodevelopmental outcomes in a Canadian pregnancy cohort. (note: final funding confirmation to be announced June 2016). This work on early fluoride exposure has resulted in the creation of a new collaboration with world experts related to the field of children's environmental health. 3. **Publication of three functional neuroimaging studies** conducted at York University on patients with pediatric-onset MS. 4. **Co-investigator on multi-site national study** to the Multiple sclerosis scientific research foundation entitled: *Progressive degeneration from onset in pediatric multiple sclerosis: Evaluation of clinical and health-related quality of life, early loss of brain integrity and accelerated immunological senescence*". 5**. Research Scientist position** at North York General Hospital, which lead to a new research study examining feasibility and preliminary efficacy of a computerized cognitive training program in patients with

	Huntington disease.
Tsotsos, John	1. **Journal Special Issue Editor** Eckstein, M., Tsotsos, J.K., Landy, M. (guest editors), Special Issue on Computational Models of Visual Attention, *Vision Research*, Vol 116, Part B, (September 2015). 2. Bruce, N., Wloka, C., Tsotsos, J.K., On Computational Modeling of Visual Saliency: Understanding What's Right and What's Left, Special Issue on Computational Models of Visual Attention, *Vision Research,* Volume 116, Part B, November 2015, Pages 95-112 3. Bylinskii, Z., DeGennaro, E., Rajalingham, R., Ruda, H., Zhang, J., Tsotsos, J.K., Towards the quantitative evaluation of visual attention models, Special Issue on Computational Models of Visual Attention, *Vision Research*,Volume 116, Part B, November 2015, Pages 258-268 4. Keynote Invited Presentations at Conferences or Meetings STAR: The Selective Tuning Attentive Reference Model, European Conference on Eye Movements, Aug. 16-21, 2015, Vienna (invited by Ulrich Ansorge). 5. Biologically-Motivated Computer Vision: It's all about the constraints, International Conference on Computer Vision Systems (ICVS), 6-9 July 2015, Sydhavn, Copenhagen (invited by L. Nalpantidis and Volker Krüger).
Wildes, Rick	1. C. Feichtenhofer, A. Pinz and R. P. Wildes, Dynamic scene recognition with complementary spatiotemporal features, IEEE Transactions on Pattern Analysis and Machine Intelligence (PAMI), to appear, 2016. 2. C. Feichtenhofer, A. Pinz and R.P. Wildes, Dynamically encoded actions based on spacetime saliency, Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2015. 3. Provided prototype software for video surveillance (human action detection, recognition and tracking) to industry partner Viewgle for incorporation into commercial products under OCE funding.
Womelsdorf, Thilo	1. Balcarras M, Ardid S, Kaping D, Everling S, Womelsdorf T (2016) Attentional selection can be predicted by reinforcement learning of task-relevant stimulus features weighted by value-independent stickiness. Journal of Cognitive Neuroscience. 28(2):333-49. 2. Womelsdorf T, Everling S (2015) Long-Range Attention Networks: Circuit Motifs Underlying Endogenously Controlled Stimulus Selection. Trends in Neurosciences 38(11):682-700. 3. Voloh B, Valiante TA, Everling S, Womelsdorf T (2015) Theta gamma coordination between anterior cingulate and prefrontal cortex indexes correct attention shifts. PNAS, Proceedings National Academy of Science, USA 112(27):8457-62. 4. 2015 9th BrainDay, Waterloo University and Center for Theoretical Neuroscience, Ontario, Youtube Video-Lecture from Waterloo Brain Day of the Center for Theoretical Neuroscience: https://www.youtube.com/watch?v=nA5LVjAqkt8 5. 2015 6th Rovereto Attention Workshop Speaker (RAW), Centre for Mind and Brain Sciences, University of Trento, Italy.
Zoidl, Georg	1. Starting to organizing a second Special Edition for Frontiers in Physiology entitled “Gap Junction Communication in Health and

	Disease: Focus on Sensory Systems" 2. Participation on national review panels 3. Outcomes of collaborative work with the TWRI on the molecular, cellular and physiological basis of the Fetal Alcohol Syndrome, which led to three publications. 4. Outcomes of collaborative work with Dr. Donaldson, which allows expanding into the territory of structural biology, and already has generated two publications in the report period. 5. Outcomes of collaborative work with the Faculty of Engineering, which led to a grant application and joint supervision of students.
ASSOCIATE MEMBERS	
Wilson, Hugh	1. Wilson, H. R. & Wilkinson, F. (2015) From orientations to objects: Configural processing in the ventral stream. *Journal of Vision*, 15(7):4, 1-10. doi: 10.1167/15.7.4 2. Gao, X., Maurer, D. & Wilson, H. R. (2015) The PCA learning effect: An emerging correlate of face memory during childhood. *Cognition* 143, 101-107. 3. Logan, A. J., Wilkinson, F., Wilson, H. R., Gordon, G. E. & Loffler, G. (2016) The Caledonian face test: a new test of face discrimination. *Vision Res.*119, 29-41. 4. Morin, K., Guy, J.. Habak, C., Wilson, H. R., Pagani, L., Mottron, L. & Bertone, A. (2015) Atypical face perception in autism: a point of view? *Autism Res.* 8, 497-506. 5. "Watching Brains Think" Public general education presentation at Bluewater Association for Lifelong Learning, Owen Sound, March 24, 2016