

JAMES H. ELDER, PH.D., P.ENG.
Professor & York Research Chair in Human and Computer Vision
York University

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Year of Birth	1964	Email	jelder@yorku.ca
Citizenship	Canadian	WWW	www.yorku.ca/jelder www.elderlab.yorku.ca

PROFILE

My research is deeply interdisciplinary: I seek to understand the computational processes underlying human vision, and to develop better machine vision systems based on this understanding. Over the last twenty years I have been awarded (as Principal Investigator) more than \$13M in direct external research funding to support this research program, including most recently a 5-year \$4M (\$12M with in-kind) collaborative ORF-RE grant and a 6-year \$1.6M NSERC CREATE training grant. I have trained more than 100 graduate and undergraduate research students and postdoctoral fellows, and with them and other colleagues have published more than 70 papers in high-impact international journals, conferences and books, generating more than 5,000 citations. Seven of my former trainees are now in faculty positions in Canada, the UK, Australia, France and Turkey. Most of the others are now in senior positions in industry.

The impact of my research has been recognized by a Premier's Research Excellence Award, appointments to editorial boards for three international journals and the premier conference on vision science, recent international keynote talks at BigDIA 2016 in Hunan, China and VIIHM 2015 in Bath, UK, and recent invited talks in China, US, the UK and Canada. A number of our public datasets have become standard global benchmarks for vision tasks (www.elderlab.yorku.ca/resources).

My research involves close collaboration with Canadian companies and has seen application in 3D synthetic displays for helicopter navigation, airborne search and rescue, highway traffic analytics and automatic road surface inspection. We hold two patents on attentive sensing systems and have just received an NSERC I2I award to commercialize this technology.

EDUCATION

Ph. D. 1996

Institution McGill University, Department of Electrical Engineering

Thesis Title The visual computation of bounding contours

M. Eng. 1992

Institution McGill University, Department of Electrical Engineering

Thesis Title Contour closure and the perception of shape

B. A. Sc. 1987

Institution University of British Columbia, Department of Electrical Engineering (Computer Engineering Option)

HONOURS & AWARDS

- 2018-2023 York Research Chair (Tier I) in Human and Computer Vision, York University
- 2009 Professeur Invité, Université de Paris Dauphine & Fondation Sciences Mathématiques de Paris
- 2008 Poster Award, Gordon Conference on Sensory Coding and the Natural Environment
- 2000-2010, 2012-2013 York University Yearly Merit Awards
- 2003 Premier's Research Excellence Award, Ontario Ministry of Enterprise, Opportunity and Innovation
- 2001 Young Investigator Award, Canadian Image Processing and Pattern Recognition Society
- 1998 York University Release-Time Teaching Fellowship and Development Grant, for *Integrated disciplinary and computer training in an active learning environment*
- 1995 Postdoctoral Fellowship, Natural Sciences and Engineering Research Council (declined)
- 1995 Long-Term Postdoctoral Fellowship, International Human Frontier Science Program (declined)
- 1995 Best Paper Award, for the paper "Scale space surfaces and blur estimation," Vision Interface, Québec City, Québec
- 1994-1995 Postgraduate Scholarship, Fonds pour la Formation de Chercheurs et l'Aide à la Recherche (Québec)
- 1989-1994 Postgraduate Scholarship, Natural Sciences and Engineering Research Council
- 1989-1991 Postgraduate Scholarship, Bell-Northern Research

EMPLOYMENT

- 2012-* Professor, Department of Electrical Engineering & Computer Science
Department of Psychology, York University
- 2006-2012* Associate Professor, Department of Computer Science and Engineering &
Department of Psychology, York University
- 2001-2006* Associate Professor, Department of Psychology, York University
- 1996-2001* Assistant Professor, Department of Psychology, York University
- 1995-1996* Senior Research Associate, Computer Science Division, NEC Research Institute,
Princeton, NJ
- 1989-1995* Graduate Student, McGill University, Centre for Intelligent Machines, Department of
Electrical Engineering
- 1987-1989* Member of Scientific Staff, Bell-Northern Research, Ottawa, Ontario

AFFILIATIONS

- Director, NSERC CREATE Training Program in Data Analytics & Visualization, York University
- Core Member, Vision: Science to Applications (VISTA), York University
- Faculty Affiliate, Vector Institute for Artificial Intelligence
- Member, Centre for Vision Research, York University
- Member, Graduate Program in Electrical Engineering and Computer Science, York University
- Member, Graduate Program in Psychology, York University
- Associate Member, Graduate Program in Mathematics & Statistics, York University
- Licensed Professional Engineer, Professional Engineers Ontario

EXTERNAL RESEARCH GRANTS

- 2017-2024 Co-Investigator, Canada First Research Excellence Fund, *VISTA: Vision Science to Applications* (**\$33,338,000 over seven years**)
- 2017-2022 Principal Investigator, Ontario Research Fund - Research Excellence Award, *Intelligent Systems for Sustainable Urban Mobility* (**\$3,999,998 over five years**)
- 2016-2021 Co-Investigator, Ontario Research Fund - Research Excellence Award, *Big Data Research, Analytics, and Information Network (BRAIN) Alliance* (**\$4,000,000 over five years**)
- 2015-2021 Principal Investigator, Natural Sciences and Engineering Research Council (NSERC) Collaborative Research and Training Experience, *Data Analytics & Visualization* (**\$1,650,000 over six years**)
- 2015-2020 Principal Investigator, Natural Sciences and Engineering Research Council (NSERC) Discovery Grant, *Recurrent computations for the perceptual organization of shape* (**\$180,000 over five years**)
- 2016-2018 Principal Investigator, Ministry of Transportation Ontario Highway Infrastructure Innovation Funding Program, *Automatic 3D Video Analytics for Traffic and Road Condition Assessment* (**\$138,786**)
- 2016-2018 Principal Investigator, Natural Sciences and Engineering Research Council (NSERC) Idea to Innovation Grant, *Attentive Sensor for Dynamic Scene Analysis* (**\$124,156 over one year**)
- 2015-2016 Principal Investigator, Ministry of Transportation Ontario Highway Infrastructure Innovation Funding Program, *Automatic 3D Traffic Analysis from Highway Video Data* (**\$61,919**)
- 2014-2015 Principal Investigator, Ontario Centres of Excellence VIP 1 Program, *DM&T – York CVAV License Plate Redaction Project* (**\$25,000**).
- 2014-2015 Principal Investigator, Ministry of Transportation Ontario Highway Infrastructure Innovation Funding Program, *Automatic 3D Traffic Analysis from COMPASS Highway Camera Data* (**\$50,625**).
- 2013-2014 Principal Investigator, NSERC Engage Grant, *Attentive Sensing for Sports Video Applications* (**\$25,000 over six months**)
- 2013-2014 Principal Investigator, NSERC Regional Opportunities Fund, *3D Urban Sustainability Workshop* (**\$3,000 over two months**)
- 2011-2017 Co-Investigator, Natural Sciences and Engineering Research Council (NSERC) Collaborative Research and Training Experience, *Vision Science and Applications* (**\$1,650,000 over six years**)
- 2011-2016 Co-Investigator, Ontario Research Fund - Research Excellence Award, *Centre for Innovation in Information Visualization and Data-Driven Design (CIVDDD)* (**\$3,844,826 over five years**)
- 2011 Principal Investigator, NSERC Engage Grant, *An Expert System for the Home Improvement Market Using Computer Vision: Feasibility Study* (**\$25,000 over six months**)

- 2010-2015 Principal Investigator, Natural Sciences and Engineering Research Council (NSERC) Discovery Grant *Hierarchical systems for visual shape perception* **(\$210,000 over five years)**
- 2010-2013 Project Leader and Co-Investigator, Ontario Centres of Excellence Earth and Environmental Technologies (OCE-ETech), *Three-Dimensionalizing Surveillance Networks* **(\$436,509 over three years)**
- 2009-2012 Project Leader and Co-Investigator, Geomatics for Informed Decisions (GEOIDE), *Three-Dimensionalizing Surveillance Networks* **(\$727,500 over three years)**
- 2008-2009 Project Leader and Co-Investigator, Geomatics for Informed Decisions (GEOIDE) Pilot Project, *Three-Dimensionalizing Surveillance Networks* **(\$50,000 over one year)**
- 2008-2009 Project Leader and Co-Investigator, Ontario Centres of Excellence Earth and Environmental Technologies (OCE-ETech), Pilot Project, *Three-Dimensionalizing Surveillance Networks* **(\$25,000 over five months)**
- 2008-2009 Principal Investigator, DRDC Toronto Contract No. W7711-078119, R&D Real-time surveillance **(\$190,000 over one and a half years)**
- 2005-2008 Principal Investigator, Ontario Centres of Excellence Earth and Environmental Technologies (OCE-ETech), *Real-time visual surveillance for search and rescue and other security applications* **(\$240,000 over three years)**
- 2006 Principal Investigator,, subcontract by Array Systems Inc. for DRDC TIES Contract W7711-4-7924 Call-Up #9 **(\$45,000)**
- 2005-2010 Principal Investigator, Natural Sciences and Engineering Research Council (NSERC) Discovery Grant *Visual computation of salient contours* **(\$154,000 over five years)**
- 2005-2009 Project Leader and Co-Investigator, Geomatics for Informed Decisions (GEOIDE), *Monitoring Changes to Urban Environments using Wireless Sensing Networks* **(\$510,000 over four years)**
- 2004-2005 Co-Investigator, Centre for Research in Earth and Space Technology (CRESTech) Core Program Funding, with M. Jenkin (Project Leader, York) *A novel sensor to aid in distance learning* **(\$34,840)**
- 2004-2005 Principal Investigator, Centre for Research in Earth and Space Technology (CRESTech) Core Program Funding, *Attentive Panoramic Sensing for Surveillance and Security* **(\$50,000)**
- 2004-2005 Principal Investigator, Centre for Research in Earth and Space Technology (CRESTech) Core Program Funding, *Computational and Perceptual Research on Enhanced/Synthetic Vision Systems for Aircraft* **(\$30,000)**
- 2003-2008 Principal Investigator, Premier's Research Excellence Award, *From Edges to Objects: Visual Processing of Contours in Human and Machine* **(\$150,000 over five years)**
- 2003-2005 Co-Investigator, PRECARN University-Led Project, Monitoring of Extended Premises: Tracking Pedestrians Using a Network of Loosely Coupled Cameras **(\$400,000 over two years)**
- 2003-2004 Principal Investigator, Centre for Research in Earth and Space Technology (CRESTech) Core Program Funding, *Attentive Panoramic Sensing for Surveillance and Security* **(\$55,042)**

- 2003-2004 Project Leader, Centre for Research in Earth and Space Technology (CRESTech) Core Program Funding, *Computational and Perceptual Research on Enhanced/Synthetic Vision Systems for Aircraft* (**\$30,160**)
- 2003-2004 Co-Investigator, Centre for Research in Earth and Space Technology (CRESTech) Core Program Funding, with M. Jenkin (Project Leader, York) *A novel sensor to aid in distance learning* (**\$34,840**)
- 2003-2004 Principal Investigator, Natural Resources Canada funding in support of GEOIDE Project (**\$25,000**)
- 2003 Principal Investigator, Short Term Fellowship, International Human Frontier Science Program Organization, *Perceptual organization and nonlinear processing in visual cortex* (**\$10,914**)
- 2002-2005 Project Leader and Co-Investigator, Institute for Robotics and Intelligent Systems (IRIS) Grant, with J. Clark (McGill) and J. Tsotsos (York), *Visual intelligence for surveillance and telepresence applications* (**\$600,000 over three years**)
- 2002-2005 Project Leader and Co-Investigator, Geomatics for Informed Decisions (GEOID) Grant, with D. Clausi (Waterloo), G. Edwards (Laval), F. Ferrie (McGill), J. Little (UBC), *Intelligent data fusion for aircraft navigation and disaster management* (**\$510,000 over three years**)
- 2001-2005 Principal Investigator, Natural Sciences and Engineering Research Council (NSERC) Research Grant *Psychophysical and computational investigation of visual contour processing* (**\$116,000 over four years**)
- 2002-2003 Principal Investigator, Centre for Research in Earth and Space Technology (CRESTech) Core Program Funding, *Attentive Panoramic Sensing for Surveillance and Security* (**\$47,650**)
- 2002-2003 Principal Investigator, Centre for Research in Earth and Space Technology (CRESTech) Core Program Funding, *Computational and Perceptual Research on Enhanced/Synthetic Vision Systems for Aircraft* (**\$47,650**)
- 2002-2003 Co-Investigator, Centre for Research in Earth and Space Technology (CRESTech) Core Program Funding, with M. Jenkin (Project Leader, York) *A novel sensor to aid in distance learning* (**\$37,859**)
- 2002-2003 Principal Investigator, Natural Resources Canada funding in support of GEOIDE Project (**\$25,000**)
- 2001-2004 Co-Investigator, NSERC Major Facilities Access Grant, with members of the York Centre for Vision Research, *Personnel Support for York's Centre for Vision Research* (**\$408,000**)
- 2001-2002 Principal Investigator, Centre for Research in Earth and Space Technology (CRESTech) Core Program Funding, *Extraction of Features from Remote-Sensed Imagery for Search and Rescue Database* (**\$47,650**)
- 2001-2002 Principal Investigator, Centre for Research in Earth and Space Technology (CRESTech) Core Program Funding, *Research and evaluation of attentional factors for telepresence and virtual reality technologies* (**\$15,910**)
- 2001-2002 Principal Investigator, Natural Resources Canada funding in support of GEOIDE Project (**\$16,000**)

- 2000-2001 Principal Investigator, Centre for Research in Earth and Space Technology (CRESTech) Core Program Funding, *Extraction of Features from Remote-Sensed Imagery for Search and Rescue Database* (**\$50,000**)
- 2000-2001 Principal Investigator, CRESTech Core Program Funding, *Research and evaluation of attentional factors for telepresence and virtual reality technologies* (**\$20,000**)
- 2000-2001 Principal Investigator, Centre for Research in Earth and Space Technology (CRESTech) Project Opportunity Funding, *Feature classification and surface modelling for a search and rescue synthetic vision database using high resolution satellite imagery* (**\$20,000**)
- 2000-2001 Co-Investigator, NSERC Major Facilities Access Grant, with members of the York Centre for Vision Research, *Personnel Support for York's Centre for Vision Research* (**\$91,000**)
- 1999-2002 Project Leader and Co-Investigator, Geomatics for Informed Decisions (GEOIDE) Grant, with colleagues at Laval University, McGill University, The University of BC, and The University of Waterloo, *Extraction of Features from Remote-Sensed Imagery for Search and Rescue Database* (**\$585,000 over three years**)
- 1999-2002 Co-Investigator, Ontario Research and Development Challenge Fund (ORDCF), with members of the York Centre for Vision Research, *Improvements to the Centre for Vision Research at York University* (**\$228,000 over three years**)
- 1999-2002 Co-Investigator, Canadian Foundation for Innovation (CFI) Institutional Innovation Grant, with members of the York Centre for Vision Research, *Active Sensory Processing in Real and Synthetic Environments* (**\$5,800,000 over three years**)
- 1999-2000 Principal Investigator, Centre for Research in Earth and Space Technology (CRESTech) Core Program Funding, *Extraction of Features from Remote-Sensed Imagery for Search and Rescue Database* (**\$50,000**)
- 1999-2000 Project Leader, Centre for Research in Earth and Space Technology (CRESTech) Core Program Funding, *Research and evaluation of attentional factors for telepresence and virtual reality technologies* (**\$20,000**)
- 1998-2002 Project Leader and Co-Investigator, Institute for Robotics and Intelligent Systems (IRIS) Grant, with colleagues at McGill University and York University, *Research and evaluation of attentional factors for telepresence and virtual reality technologies* (**\$480,000 over four years**)
- 1998-2001 Project Leader and Co-Investigator, CFI New Opportunities Grant, with L. Wilcox (York University), *Attentive 3D Visual Processing* (**\$454,500**)
- 1998-1999 Co-Investigator, Centre for Research in Earth and Space Technology (CRESTech) Core Program Funding, with Paul Shepherd, CRESTech, *Remote sensed data and perceptual factors for ESVS demonstrator project* (**\$50,000**)
- 1998-1999 Principal Investigator, Centre for Research in Earth and Space Technology (CRESTech) Project Opportunity Funding, *Research and evaluation of attentional factors for telepresence and virtual reality technologies* (**\$20,000**)
- 1998-1999 Project Leader and Co-Investigator, DND contract (With Paul Shepherd, CRESTech), *Remote sensed data and perceptual factors for ESVS demonstrator project* (**\$50,000**)

- 1997-2001 Principal Investigator, Natural Sciences and Engineering Research Council (NSERC) Research Grant *Psychophysical and computational investigation of visual contour representations* (**\$107,500 over four years**)
- 1997-1998 Project Leader and Co-Investigator, DND/CRESTech Subcontract from University of Toronto (With Paul Shepherd, CRESTech), *Generation of Synthetic Images for ESVS* (**\$85,000**)
- 1997-1998 Principal Investigator, Natural Sciences and Engineering Research Council (NSERC) Equipment Grant *Equipment to establish laboratory for visual psychophysics and computational modeling* (**\$25,630**)

INTERNAL RESEARCH GRANTS

- 2018-2019 Project Leader, VISTA Research Grant, Deep networks for assisted target detection in airborne search and rescue (**\$50,000**, already accounted for in external grant listed above)
- 2017-2018 Project Leader, VISTA Research Grant, Depth from Shadows (**\$50,000**, already accounted for in external grant listed above)
- 2015-2016 Co-Investigator, Big Data Research and Analytics Information Network (BRAIN), *Developing Tools for Visual Interactive Data and Pattern Analysis* (**\$20,000**, already accounted for in external grant listed above)
- 2015-2016 Research Team Lead, Centre for Innovation in Information Visualization and Data-Driven Design, Dynamic Carbon Activity Mapping in Urban Environments (**\$58,000**, already accounted for in external grant listed above)
- 2014-2015 Research Team Lead, Centre for Innovation in Information Visualization and Data-Driven Design, Dynamic Carbon Activity Mapping in Urban Environments (**\$60,833**, already accounted for in external grant listed above)
- 2013-2014 Research Team Lead, Centre for Innovation in Information Visualization and Data-Driven Design, Dynamic Carbon Activity Mapping in Urban Environments (**\$20,000**, already accounted for in external grant listed above)
- 2012-2013 Research Team Lead, Centre for Innovation in Information Visualization and Data-Driven Design, Dynamic Carbon Activity Mapping in Urban Environments (**\$25,000**, already accounted for in external grant listed above)
- 1997-1998 Principal Investigator, Faculty of Arts Special Computer Matching Grant (**\$1,800**)
- 1996 Principal Investigator, York University Faculty of Arts Research Grant, *Contour classification and texture coding of natural images* (**\$3,500**)
- 1996 Principal Investigator, York University Startup Funds (**\$20,000**)

RESEARCH CONTRIBUTIONS

Publication Summary

Number of citations (Google Scholar):	5,044
H-Index (Google Scholar):	25
Peer-Reviewed Journal Articles:	32
Peer-Reviewed Full Conference Papers:	38
Book Chapters:	4
Patents:	2

Note: In biological vision research, peer-reviewed journal papers are the primary mode for dissemination of research findings. In computer vision research, peer-reviewed conference papers (typically 8 pages) are equally important and often highly cited. For example, in terms of citations per paper, the CVPR conference has the highest impact of all computer vision publications (conferences and journals, <http://www.scimagojr.com/>). Acceptance rates for these conferences average around 33%.

The table below compares the impact of computer vision conferences and journals.

Publication	Publication Type	h5-index (Google Scholar)
CVPR	Conference	158
PAMI	Journal	114
ECCV	Conference	98
ICCV	Conference	89
IJCV	Journal	68
CVPR Workshops	Conference	45
BMVC	Conference	43
IVC	Journal	38
ACCV	Conference	35
ICIP	Conference	34
WACV	Conference	31

List of Publications

Refereed Journal Articles

Journal impact factors are listed for each paper and summarized below for convenience.

2016 JCR Journal Impact Factors

Impact Factor	Journal
16.6	Psychological Bulletin
8.3	IEEE Transactions on Pattern Analysis and Machine Intelligence
8.2	International Journal of Computer Vision
6.0	Journal of Neuroscience
4.5	PLOS Computational Biology
4.3	Scientific Reports
2.7	Image and Vision Computing
2.7	Journal of Vision
2.3	ACM Transactions on Multimedia Computing, Communications and Applications
2.0	Vision Research
1.5	Journal of Intelligent and Robotic Systems
1.1	Perception
0.5	Geomatica

Published, In Press or Accepted

1. Elder, J.H., Oleskiw, T. & Fründ, I. (2018). The role of global cues in the perceptual grouping of natural shapes. Accepted for publication in *Journal of Vision*.
2. Elder, J.H (2018). Shape from Contour: Computation and Representation. *Annual Review of Vision Science*, In Press.
3. Wilder, J., Fründ, I. & Elder, J.H. (2018). Frequency tuning of natural shape perception revealed by classification image analysis. *Journal of Vision*, In Press.
4. Adams, W.J., Elder, J.H., Graf, E.W., Leyland, J., Lutigheid, A.J. & Muryy, A. (2016). The Southampton-York Natural Scenes (SYNS) dataset: Statistics of surface attitude. *Scientific Reports* vol. 6. (IF: 4.3)
5. 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. (IF: 6.0)
6. Adams, W.J. & Elder, J.H. (2014). Effects of specular highlights on perceived surface convexity. *PLOS Computational Biology* 10(5): e1003576. doi:10.1371/journal.pcbi.1003576. (IF: 4.5)
7. T. McLeod, C. Samson, M. Labrie, K. Shehata, J. Mah, P. Lai, L. Wang, and J.H. Elder. (2013) Using video data acquired from an unmanned aerial vehicle to measure fracture orientation in an open pit mine. *Geomatica* vol. 67, no. 3, 173-180. (IF: 0.5)

8. Elder, J.H., Oleskiw, T.D., Yakubovich, A. & Peyré, G. (2013). On growth and formlets: Sparse multi-scale coding of planar shape. *Image and Vision Computing* vol. 31, 1-13. (Editor's Choice Paper) (IF: 2.7)
9. Wagemans, J.H., Elder, J.H., Kubovy, M., Palmer, S., Peterson, M., Singh, M. & von der Heydt, R. (2012). A century of Gestalt psychology in visual perception: I. Perceptual grouping and figure-ground organization. *Psychological Bulletin*, vol. 138, no. 6, 1172–1217. (IF: 16.6)
10. Fazl-Esri, E., Elder, J.H. & Tsotsos, J.K. (2012). Hierarchical classifiers for robust topological robot localization. *Journal of Intelligent and Robotic Systems*, vol. 68, no. 2, 147-163. (IF: 1.5)
11. Dornaika, F. & Elder, J.H. (2012) Image registration for foveated panoramic sensing. *ACM Transactions on Multimedia Computing, Communications and Applications*, vol. 8, no. 2. (IF: 2.3)
12. Morgenstern, Y. & Elder, J.H. (2012). Local visual energy mechanisms revealed by detection of global patterns. *Journal of Neuroscience*, vol. 32, no. 11, 3679-3696. (IF: 6.0)
13. Li, P., Fu, Y., Mohammed, U. & Elder, J.H. & Prince, S.J.D. (2012). Probabilistic models for inference about identity. *IEEE Transactions on Pattern Analysis and Machine Intelligence*, vol. 34, no 1. 144-157. (IF: 8.3)
14. Or, C.F. & Elder, J.H. (2011). Oriented texture detection: ideal observer modelling and classification image analysis, *Journal of Vision*, vol. 11 no. 8 art. 16, 1-19. (IF: 2.7)
15. Elder, J. H. & Velisavljević, L. (2009). Cue dynamics underlying rapid detection of animals in natural scenes. *Journal of Vision*, vol. 9 no. 7 art. 7, 1-20. (IF: 2.7)
16. Velisavljević, L. & Elder, J. H. (2008). Visual short-term memory of local information in briefly viewed natural scenes: Configural and non-configural factors. *Journal of Vision*, vol. 8 no. 16 art. 8, 1-17. (IF: 2.7)
17. Velisavljevic, L. & Elder, J.H. (2008) Visual short-term memory for natural scenes: Effects of eccentricity, *Journal of Vision*, vol. 8 no. 4, art. 28, 1-17. (IF: 2.7)
18. Prince, S.J.D. & Elder, J.H. (2008) Tied factor analysis for face recognition across large pose differences. *IEEE Transactions on Pattern Analysis and Machine Intelligence*, vol. 30, no. 6, 970-984. (IF: 8.3)
19. Elder, J.H., Prince, S.J.D., Hou, Y., Sizintsev, M. & Olevskiy, E. (2007) Pre-attentive and attentive detection of humans in wide-field scenes, *International Journal of Computer Vision*, vol. 72, no. 1, 47-66. (IF: 8.2)
20. Velisavljevic, L. & Elder, J.H. (2006) Texture properties affecting the accuracy of surface attitude judgements, *Vision Research*, vol. 46, no. 14, 2166-2191. (IF: 2.7)
21. Elder, J.H., Trithart, S., Pintilie, G. & MacLean, D. (2004) Rapid processing of cast and attached shadows, *Perception*, vol. 33, 1319-1338. (IF: 1.1)
22. Elder, J.H. & Sachs, A.J. (2004) Psychophysical receptive fields of edge detection mechanisms, *Vision Research*, vol. 44, no. 8, 795-813. (IF: 2.0)

23. Elder, J.H., Krupnik, A. & Johnston, L.A. (2003) Contour grouping with prior models, *IEEE Transactions on Pattern Analysis and Machine Intelligence*, vol. 25, no. 6, 661-674. (IF: 8.3)
24. Elder, J.H., & Goldberg, R. M. (2002). Ecological statistics of Gestalt laws for the perceptual organization of contours. *Journal of Vision*, 2(4), 324-353, <http://journalofvision.org/2/4/5/>, DOI 10.1167/2.4.5. (IF: 2.7)
25. Reeves, R., Elder, J.H. & Laidler, G. (2001). Accuracy of the Canadian Digital Terrain Data in the Gatineau region of Québec. *Geomatica*, vol. 55, no. 1, 57-64. (IF: 0.5)
26. Elder, J.H. & Goldberg, R.M. (2001). Image editing in the contour domain. *IEEE Transactions on Pattern Analysis and Machine Intelligence*, vol. 23, no. 3, 291-296. (IF: 8.3)
27. Wilcox, L.M., Elder, J.H. & Hess, R.F. (2000). The effects of blur and size on monocular and stereoscopic localization. *Vision Research*, vol. 40, no. 26, 3575-3584. (IF: 2.0)
28. Elder, J.H. (1999) Are edges incomplete? *International Journal of Computer Vision*, vol. 34, no. 2/3, 97-122. (IF: 8.2)
29. Elder, J.H. & Zucker, S.W. (1998). Local scale control for edge detection and blur estimation. *IEEE Transactions on Pattern Analysis and Machine Intelligence*, vol. 20, no. 7, 699-716. (IF: 8.3)
30. Elder, J.H. & Zucker, S.W. (1998). Evidence for boundary-specific grouping. *Vision Research*, vol. 38, no. 1, 143-152. (IF: 2.0)
31. Elder, J.H. & Zucker, S.W. (1994). A measure of closure. *Vision Research*, vol. 34, no. 24, 3361-3370. (IF: 2.0)
32. Elder, J.H. & Zucker, S.W. (1993). The effect of contour closure on the rapid discrimination of two-dimensional shapes. *Vision Research*, vol. 33, no. 7, 981-991. (IF: 2.0)

Papers in Published Conference Proceedings (Refereed)

Where known, I have indicated the acceptance rate for the conference.

1. Ehinger, K.A., Adams, J.A., Graf, E.W. & Elder, J.H. (2017) Local depth edge detection in humans and deep neural networks. *International Conference on Computer Vision (ICCV) Workshop on Mutual Benefits of Cognitive and Computer Vision*, 2681-2689.
2. Cheng, G., Qian, Y. & Elder, J.H. (2017) Fusing Geometry and Appearance for Road Segmentation. *International Conference on Computer Vision (ICCV) Workshop on Computer Vision for Road Scene Understanding and Autonomous Driving*, 166-173.
3. Corral-Soto, E.R. & Elder, J.H. (2017) Slot Cars: 3D Modelling for Improved Visual Traffic Analytics. *IEEE Conference on Computer Vision and Pattern Recognition (CVPR) Traffic Surveillance Workshop and Challenge*, 889-897.
4. Almazen, E.J., Tal, R., Qian, Y. & Elder, J.H. (2017) MCMLSD: A dynamic programming approach to line segment detection. *IEEE Conference on Computer Vision and Pattern Recognition*

(*CVPR*), 2031-2039. (Acceptance Rate: 29%)

5. Elasal, N. & Elder, J.H. (2017) Estimating camera tilt from motion without tracking. *Proc. 14th Conference on Computer and Robot Vision (CRV)*, IEEE, 72-79. (Oral Acceptance Rate: 35%)
6. Mehrani, P. & Elder, J.H. (2017) Estimating coarse 3D shape and pose from the bounding contour. *Proc. 12th International Conference on Computer Vision Theory and Applications (VISAPP)*, 603-610.
7. Elasal, N. & Elder, J.H. (2016) Unsupervised crowd counting. *Proc. 13th Asian Conference on Computer Vision (ACCV)*, Springer, 329-345. (Acceptance Rate: 25%)
8. Almazen, E.J., Qian, Y. & Elder, J.H. (2016) Road segmentation for classification of road weather conditions. *Proc. 4th Workshop on Computer Vision for Road Scene Understanding and Autonomous Driving, European Conference on Computer Vision (ECCV) Workshops*, Springer, 96-108.
9. Qian, Y., Almazen, E.J. & Elder, J.H. (2016) Evaluating features and classifiers for road weather condition analysis. *Proc. International Conference on Image Processing (ICIP)*, IEEE, 4403–4407. (Acceptance Rate: 45%)
10. Adams, W.J., Muryy, A.A., Graf, E.W., Lugtigheid, A.J. and Elder, J.H. (2015) The Southampton York natural scenes (SYNS) dataset. *Proc. 12th European Conference on Visual Media Production (CVMP)*, ACM, 21:1-21:2. (Acceptance Rate: 59%)
11. Corral-Soto, E.R. and Elder, J.H. (2014) Automatic single-view calibration and rectification from parallel planar curves. *Proc. European Conference on Computer Vision (ECCV)*, LNCS, Springer, 813–827. (Acceptance Rate: 27%)
12. Yakubovich, A. & Elder, J.H. (2014) Building better formlet codes for planar shape. *Proc. 11th Conference on Computer and Robot Vision (CRV)*, IEEE, 84–91.
13. Movahedi, V. & Elder, J.H. (2013) Combining local and global cues for closed contour extraction. *Proc. British Machine Vision Conference (BMVC)*, BMVA Press, 128.1-128.11. (Acceptance Rate: 30%)
14. Tal, R. & Elder, J.H. (2012) An accurate method for line detection and Manhattan frame estimation. *Proc. Asian Conference on Computer Vision (ACCV) Workshops, Part II, LNCS 7729*, Springer-Verlag, 580-593.
15. Corral-Soto, E.R., Tal, R., Wang, L., Persad, R., Chao, L. Solomon, C., Hou, Y., Sohn G., Elder, J.H. (2012) 3DTown: The automatic urban awareness project. *Proc. 9th Conference on Computer and Robot Vision (CRV)*, IEEE Computer Society, 433-440.
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22. Estrada, F.J. & Elder, J.H. (2006) Multi-scale contour extraction based on natural image statistics. *Proc. IEEE Conference on Computer Vision and Pattern Recognition (CVPR) Workshop on Perceptual Organization in Computer Vision (POCV)*, New York, NY. doi: 10.1109/CVPRW.2006.134 (Oral Acceptance Rate: 24%)
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Book Chapters

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2. Elder, J.H. (2014). Edge detection. In K. Ikeuchi, ed., *Computer vision: A Reference Guide*, Springer US.
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4. Elder, J.H., Dornaika, F., Hou, Y. & Goldstein, R. (2005) Attentive wide-field sensing for visual telepresence and surveillance. In L. Itti, G. Rees & J. Tsotsos, eds, *Neurobiology of Attention*, Academic Press/Elsevier, San Diego, 624-632.

Editorials

1. 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.
2. Gepshtein, S., Elder, J. H., & Maloney, L. T. (2008). Editorial: Perceptual organization and neural computation. *Journal of Vision*, 8(7):i, 1-4, <http://journalofvision.org/8/7/i/>, doi:10.1167/8.7.i.

3. Gold, J.M., Shiffrin, R., & Elder, J.H. (2006). Editorial: Finding visual features: Using stochastic stimuli to discover internal representations. *Journal of Vision*, 6(4), ii, <http://journalofvision.org/6/4/ii/>, doi:10.1167/6.4.ii.

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1. Lee, T., Kim, T., Sohn, G & Elder, J.H. (2010). Relative orientation estimation of video streams from a single pan-tilt-zoom camera. *Proceedings, Canadian Geomatics Conference and Symposium of Commission I, ISPRS Convergence in Geomatics – Shaping Canada’s Competitive Landscape*. Available from <http://www.isprs.org/proceedings/XXXVIII/part1/>.
2. Krupnik, A. and Elder, J.H. (2002). Extraction of lakes from satellite imagery. *Proceedings, Joint International Symposium on Geospatial Theory, Processing and Applications*, Ottawa, Canada.

Abstracts in Published Conference Proceedings (Refereed)

1. M. Clément & J.H. Elder (2018). What are the sparse components of natural shapes? *European Conference on Visual Perception*.
2. K.A. Ehinger, K. Joseph, W.J. Adams, E.W. Graf & J.H. Elder (2018). Use of local image information in depth edge classification by humans and neural networks. *Vision Sciences Society Conference*.
3. M.D. Anderson, W.J. Adams, E.W. Graf, K.A. Ehinger & J.H. Elder (2018). Human-centred categorization of natural scenes. *Vision Sciences Society Conference*.
4. P. Cavanagh, R. Casati & J.H. Elder (2018). Tight shadows shrink depth. *Vision Sciences Society Conference*.
5. I. Fründ, J.D. Wilder & J.H. Elder (2018). Nonlinear visual mechanisms for 2D shape discrimination with pose uncertainty, *Vision Sciences Society Conference*.
6. K.A. Ehinger, K. Joseph, W.J. Adams, E.W. Graf & J.H. Elder (2017). Learning to identify depth edges in real-world images with 3D ground truth. *Vision Sciences Society Conference*.
7. S. Blusseau, W. Adams, E. Graf, J.H. Elder & A. Lutigheid (2016). Visual discrimination of surface attitude from texture. *European Conference on Visual Perception*, Barcelona, Spain.
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60. Elder, J.H. & Zucker, S.W. (1991). The importance of contour closure in visual search. *Investigative Ophthalmology and Visual Science*, vol. 32, no. 4, 715.

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1. Elder, J.H., Hou, Y., Parag, T., Mander, C, Corral Soto, E. & Keillor, J. (2009). R&D real-time surveillance contract no. W7711-078119/001/TOR, Call-Up #2, Defence R&D Canada
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3. Elder, J.H., Hou, Y., Cannons, K., Estrada, F., Markle, B. & Luo, R. (2006) DND TIES contract W7711-4-7924 Call-Up #9: Mathematical consulting in support of assisted target detection for low-light imagery, Year 1 Final Report
4. Prince, S.J.D. & Elder, J.H. (2005) Three-dimensional face reconstruction using near-infrared light. Technical report commissioned by VisionSphere Technologies.
5. Elder, J.H. & Velisavljevic, L. (1999). An experimental investigation of the effect of texture scaling properties on the visual judgement of surface attitude. PWGSC contract 03SV.W8477-8-AC38 for the Canadian Department of National Defense.
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8. Elder, J.H. (1985). A software interface between a DEC PDP-11/23 computer and a neuromatic 2000 electromyograph. *Vancouver General Hospital Biomedical Engineering Department*.
9. Elder, J.H. (1984). Quantitative radiation detection for an automated system to analyse grain by proton activation. *Tri-University Meson Facility (TRIUMF), Vancouver*.

Conference Presentations

Unpublished Conference Presentations (refereed)

Elder, J.H. & Krupnik, A. (2001). Contour grouping with strong prior models. *IEEE Workshop on Perceptual Organization in Computer Vision, Vancouver, Canada.*

Elder, J.H. & Goldberg, R.M. (1998). The statistics of natural image contours. *IEEE Workshop on Perceptual Organization in Computer Vision, Santa Barbara, CA.*

Elder, J.H. & Zucker, S.W. (1996). The computation of closed bounding contours. *Vision Interface, Toronto.*

Unpublished Conference Presentations (non-refereed)

Anderson, M., Adams, W. J., Graf, E. W., Elder, J. H. & Ehinger, K. A. (2017) Human-centred categorization of natural scenes. *Applied Vision Association Christmas Meeting, London, UK.*

Ehinger, K.A., Joseph, K., Adams, W.J., Graf, E.W. & Elder, J.H. (2017). Learning to identify depth edges in real-world images with 3D ground truth. *Computational and Mathematical Models in Vision – MODVIS, St. Petersburg, FL.*

Elder, J.H., Ehinger, K., Adams, W.J., Graf, E.W. (2017). Discriminating depth edges. *Annual Interdisciplinary Conference, Breckenridge, Colorado.*

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Elder, J.H. (2016), Adams, W., Graf, E., Murry, A., Lugtigheid, A. The Southampton-York Natural Scenes (SYNS) Dataset. *Annual Interdisciplinary Conference, Breckenridge, Colorado.*

Elder, J.H. , Frund, I. & Yakubovich, A. (2015). Generative shape trees. *Annual Interdisciplinary Conference, Jackson Hole, Wyoming.*

Frund, I. & Elder, J.H. (2014). Relating the ecological statistics of natural shapes to curvature tuning in macaque area V4, *Computational and Mathematical Models in Vision – MODVIS, St. Petersburg, FL.*

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Elder, J.H. (2013). Dynamic Carbon Mapping in Urban Environments, *CASCON CIVDDD Workshop on Collaborative Research in Big Data Analytics and Visualization, Toronto.*

Frund, I. & Elder, J.H. (2013). Human selectivity for statistical properties of natural shapes, *Computational and Mathematical Models in Vision – MODVIS 2013, Naples, FL.*

Elder, J.H. (2013). Perceptual organization of shape. *Annual Interdisciplinary Conference, Jackson Hole, Wyoming.*

Corral-Soto, E.R. & Elder, J.H. (2012). Automatic image rectification for motion analysis of highway traffic surveillance video. *Global Geospatial Conference, Quebec City.*

- Tal, R. & Elder, J.H. (2012). Towards understanding Of urban scenes: Recovering pose and structure using linear constraints. *Global Geospatial Conference*, Quebec City. (**Student poster award**)
- Elder, J.H. (2012). Attention is surprising. *Annual Interdisciplinary Conference*, Breckenridge, Colorado.
- Elder, J.H. (2012) On grouping and formlets: The role of shape in perceptual organization, *Computational and Mathematical Models in Vision – MODVIS 2012*, Naples, FL.
- Yakubovich, A. & Elder, J.H. (2011) A novel basis of anisotropic deformations for a sparse, multi-scale representation of planar shape, *York University International Conference on Plastic Vision*, Toronto, Canada.
- Corral, E. & Elder, J.H. (2011) Probabilistic detection and grouping of highway lane marks, *York University International Conference on Plastic Vision*, Toronto, Canada.
- Tal, R. & Elder, J.H. (2010) Line-based approach for three-dimensionalizing urban surveillance networks, *GEOIDE Annual Scientific Conference*, Calgary, Canada.
- Corral Soto, E. & Elder, J.H. (2010) Probabilistic detection and grouping of highway lane marks, *GEOIDE Annual Scientific Conference*, Calgary, Canada.
- Josephs, J.A.E., Adams, W.J., Graf, E.W. & Elder, J.H. (2009) Anisotropies in the perceived slant of ceiling, ground and wall planes. *York University International Conference on Vision in 3D Environments*, Toronto, Canada.
- Tal, R. & Elder, J.H. (2009) Kernel-based Hough method for improved estimation of Manhattan frames in urban imagery, *York University International Conference on Vision in 3D Environments*, Toronto, Canada.
- Oleskiw, T. & Elder, J.H. (2009) Multiscale representations of object boundary shape, *York University International Conference on Vision in 3D Environments*, Toronto, Canada.
- Corral Soto, E. & Elder, J.H. (2009) Image stabilization: Extending the range capabilities of the KLT algorithm via phase correlation, *York University International Conference on Vision in 3D Environments*, Toronto, Canada.
- Movahedi, V. & Elder, J.H. (2009) Performance measure for perceptual grouping algorithms, *York University International Conference on Vision in 3D Environments*, Toronto, Canada.
- Tal, R. & Elder, J.H. (2009) Kernel-based Hough method for improved estimation of Manhattan frames in urban imagery, *GEOIDE Annual Scientific Conference*, Vancouver, Canada.
- Oleskiw, T. & Elder, J.H. (2009) Multiscale representations of object boundary shape, *GEOIDE Annual Scientific Conference*, Vancouver, Canada. (**2nd place student poster prize**)
- Elder, J.H., Prince, S.J.D., David, S.V. & Gallant, J. (2008) A geometric model predicts pattern selectivity of V1 neurons, *Gordon Research Conference on Sensory Coding and the Natural Environment*, Barga, Italy. (**Best poster award**)

- Elder, J.H. & Estrada, F. (2008) A Bayesian multi-scale model of perceptual organization, *Annual Interdisciplinary Conference*, Jackson Hole, Wyoming.
- Denis P. & Elder J.H. (2008) Efficient edge-based methods for estimating Manhattan frames in urban imagery, *GEOIDE Annual Scientific Conference*, Niagara Falls, ON. **(3rd place poster prize)**
- Elder, J.H. (2008) Three-dimensionalizing surveillance networks, *GEOIDE Annual Scientific Conference*, Niagara Falls, ON.
- Movahedi V. & Elder, J.H. (2008) Salient object statistics. *18th Annual Canadian Conference on Intelligent Systems*, Windsor, ON.
- Elder, J.H., Prince, S.J.D., Hou, Y., David, S.V. & Gallant, J. (2007) A geometric model of V1 neural selectivity, *Annual Interdisciplinary Conference*, Jackson Hole, Wyoming.
- Denis, P., Estrada, F., & Elder, J.H. (2007) Automatic estimation of vanishing points for single-view reconstruction from urban surveillance video, *PRECARN Intelligent Systems Conference*, Montreal, QC.
- Denis, P., Estrada, F., & Elder, J.H. (2006) Single image 3D scene reconstruction for visual surveillance systems, *PRECARN Intelligent Systems Conference*, Victoria, BC.
- Elder, J.H. (2006) Estimating nonlinear mechanisms underlying detection of narrowband stimuli using classification image analysis, *Annual Interdisciplinary Conference*, Jackson Hole, Wyoming.
- Elder, J.H. (2005) Testing linear and nonlinear detection models using classification image analysis, *Annual Interdisciplinary Conference*, Jackson Hole, Wyoming.
- Elder, J.H. (2003) Intelligent data fusion for aircraft navigation and disaster management, *GEOIDE Annual Meeting*, Victoria, Canada.
- Elder, J.H. (2003) Visual intelligence for surveillance and telepresence applications, *IRIS/PREARN Annual Meeting*, Halifax, Canada.
- Velisavjlevic, L. & Elder, J.H. (2003) Eccentricity effects in the rapid visual encoding of natural images, *IRIS/PREARN Annual Meeting*, Halifax, Canada.
- Elder, J.H. (2002) Extraction of features from remote-sensed imagery for a search and rescue database, *GEOIDE Annual Meeting*, Toronto, Canada.
- Elder, J.H. (2002) Visual intelligence for surveillance and telepresence applications, *IRIS/PREARN Annual Meeting*, Montreal, Canada.
- Elder, J.H. (2002) Applications of intelligent visual sensing technologies, *Payloads, Packages and Platforms: Organizing Networks for a Canadian Mars Mission Workshop*, Toronto.
- Elder, J.H. (2001) Computational and perceptual issues in Enhanced/Synthetic Vision Systems, *Workshop on Enhanced and/or Synthetic Vision Systems*, Toronto.
- Elder, J.H. (2001) Extraction of features from remote-sensed imagery, *GEOIDE Annual Meeting*, Fredericton, Canada.

- Krupnik, A. & Elder, J.H. (2001) Extraction of lakes from satellite imagery, *GEOIDE Annual Meeting, Fredericton, Canada*.
- Reeves, R. & Elder, J.H. (2001) Constructing more accurate terrain models from multiple DEMs and classification data, *GEOIDE Annual Meeting, Fredericton, Canada*.
- Elder, J.H. (2001) Attentional methods for virtual reality and telepresence, *PRECARN/IRIS Annual Meeting, Ottawa*.
- Amati, J. & Elder, J.H. (2001) Factors affecting the discrimination and perceived attitude of multiple transparent surfaces, *PRECARN/IRIS Annual Meeting, Ottawa*.
- Dornaika, F. & Elder, J.H. (2001) Image registration for attentive panoramic sensing, *PRECARN/IRIS Annual Meeting, Ottawa*.
- Velisavljevic, L. & Elder, J.H. (2001) The processing of local and global information in natural images, *York Conference 2001: Levels of Perception*.
- Elder, J.H. (2000) Textures for helmet mounted synthetic environments. *National Research Council Flight Research Laboratory Head-Mounted Display Research Meeting*.
- Velisavljevic, L. & Elder, J.H. (2000) Texture mapping terrain to optimize visual judgments of surface attitude, *GEOIDE Annual Conference, Calgary*.
- Reeves, R., Elder, J.H. & Laidler, G. (2000) Towards a synthetic terrain database for search and rescue helicopters, *GEOIDE Annual Conference, Calgary*.
- Elder, J.H., Wu, G. & Hou, Y. (2000) Foveated panoramic sensing. *PRECARN/IRIS Annual Meeting, Montreal*.
- Elder, J.H., Velisavljevic, L. (1999) What is the optimal texture for perceiving surface attitude? *International Conference on Vision and Attention, York University*.
- Elder, J.H. (1999) Perceptual factors in virtual reality and telepresence. *PRECARN-IRIS IX Annual Conference, Toronto*.
- Elder, J.H. (1998). Invited Commentary on Y. Amit, "Tree-structured vision and selective attention," NEC/NYU Workshop on *Learning and Development in Vision, New York*.
- Elder, J.H. (1996). Invited Commentary on Pessoa et al., "Finding out about filling in", *The Mind as a Scientific Object: an Interdisciplinary Seminar, Toronto*.
- Elder, J.H. (1996). Are images one-dimensional? *2nd NEC Research Institute Vision Workshop, Princeton, NJ*.
- Elder, J.H. (1995). Scale adaptation and blur estimation. *5th IRIS-PRECARN Conference, Vancouver*.
- Elder, J.H. (1992). Integrating figure fragments. *Québec Inter-University Computer Vision Meeting, Montréal*.

Invited Presentations

- Elder, J.H. (2018) Human and machine perception of 3D shape from contour, *CVPR Workshop on Mutual Benefits of Cognitive and Computer Vision*, Salt Lake City.
- Elder, J.H. (2017) Two new methods for exploring the perception of natural shape, *International Workshop on Current Directions in Vision Sciences*, Peter Wall Institute for Advanced Studies, University of BC.
- Elder, J.H. (2016) Adapting Video Analytics to the 3D Environment, *International Conference on Big Data and Information Analytics (BigDIA)*, Hunan, China. (**Keynote**)
- Elder, J.H. (2016) Single-View 3D Scene Analysis, *Conference on Vision and Imaging Systems*, Waterloo, ON (**Keynote**)
- Elder, J.H. (2015) Video Analytics for Sustainable Cities, *Canadian Visual Analytics School*, York University, Toronto.
- Elder, J.H. (2015) General Purpose Models in Biological and Computer Vision, *Symposium on Machine Vision, European Conference on Visual Perception*, Liverpool, UK.
- Elder, J.H. (2015) Human and Computer Vision: Common Ground, *Visual Inference in Humans and Machines Workshop*, Bath, UK. (**Keynote**)
- Elder, J.H. (2015) Perceptual Organization of Shape, *York University Centre for Vision Research International Conference on Perceptual Organization*, Toronto.
- Elder, J.H. (2014) Vision for CV/AV, *Connected Vehicle / Autonomous Vehicle Meeting, Ontario Ministry of Economic Development, Employment & Infrastructure*, Toronto.
- Elder, J.H. (2014) Generative models of shape, *Symposium on Segmentation and Shape, Canadian Conference on Computer and Robot Vision*, Montreal.
- Elder, J.H. (2013) Configural determinants of the perceptual organization of shape, *Configural Processing Consortium Meeting*, Toronto.
- Elder, J.H. (2013) 2D/3D conversion: A love story. *3D Film Innovation Consortium Workshop, When and Why Should I Consider 2D to 3D Conversion?*, Toronto.
- Elder, J.H. (2010) On grouping and formlets: The role of shape in perceptual organization. *ECCV Workshop on Shape Perception in Human and Computer Vision*, Crete, Greece.
- Elder, J.H. (2010) Bringing 3D urban models to life. *The Golden Age of Geo-Positioning: Constructing Business Solutions*, Niagara-on-the-Lake.
- Elder, J.H. (2009) Segmenting salient shapes. *Mathematics and Image Analysis Conference*, Paris, France.
- Elder, J.H. (2009) Perceptual segmentation of salient shapes. *GDR Mathématiques des systèmes perceptifs et cognitifs*, Paris, France.

Elder, J.H. & Estrada, F. (2007) A Bayesian multi-scale model of perceptual organization, Symposium on Perceptual Organization and Computation, Vision Sciences Society Conference, Florida.

Elder, J.H. (2005) Perceptual organization of contours, *Workshop on Early Vision: Computational and Biological*, Bertinoro, Italy.

Elder, J.H. (2005) Finding and recognizing people in unconstrained environments, *CIAR Neural Computation and Adaptive Perception Meeting, Toronto, Canada.*

Elder, J.H. (2004) Visual coding of contours, *Early Cognitive Vision Workshop*, Isle of Skye, Scotland.

Elder, J.H. (2003) Visual processing of contours, *Computational Neuroscientists of Upper Canada Meeting*, October 2003.

Elder, J.H. (2002) Ecological statistics of Gestalt laws for the perceptual organization of contours, *Gordon Research Conference on Sensory coding and the natural environment: Probabilistic models of perception*, Mount Holyoke College, MA, June 2002.

Invited Lectures

Elder, J.H. (2018) Adaptive Single-View 3D Scene Analysis, *Research Seminar, University of Ontario Institute of Technology, Oshawa, ON.*

Elder, J.H. (2017) Models of shape perception, *Vision Seminar Series, University of Pennsylvania, Philadelphia, PA.*

Elder, J.H. (2017) Perceptual organization of shape, *Loucks Lecture in the Neurophysiological Basis of Learning and Memory, Department of Psychology, University of Washington.*

Elder, J.H. (2017) Contours and the perceptual coding of images, *Graduate student lunch seminar, Department of Psychology, University of Washington.*

Elder, J.H. (2016) Adaptive Single-View 3D Scene Analysis, *School of Electronics Engineering and Computer Science, Peking University, China*

Elder, J.H. (2016) Single-View 3D Scene Analysis, *Faculty of Electronic Information and Electrical Engineering, Dalian University of Technology, China*

Elder, J.H. (2016) Single-View 3D Scene Analysis, *School of Remote Sensing and Information Engineering, Wuhan University, China*

Elder, J.H. (2016) Single-View 3D Scene Analysis, *School of Computing Science, Simon Fraser University, Burnaby, BC*

Elder, J.H. (2015) Visual perception: The ultimate big data problem, *Coast-to-Coast Seminar Series, Center for Interdisciplinary Research in the Mathematical and Computational Sciences, Simon Fraser University, Burnaby, BC.*

- Elder, J.H. (2015) Interdisciplinary research in biological and computer vision: Challenges and opportunities, *Center for Imaging Science, Rutgers Institute of Technology, New Brunswick, NJ.*
- Elder, J.H. (2015) Perceptual organization of shape, *Bristol Vision Institute, Bristol University, UK.*
- Elder, J.H. (2015) Perceptual organization of shape, *Craik Club Seminar, Cambridge University, UK.*
- Elder, J.H. (2013) Perceptual organization of shape, *Department of Computer Science, McGill University.*
- Elder, J.H. (2013) Perceptual organization of shape, *Centre for Perceptual Systems, University of Texas, Austin.*
- Elder, J.H. (2013) Dynamic activity mapping for sustainable urban environments, *York University CIVDDD Brownbag Seminar.*
- Elder, J.H. (2012) 3DTown: The automatic urban awareness project, *Digifest 2012, Toronto.*
- Elder, J.H. (2012) Perceptual organization of shape, *Centre for Vision Research, York University.*
- Elder, J.H. (2012) 3DTown: The automatic urban awareness project, *Ontario Association for Remote Sensing Dinner Meeting.*
- Elder, J.H. (2011) On grouping and formlets: The role of shape in perceptual organization, *University of Western Ontario Computer Science Seminar.*
- Elder, J.H. (2010) On growth and formlets: Sparse multi-scale coding of planar shape, *University of Toronto Computer Vision Seminar.*
- Elder, J.H. (2009) Perceptual segmentation of salient shapes, *Institut des Systèmes Intelligents et de Robotique, Université Pierre et Marie CURIE, Paris, France.*
- Elder, J.H. (2009) Perceptual segmentation of salient shapes, *Universite Paris Descartes, France.*
- Elder, J.H. (2009) Perceptual segmentation of salient shapes, *Max Planck Institute, Tubingen, Germany.*
- Elder, J.H. (2009) Perceptual segmentation of salient shapes, *CNRS- Université Paul Sabatier, Toulouse, France.*
- Elder, J.H. (2009) Attention is surprising, *Universite Paris Descartes, France.*
- Elder, J.H. (2008) Cities, jungles and contours, *Centre for Intelligent Machines, McGill University, Montreal, Canada.*
- Elder, J.H. (2008) Perceptual organization of contours, *Centre for Vision Science, University of Rochester, NY.*
- Elder, J.H. (2007) A geometric model of V1 neural selectivity, *Centre for Vision Research, York University.*
- Elder, J.H. (2005) Attentive people-finding, *GE Global Research, Schenectady, NY.*

- Elder, J.H. (2004) Statistical cue integration in human and machine vision, *Computer Science Department, University of Toronto, Canada.*
- Elder, J.H. (2003) Visual processing of contours, *Centre for Intelligent Machines, McGill University, Montreal, Canada.*
- Elder, J.H. (2003) Visual processing of contours, *Department of Psychology, University of California, Los Angeles.*
- Elder, J.H. (2003) Visual processing of contours, *Oxyopia Seminar Series, School of Optometry, University of California, Berkeley.*
- Elder, J.H. (2003) Psychophysical estimation of edge detection mechanisms, *Smith-Kettlewell Eye Research Institute, San Francisco, CA.*
- Elder, J.H. (2002) From edges to objects: visual processing of contours in human and machine, *University of Stirling.*
- Elder, J.H. (2002) From edges to objects: visual processing of contours in human and machine, *University of Aston Neurosciences Research Institute.*
- Elder, J.H. (2002) Are contours dead?, *University of Glasgow Psychology Department.*
- Elder, J.H. (2001) Computation of visual contours in natural and artificial vision systems *University of British Columbia Psychology Department.*
- Elder, J.H. (2001) Computation of visual contours in natural and artificial vision systems *McGill University Computer Science Department.*
- Elder, J.H. (2001) Computation of visual contours in natural and artificial vision systems *University of Toronto Computer Vision Seminar.*
- Elder, J.H. (2000) Are images one-dimensional? *Sarnoff Corporation, Princeton, NJ.*
- Elder, J.H. (2000) The ecology of image contours. *NEC Research Institute, Princeton, NJ.*
- Elder, J.H. (2000) Computational modeling of stereoacuity for binocularly uncorrelated (2nd order) stimuli: rectification is not enough. *McGill University Vision Research Seminar, Montreal, Canada.*
- Elder, J.H. (2000) Are images one-dimensional? *York University Department of Mathematics Colloquium and Applied Mathematics Seminar.*
- Elder, J.H. (1999) Are edges incomplete? *Dalsa Inc., Waterloo, Canada.*
- Elder, J.H. (1997). What is the right model for the local blurring of natural images? *York University Centre for Vision Research Lecture Series.*
- Elder, J.H. (1996). In defense of the contour code. *York University Centre for Vision Research Lecture Series.*

Elder, J.H. (1996). Computing contour closure. *Rutgers University Series on Human and Computer Vision, New Brunswick, New Jersey.*

Elder, J.H. (1995). Local and global problems in the visual processing of contour. *NEC Research Institute, Princeton, NJ.*

Elder, J.H. (1995). Local and global problems in the visual processing of contour. *Cambridge Basic Research, Cambridge, MA.*

Conference Demonstrations

3DTown: The automatic urban awareness project. *2011 GEOIDE Scientific Conference, Toronto.*

3DTown: The automatic urban awareness project. *2011 OCE Discovery Conference, Toronto.*

Three-dimensionalizing surveillance networks. *2009 GEOIDE Scientific Conference, Vancouver.*

Attentive panoramic sensing for visual telepresence. *2002 IRIS/PREARN Conference, Montreal.*

Foveated panoramic sensing. *2000 IRIS/PREARN Conference, Montreal.*

Patents

U.S. Patent 7,130,490, *Attentive panoramic visual sensor*, awarded October 31, 2006.

Canadian Patent #2,386,347, *Attentive panoramic visual sensor*, awarded September 5, 2012.

Print Media

Seeing Machines – York University’s Elder Lab is developing cameras that behave like the human eye. (2011, July 30). *The National Post*, p. A6. <http://news.nationalpost.com/2011/07/30/seeing-machines-developing-cameras-that-can-see-like-humans/#more-82570>

Broadcast Media

Not quite outer space but..., CBC News: Toronto (CBLT-TV) (2011, July 13).

Discussion with James Elder, Professor of Engineering and Psychology, York University... Here & Now (CBLA-FM). (2011, July 13).

Online Media

Ontario Centres of Excellence – Success Story. <http://www.oce-ontario.org/meet-our-companies/success-story/2012/01/09/dr.-james-elder>

Unmanned aerial vehicle taking a close look at York University – in 3D. York University Media Relations. <http://news.yorku.ca/2011/07/13/unmanned-aerial-vehicle-taking-a-close-look-at-york-university-%E2%88%92-in-3d/>

RESEARCH LEADERSHIP ACTIVITIES

Overview

I have spearheaded numerous multi-sector, interdisciplinary collaborative projects, and currently lead a 6-year \$1.65M CREATE Training Program involving 9 laboratories at 4 universities and 17 industry partners as well as a 5-year \$12M (\$4M cash) ORF-RE project involving 5 laboratories at two universities, 2 public sector and 7 industry partners. I maintain active collaborations with universities in the UK (Southampton University, Aston University) and the UK-based Visual Image Interpretation in Humans and Machines network (www.viihm.org.uk).

I have recently served on York University's Strategic Projects and Opportunities Review Team (SPORT), The Centre for Information Visualization and Data-Driven Design (CIVDDD) Executive Committee, the York University Centre for Vision Research (CVR) Steering Committee and currently serve on York's Vision: Science to Applications (VISTA) Partnerships Committee. I organized and chaired the 2015 CVR International Conference and am Co-Chair of the 2017 and 2018 Conference on Computer and Robot Vision.

I have served on the editorial boards for three international journals and many international conferences. I am currently on the Editorial Boards for *Journal of Vision* and *ACM Transactions on Applied Perception*.

Editorial Boards

<i>2008-present</i>	Editorial Board, <i>Journal of Vision</i>
<i>2007-2012</i>	Editorial Board, <i>IET Computer Vision</i>
<i>2014-2016</i>	Guest Editor, <i>Vision Research</i> , Special Issue on Vision and the Statistics of the Natural Environment
<i>2007</i>	Guest Editor, <i>Journal of Vision</i> , Special Issue on Perceptual Organization and Neural Computation
<i>2006</i>	Guest Editor, <i>Journal of Vision</i> , Special Issue on Finding Visual Features: Using Stochastic Stimuli to Discover Internal Representations
<i>2004- 2017</i>	Review Committee, Vision Sciences Society
<i>2003- present</i>	Editorial Board, <i>ACM Transactions on Applied Perception</i>

Conference Organization

- 2018 Program Co-Chair, Conference on Computer and Robot Vision, Toronto, ON
- 2017 Program Co-Chair, Conference on Computer and Robot Vision, Edmonton, AB
- 2017 Organizing Committee, Big Data and Information Analytics Conference, Toronto, ON
- 2017 Session Organizer & Chair, Annual Interdisciplinary Conference, Breckenridge, CO.
- 2016 Session Organizer & Chair, Annual Interdisciplinary Conference, Breckenridge, CO.
- 2015 Organizer and Chair, Big Data and Intelligent Transportation Systems Panel, EAI International Conference on Big Data and Analytics for Smart Cities, Toronto.
- 2015 Organizer and Chair, York University Centre for Vision Research International Conference on Perceptual Organization, Toronto.
- 2014 Session Organizer, Annual Interdisciplinary Conference, Jackson Hole, WY.
- 2013 Local Host, Configural Processing Consortium Meeting, Toronto.
- 2013 Co-Organizer, Sustainable Urban Models Augmentation Consortium (SUMAC) Meeting, Toronto.
- 2006 Organizer and Chair (with Jeff Siskind), 5th IEEE International Workshop on Perceptual Organization in Computer Vision, New York, NY.
- 2006 Session Organizer, Gordon Research Conference on Sensory Coding and the Natural Environment: Scene Statistics and Computer Vision
- 2005 Organizer, Natural Image Statistics and Applications Session, International Conference on Computational Vision in Neural and Machine Systems, Toronto, ON
- 2001 Organizer, Workshop on Enhanced and/or Synthetic Vision, Toronto Congress Centre

Conference Committees

- 2016 Member, Review Committee, IEEE Computer Society International Conference on Computer Vision and Pattern Recognition (CVPR), Las Vegas, Nevada
- 2016 Member, Program Committee, Computer and Robot Vision Conference (CRV), Victoria, BC
- 2015 Member, Program Committee, Computational Models of the Visual Cortex (CMVC), New York
- 2015 Member, Review Committee, Neural Information Processing Systems (NIPS), Montreal
- 2015 Member, Review Committee, IEEE Computer Society International Conference on Computer Vision (ICCV), Chile
- 2015 Member, Review Committee, CogSci 2015, Pasadena, CA.

- 2015 Member, Program Committee, Computer and Robot Vision Conference (CRV), Halifax, NS
- 2015 Member, Review Committee, IEEE Computer Society International Conference on Computer Vision and Pattern Recognition (CVPR), Boston, Mass
- 2014 Member, Review Committee, Neural Information Processing Systems (NIPS), Montreal
- 2014 Member, Review Committee, European Conference on Computer Vision (ECCV), Zurich, Switzerland
- 2014 Member, Program Committee, Computer and Robot Vision Conference (CRV), Montreal, Quebec
- 2014 Member, Review Committee, IEEE Computer Society International Conference on Computer Vision and Pattern Recognition (CVPR), Columbus, Ohio
- 2013 Member, Review Committee, Neural Information Processing Systems (NIPS), Lake Tahoe
- 2013 Member, Review Committee, IEEE Computer Society International Conference on Computer Vision (ICCV), Australia
- 2013 Member, Program Committee, Canadian Conference on Computer and Robot Vision (CRV), Regina.
- 2013 Member, Program Committee, IEEE Computer Society International Conference on Computer Vision and Pattern Recognition (CVPR), Portland, Oregon
- 2012 Member, Review Committee, Neural Information Processing Systems (NIPS), Lake Tahoe.
- 2012 Member, Review Committee, European Conference on Computer Vision (ECCV), Florence.
- 2012 Member, Program Committee, Canadian Conference on Computer and Robot Vision (CRV), Toronto.
- 2012 Member, Program Committee, IEEE Computer Society International Conference on Computer Vision and Pattern Recognition (CVPR), Rhode Island
- 2011 Member, Programme Committee, Applied Perception in Graphics and Visualization (APGV), Toulouse
- 2011 Member, Programme Committee, Canadian Computer and Robot Vision Conference (CRV), St. John's, Newfoundland
- 2011 Member, Review Committee, IEEE Computer Society International Conference on Computer Vision and Pattern Recognition (CVPR), Colorado Springs
- 2010 Member, Review Committee, European Conference on Computer Vision (ECCV), Crete, Greece
- 2010 Member, Programme Committee, Applied Perception in Graphics and Visualization (APGV), Los Angeles
- 2010 Member, Review Committee, IEEE Computer Society International Conference on Computer Vision and Pattern Recognition (CVPR), San Francisco, CA

- 2009 Member, Review Committee, Neural Information Processing Systems (NIPS), Vancouver, Canada
- 2009 Member, Review Committee, International Conference on Computer Vision (ICCV), Kyoto, Japan
- 2009 Member, Review Committee, IEEE Computer Society International Conference on Computer Vision and Pattern Recognition (CVPR), Miami, FL
- 2009 Member, Programme Committee, Applied Perception in Graphics and Visualization (APGV), Crete, Greece
- 2009 Member, Programme Committee, Canadian Conference on Computer and Robot Vision (CRV), Kelowna, BC
- 2008 Member, Programme Committee, Neural Information Processing Systems (NIPS), Vancouver, Canada
- 2008 Member, Programme Committee, European Conference on Computer Vision (ECCV), Marseille, France
- 2008 Member, Programme Committee, IEEE Computer Society International Conference on Computer Vision and Pattern Recognition (CVPR), Anchorage, AL
- 2008 Member, Programme Committee, Applied Perception in Graphics and Visualization (APGV), Los Angeles, CA
- 2008 Member, Programme Committee, IEEE Computer Society Conference on Perceptual Organization in Computer Vision (POCV), Anchorage, AL
- 2008 Member, Programme Committee, Canadian Conference on Computer and Robot Vision (CRV), Windsor
- 2007 Member, Programme Committee, Workshop on Interactive Computer Vision, Rio de Janeiro, Brazil
- 2007 Member, Programme Committee, IEEE Computer Society International Conference on Computer Vision and Pattern Recognition (CVPR), Minneapolis, MN
- 2007 Member, Programme Committee, Symposium on Applied Perception in Graphics and Visualization (APGV), Tübingen, Germany
- 2007 Member, Programme Committee, Canadian Conference on Computer and Robot Vision (CRV), Montreal
- 2006 Member, Programme Committee, Symposium on Applied Perception in Graphics and Visualization (APGV), Boston, Mass.
- 2006 Member, Programme Committee, IEEE Computer Society International Conference on Computer Vision and Pattern Recognition (CVPR), New York, NY
- 2006 Member, Programme Committee, European Conference on Computer Vision (ECCV), Graz, Austria
- 2006 Member, Programme Committee, Canadian Conference on Computer and Robot Vision (CVPR), Quebec City

- 2005 Member, Programme Committee, IEEE International Conference on Computer Vision (ICCV), Beijing, China
- 2005 Member, Programme Committee, Symposium on Applied Perception in Graphics and Visualization (APGV), A Coruna, Spain
- 2005 Member, Programme Committee, IEEE Computer Society International Conference on Computer Vision and Pattern Recognition (CVPR), San Diego, CA
- 2005 Member, Programme Committee, Canadian Conference on Computer and Robot Vision (CRV), Victoria, BC
- 2004 Member, Programme Committee, ACM SIGGRAPH Symposium on Applied Perception in Graphics and Visualization (APGV), Los Angeles, CA
- 2004 Member, Programme Committee, IEEE Computer Society International Conference on Computer Vision and Pattern Recognition (CVPR), Washington, DC
- 2004 Member, Programme Committee, IEEE Workshop on Perceptual Organization in Computer Vision (POCV), Washington, DC
- 1999 Member, Programme Committee, 7th IEEE International Conference on Computer Vision (ICCV), Corfu, Greece
- 1997-2003 Human Performance in an Aerospace Environment Theme Committee, Centre for Research in Earth and Space Technology

Panels

- 2018 Student and Postdoc Workshop: Getting that Faculty Job, Vision Sciences Society Meeting, St. Pete Beach, FL
- 2017 Expert Discussion Panel, Workshop on Mutual Benefits of Cognitive and Computer Vision, International Conference on Computer Vision (ICCV), Venice, Italy
- 2017 Expert Discussion Panel, WA Challenge: Detecting Symmetry in the Wild, International Conference on Computer Vision (ICCV), Venice, Italy
- 2008 U.S. Department of Energy Pacific Northwest National Laboratory Proliferation Deterrence Merit Review for Project PDP06-43, *Image Recognition and Classification Based on Object Parts*, Temple University, Philadelphia, PA

External Tenure, Promotion and Endowed Chair Reviews

- 2017 University of Ottawa
- 2017 University of California, Irvine
- 2016 University of California, Los Angeles
- 2013 Concordia University, Montreal

2009 City University of New York
2008 University of Western Ontario
2007 University of California, Berkeley

Grants Refereed

Human Frontier Science Program
NSF Grants
NSF Career Grants
NSERC Discovery Grants
FCAR Collaborative Grants

Publications Refereed

ACM SIGGRAPH
ACM Transactions on Applied Perception
Acta Psychologica
Brain Research
Cognitive Psychology
Computer Vision and Image Understanding
Current Biology
European Conference on Visual Perception
IEEE Conference on Computer Vision and Pattern Recognition
IEEE Signal Processing Letters
IEEE Transactions on Image Processing
IEEE Transactions on Pattern Analysis and Machine Intelligence
IEEE Transactions on Systems, Man and Cybernetics
Image and Vision Computing
Institution of Engineering and Technology Image Processing
International Conference on Computer Vision
International Conference on Pattern Recognition
International Joint Conference On Artificial Intelligence
International Journal of Computer Vision
Journal of Cognitive Neuroscience
Journal of Neurophysiology
Journal of the Optical Society of America
Journal of Vision
Network: Computation in Neural Systems

Neural Computation

Neural Information Processing Systems

Perception

Perception & Psychophysics

PLOS Computational Biology

Proceedings of the National Academy of Sciences

Psychological Review

Psychological Science

Psychonomic Bulletin & Review

Scientific Reports

Seeing and Perceiving (formerly Spatial Vision)

Vision Interface

Vision Research

Vision Sciences Society

Professional Associations

Licensed Professional Engineer, Professional Engineers Ontario

Member, Institute for Electrical and Electronic Engineers (IEEE)

Member, IEEE Computer Society

TRAINING AND SUPERVISORY EXPERIENCE**Undergraduate Level*****Courses Taught***

2017-2018	EECS 2011Z.3	Fundamentals of Data Structures
2015-2016	EECS 2011E.3	Fundamentals of Data Structures
2014-2015	EECS 2011Z.3	Fundamentals of Data Structures
2013-2014	CSE 4404A.3	Introduction to Machine Learning and Pattern Recognition
2013-2014	CSE 2011Z.3	Fundamentals of Data Structures
2012-2013	PSYC 3031A.3	Intermediate Statistics Laboratory
2012-2013	CSE 4404A.3	Introduction to Machine Learning and Pattern Recognition
2011-2012	CSE 4404A.3	Introduction to Machine Learning and Pattern Recognition
2011-2012	CSE 2011Z.3	Fundamentals of Data Structures
2009-2010	CSE 2011Z.3	Fundamentals of Data Structures
2008-2009	CSE 3101Z.3	Design and Analysis of Algorithms
2007-2008	CSE 3101E.3	Design and Analysis of Algorithms
2006-2007	CSE 3101B.3	Design and Analysis of Algorithms
2003-2004	CSE 3101N.3	Design and Analysis of Algorithms
2001-2002	PSYC 3510D.3	Special Topics: Psychophysics and Computers
2000-2001	PSYC 3510D.3	Special Topics: Psychophysics and Computers
1999-2000	PSYC 3510D.3	Special Topics: Psychophysics and Computers
1997-1999	PSYC 2022M.3	Introduction to Inferential Statistics
1996-1998	PSYC 2020C.6	Introduction to Psychological Data

Courses Developed

2011-2012	CSE 4404	Introduction to Machine Learning and Pattern Recognition
1999-2000	PSYCH 3510	Special Topics: Psychophysics and Computers

Invited Lectures

2016-2017	NSERC CREATE Data Analytics & Visualization Summer School
2011-2012	CSE 1001 Research Directions in Computing
2007-2016	York CVR Vision Science Summer School

Undergraduate Honours Theses, Independent Readings and Senior Projects

Dates	Name	Thesis / Project Title	Current Position
2016-2017	Juan Loja, Aman Wallia, Tangeena Islam	<i>Embedded Eye</i>	<i>Undergraduate Students, York University</i>
2016-2017	Kristen McIntosh	<i>Endogenous and exogenous attention in serial and parallel search</i>	<i>Undergraduate Student, York University</i>
2013-2014	Yuen Lau, Marcin Matynia	<i>Operational transformation software</i>	<i>Co-founder, UniSwipe Software Developer Intern, Blackberry</i>

2011- 2012	Albert VanderMeulen	<i>Automatic picture book generator</i>	<i>Senior Software Engineer, SiteScout</i>
2011- 2012	Galina Goren	<i>Psychophysical methods for studying feedback in the object pathway</i>	<i>Master's Student, York University</i>
2010- 2011	Alex Yakubovich	<i>Accelerating formlet-based representations of shape</i>	<i>Master's Student, York University</i>
2009- 2010	Thomas Young	<i>Low cost three dimensional face scanning system</i>	<i>Master's Student, York University</i>
2008- 2009	Kiret Dhindsa	<i>Boosting methods for the estimation of geometric receptive field models of V1 neurons</i>	<i>PhD Candidate, McMaster University</i>
2007- 2008	Aryan Kamyab	<i>Selectivity of exogenous attention mechanisms for facial cues</i>	
2007- 2008	Brent Ruston	<i>Low-cost 3D face scanning system</i>	<i>Lawyer, Associate, Anderson MacKeigan LLP, Toronto</i>
2006- 2007	Dahlia Balaban	<i>Probing visual attention in natural images</i>	<i>Family Medicine Resident, Mount Sinai Hospital, Toronto</i>
2005- 2006	Shree Kargutkar	<i>Spatial attention and natural images</i>	<i>Research Analyst, Sprott Asset Management</i>
2004- 2005	Sharmistha Chaudhuri	<i>Estimating orientation in natural images</i>	<i>Lead Software Engineer, GE Healthcare</i>
2004- 2005	Miro Kuc	<i>Efficient models of natural 2D shapes</i>	<i>Programmer Analyst, Molson Coors Canada, Great Lakes Fishery</i>
2003- 2004	Deepak Lakra	<i>Top-down effects on brightness perception</i>	
2003- 2004	Mikhail Sizintsev	<i>Face detection for attentive wide-field sensor</i>	<i>Computer Scientist, SRI International Sarnoff</i>
2002- 2003	Yubin Liao	<i>Velocity control for attentive panoramic sensor</i>	
2002- 2003	Xin Liu	<i>Face detection for attentive panoramic sensor</i>	
2001- 2002	Yaniv Morgenstern	<i>Visual detection efficiency of curvilinear patterns of oriented elements in clutter</i>	<i>Postdoctoral Fellow, Duke-NUS Graduate Medical School</i>
2000- 2001	Yaniv Morgenstern	<i>Visual detection efficiency of curvilinear dot patterns in clutter</i>	<i>Postdoctoral Fellow, Duke-NUS Graduate Medical School</i>
1999- 2000	Aarlenne Khan	<i>Effects of visual eccentricity on visual recall.</i>	<i>Postdoctoral Fellow, Queen's University</i>
1999- 2000	Natasha Martin	<i>Perceptual factors in visual telepresence</i>	
1999- 2000	Philip Jaekl	<i>Visual fusion and surface attitude judgements of transparent textured surfaces</i>	<i>Postdoctoral Fellow, University of Rochester</i>

1999-2000	Carl Gaspar	<i>Comparison of task and psychophysical methodology in estimating the efficiency of visual edge detection</i>	
1998-1999	Dmitry Beniaminov	<i>Characterizing uncertainty in visual edge classification</i>	Senior Manager of Digital Operations, St. Joseph Media
1998	Linda Ku	<i>Contour-based image compression: Huffman encoding and reconstruction of a line segment representation</i>	
1999	Branka Otasevic	<i>Contour-based image compression: spline encoding of photometric contour properties</i>	IT Solution Developer , TD Bank
1998	Branka Otasevic	<i>Contour-based image compression: encoding and reconstruction from uniform B-spline models</i>	IT Solution Developer , TD Bank
1997	Rick Goldberg	<i>A novel contour-based image editing system</i>	Human Factors Specialist, IBM
1996-1997	Scott Best	<i>Classifying contours in natural images</i>	

NSERC and Lassonde Undergraduate Summer Research Award Students

2018	Michael Dowling	<i>Application of Attentive Sensing to Sports Videography</i>	<i>Undergraduate student, Queen's University</i>
2018	Hengchao Xiang	<i>Single-View 3D Perception in Humans and Machines</i>	<i>Undergraduate student, York University</i>
2018	Benjamin Correia	<i>Embedded Attentive Sensing</i>	<i>Undergraduate student, York University</i>
2018	David Yan	<i>Feedback in Hierarchical Grouping Models</i>	<i>Undergraduate student, York University</i>
2018	Connor Dear	<i>Video Analytics for Highway Traffic Management</i>	<i>Undergraduate student, York University</i>
2018	Raghev Abunahla	<i>Single-view 3D reconstruction of buildings using the Manhattan constraint</i>	<i>Undergraduate student, York University</i>
2016	Juan Loja	<i>Smooth pursuit for traffic video systems</i>	<i>Undergraduate student, York University</i>
2016	Amanpreet Walia	<i>A new dual-mirror attentive sensor</i>	<i>Undergraduate student, York University</i>
2016	Praise Ayorinde	<i>Virtualized & integrated video analytics (VIVA)</i>	<i>Undergraduate student, York University</i>
2016	Sherief Aboelaze	<i>Attentive sensing for sports videography</i>	<i>Undergraduate student, York University</i>

2016	Kristen Mcintosh	<i>Integration of endogenous and exogenous attention</i>	<i>Undergraduate student, York University</i>
2015	Ryan Dowling	<i>Hardware and control for attentive tracking system</i>	<i>Undergraduate student, Queen's University</i>
2015	Juan Loja	<i>Algorithms and software for attentive tracking system</i>	<i>Undergraduate student, York University</i>
2015	Amanpreet Walia	<i>Embedded computing for attentive tracking system</i>	<i>Undergraduate student, York University</i>
2013	Yuping Lin	<i>Evaluating trackers for sports video</i>	<i>Graduate student, York University</i>
2012	Yuen Lau	<i>Occupancy measurement using the Kinect sensor</i>	<i>Co-founder, UniSwipe</i>
2011	Herman Badwal	<i>Pedestrian tracking</i>	<i>Software developer, IBM Canada</i>
2010	Alex Yakubovich	<i>Accelerating formlet-based representations of shape</i>	<i>Data Scientist, Uken Games</i>
2009	Alex Yakubovich	<i>Unsupervised calibration of pan/tilt/zoom highway cameras</i>	<i>Data Scientist, Uken Games</i>
2008	Owais Khan	<i>Supervised learning for target detection and contour grouping</i>	<i>Design Engineer, Evertz</i>
2006	Hassan Masoom	<i>Streaming video from an attentive wide-field sensor</i>	<i>Medical Student, University of Toronto</i>
2005	Wendy Ng	<i>High-level determinants of brightness perception</i>	<i>Medical Resident, Plastic Surgery, McMaster University</i>
2005	Ivan Makarenka	<i>3D facial shape estimation and rendering</i>	<i>Software Engineer, IBM Toronto</i>
2005	Marie Jacob	<i>Modeling 2D shape projections</i>	<i>PhD student, University of Pennsylvania</i>
2003	Michael Sizintsev	<i>Face detection for attentive panoramic sensor</i>	<i>Computer Scientist, SRI International Sarnoff</i>
2002	Yubin Liao	<i>Attentive panoramic sensor design for remote learning application</i>	
2002	Xin Liu	<i>Automatic face detection for remote learning</i>	

Research at York (RAY) Undergraduate Students

2018	Fei Fei Zheng	<i>Real-Time 3D Visualization of Crowd Dynamics</i>	<i>Undergraduate Student, York University</i>
2017-2018	Jun Cheng	<i>Application of Attentive Sensing to Distance Learning</i>	<i>Undergraduate Student, York University</i>

2017-2018	Konstantin Bolshakov	<i>Attentive Sensor 3.2</i>	<i>Undergraduate Student, York University</i>
2016-2017	Kevin Joseph	<i>Estimating Coarse 3D Shape from the Bounding Contour</i>	<i>Undergraduate Student, York University</i>
2016-2017	Kartikeya Bhargava	<i>Attentive sensor time synchronization</i>	<i>Undergraduate Student, York University</i>
2012	Oyinda Daramola	<i>Improvements to PictureBook</i>	<i>Undergraduate Student, York University</i>

International Visiting Undergraduate Students

2016-2017	Yuchi Ma	EECS	<i>Wuhan University</i>
Sept-Dec 2014	Mandy Chan	Psychology	<i>Beijing University</i>
Jun-Aug 2013	Ruozhu Li	EECS	<i>University of Electronic Science and Technology of China</i>
May-Jul 2011	Vishal Kumar	EECS	<i>IIT Kharagpur, India</i>

Undergraduate Research Assistants

2017-2018	Jun-Lin Chen	EECS	<i>Web client/server software for Attentive Sensor AS4.1</i>
2017-2018	Konstantin Bolshakov	EECS	<i>Hardware for Attentive Sensor AS3.1</i>
2015-2016	Juan Loja	EECS	<i>Fast attentive sensing for smooth pursuit</i>
2014-2015	Kartikeya Bhargava	EECS	<i>Attentive sensor system software port</i>
2014	Mingbin Xu	EECS	<i>Computer vision software and dataset repository</i>
2003-2004	Christina Habberjam	Fine Arts	<i>Webmaster, Graphic Designer and Laboratory Librarian</i>
2001-2002	Ingrid Verhoecx	Psychology	<i>Organization of literature database</i>
2000-2001	Jazmine Orprecio	Psychology	<i>Organization of literature database</i>
2000	Joe Amati	Psychology	<i>Visual fusion and surface attitude judgements of transparent textured surfaces</i>
1999-2000	Michael Marder	Psychology	<i>Organization of literature database</i>
1998	Miriam Kuruvilla	Computer Science	<i>Extension of adaptive psychophysical threshold measurement software</i>
1998	Richard Platel	Computer Science	<i>Development of software for a psychophysical investigation of texture fusion.</i>
1998	Nicholas Toth	Computer Science	<i>Development of software for measuring psychophysical thresholds using the Quest procedure in a Linux environment</i>
1997-1998	Stanislav Winitzky	Computer Science	<i>Software development for contour-based image compression.</i>
1997-1998	Don MacLean	Psychology	<i>Psychophysical investigation of contour classification.</i>

1996-1998 Greg Pinter Computer
Science

A Khoros-based system for visual psychophysics

Graduate Level***Graduate Program Affiliations***

Member, Graduate Program in Electrical Engineering and Computer Science, York University

Member, Graduate Program in Psychology, York University

Associate Member, Graduate Program in Mathematics & Statistics, York University

Courses Taught

2017-2018	PSYC 6256M	Principles of Neural Coding
2014-2015	CSE 6390D/ PSYC 6750B	Computational Modeling of Visual Perception
2014-2015	PSYC 6228	Applications in Vision Science
2013-2014	CSE 5327A	Introduction to Machine Learning and Pattern Recognition
2012-2013	CSE 6390D/ PSYC 6750B	Computational Modeling of Visual Perception
2012-2013	PSYC 6256M	Principles of Neural Coding
2012-2013	CSE 5327A	Introduction to Machine Learning and Pattern Recognition
2011-2012	CSE 5327A	Introduction to Machine Learning and Pattern Recognition
2010-2011	PSYC 6256M	Principles of Neural Coding
2010-2011	CSE 6390D/ PSYC 6750B	Computational Modeling of Visual Perception
2008-2009	CSE 6400	Computer Engineering Research Project
2008-2009	PSYC 6130C	Univariate Analysis
2008-2009	CSE 6400	Computer Engineering Research Project
2008-2009	PSYC 6130C	Univariate Analysis
2007-2008	CSE 6390D/ PSYC 6750B	Computational Modeling of Visual Perception
2006-2007	PSYC 6130A	Univariate Analysis
2005-2006	PSYC 6130A	Univariate Analysis
2005-2006	CSE 6390D/ PSYC 6750B	Computational Modeling of Visual Perception
2003-2004	CSE 6390D/ PSYC 6750B	Computational Modeling of Visual Perception
2001-2002	PSYC 6750B	Computational Modeling of Visual Perception
1999-2000	PSYC 6750B	Computational Modeling of Visual Perception

Courses Developed

2011-2012	CSE 5327A	Introduction to Machine Learning and Pattern Recognition
2010-2011	PSYC 6526M	Principles of Neural Coding
1999-2000	PSYC 6750B	Special Topics: Computational Modeling of Visual Perception

Invited Lectures

2014	Perceptual Organization Summer School, Leuven, Belgium
2012	Computational Vision Summer School, Tübingen, Germany
2012-2013	BIOL 5149 Applications in Vision Science: Attentive Sensing
2008	Canadian Institute for Advanced Research Programme in Neural Computation and Adaptive Perception Summer School

Graduate Student Supervision

Dates	Name	Degree	Program	Thesis	Current Position
<i>Sept 2017-</i>	Maryam Taheri-Shirazi	MASc	EECS	TBD	
<i>Sept 2016-</i>	Po Wu	MSc	EECS	TBD	
<i>Sept 2016-</i>	Hemanth Pidaparthu	PhD	EECS	TBD	
<i>Sept 2016-</i>	Gong Cheng	PhD	EECS	TBD	
<i>Sept 2015-</i>	Yiming Qian	PhD	EECS	TBD	
<i>Sept 2014-</i> <i>Aug 2016</i>	Nada el Assal	MSc	CSE	Unsupervised methods for camera pose estimation and people counting in crowded scenes (Nominated for thesis award)	Data Scientist, Miovision, Waterloo
<i>Sept 2011-</i> <i>Oct 2014</i>	Alex Yakubovich	MA	Math	Extensions of the formlet model of planar shape (Nominated for thesis award)	Quantitative Analyst, Google, USA
<i>Sept 2008-</i> <i>Mar 2018</i>	Eduardo Corral Soto	Ph.D.	CSE	Single-View 3D Traffic Analytics	PhD Candidate, York
<i>Sept 2008-</i> <i>Jul 2011</i>	Charles Mander	MA	Psych	Differential modulation of parallel and serial search by exogenous and endogenous attention	
<i>Sept 2008-</i> <i>Nov 2010</i>	Tim Oleskiw	MSc	CSE	Multiscale representations for object boundary shape (Nominated for thesis award)	Postdoctoral Fellow, NYU, USA
<i>Sept 2008-</i> <i>Apr 2011</i>	Ron Tal	M.A.Sc	CSE	Line-based single-view methods for estimating 3D camera orientation	Software Engineer, Uber, USA
<i>Sept 2006-</i> <i>Apr 2015</i>	Vida Movahedi	PhD	CSE	Computational methods and measures for contour grouping (Nominated for thesis award)	Professor, Seneca College, Toronto
<i>Sept 2005-</i> <i>Jul 2008</i>	Patrick Denis	MSc	CSE	Efficient edge-based methods for estimating Manhattan frames in urban imagery (Winner of the 2008 York Faculty of Graduate Studies Thesis Award)	Computer Vision Scientist, TamGam Systems, Waterloo
<i>Sept 2002-</i> <i>Aug 2004</i>	Aaron Clarke	MA	Psych	Ecological statistics of natural image contours (Nominated for thesis award)	Professor, Bilkent University, Turkey

James H. Elder

<i>Sept 2002- Aug 2004</i>	Yaniv Morgenstern	MA	Psych	Effects of noise on visual detection mechanisms	Postdoctoral Fellow, University Giessen, Germany
<i>Sept 2000- Apr 2003</i>	Joseph Amati	MA	Psych	The perception of 3D transparent textured surfaces	Senior Manager, Loblaw
<i>Sept 1998- Apr 2008</i>	Lily Velisavljevic	PhD	Psych	Scene perception in a glance	Res. Assoc., University of Toronto
<i>Sept 1998- May 2001</i>	Adam Sachs	MSc	Math	Estimating the psychophysical receptive fields of edge detection mechanisms (Nominated for thesis award)	Asst. Professor, Bran and Mind Research Institute, University of Ottawa
<i>May 1997- Feb 2002</i>	Richard Goldberg	MSc	CSE	Image editing in the contour domain (Nominated for thesis award)	Human Factors Specialist, IBM

Graduate Student Projects

<i>2015- 2016</i>	Cyan Kuo	EECS 6400.6		Biologically-inspired algorithms for smooth pursuit	M.A.Sc. student, York University
<i>2001- 2002</i>	Kathleen Smith	PSYC 6710.3		The design of psychophysical experiments using MATLAB	Postdoctoral Fellow, University of Sussex Falmer, UK
<i>2001- 2002</i>	Marie Arsalidou	PSYC 6710.3		The design of psychophysical experiments using MATLAB	Asst. Professor, National Research University Higher School of Economics, Russia

International Visiting Graduate Students

<i>Apr-Aug 2018</i>	Yue Wang	Computer Science		Dalian University of Science & Technology	
<i>Jun-Aug 2011</i>	Qi-Zhi Xu	Computer Science and Engineering		Beihang University, Beijing, China	Postdoctoral Fellow, University of New Brunswick
<i>Jul 2009- Jul 2010</i>	Taeyoon Lee	Computer Science and Engineering		Inha University, Seoul, South Korea	Senior Researcher, Korea Aerospace Research Institute

Postdoctoral Fellows

		Current Position
<i>Mar 2018-</i>	Kedarnath Vilankar	VISTA Postdoctoral Fellow, York University
<i>Feb 2018-</i>	Yuke Li	VISTA Postdoctoral Fellow, York University
<i>Oct 2017-</i>	Michaël Clément	Postdoctoral Fellow, York University
<i>Aug 2017-</i>	Pio Claudio	Postdoctoral Fellow, York University
<i>Sept 2016-</i>	Krista Ehinger	VISTA Postdoctoral Fellow, York University
<i>Jun 2016-</i>	Khalid Yousif	Software Engineer, Faraday Future, USA
<i>Dec 2017</i>		
<i>Dec 2014-</i>	Emilio Almazan	Computer Vision Scientist, Nielsen, Madrid, Spain
<i>Dec 2015</i>		
<i>Sept 2012-</i>	Ingo Fründ	Asst. Professor, York University
<i>Aug 2015</i>		
<i>Nov 2011-</i>	Jan Drewes	Postdoctoral Fellow, Centro Interdipartimentale
<i>Apr 2013</i>		Mente/Cervello, Rovereto, Italy
<i>Jan 2005-</i>	Francisco Estrada	Lecturer, Dept. of Computer and Mathematical Sciences,
<i>May 2007</i>		University of Toronto at Scarborough
<i>Feb 2004-</i>	Simon Prince	Research Scientist, Anthropic Technology Ltd, UK
<i>Aug 2005</i>		
<i>Apr 2002-</i>	Leigh Johnston	Senior Lecturer, Dept of Biomedical Engineering,
<i>Oct 2004</i>		University of Melbourne, Australia
<i>Jan 2001-</i>	Fadi Dornaika	Charge de Recherche, Institut Geographique National,
<i>Apr 2002</i>		Paris, France
<i>Aug 1999-</i>	Rob Reeves	
<i>Jul 2001</i>		
<i>May 1999-</i>	Manickam Umasuthan	Systems Engineer, MDA Space Missions, Toronto
<i>Mar 2000</i>		
<i>Aug 1999-</i>	Yuquian (Bob) Hou	Senior Research Scientist, Centre for Vision Research,
<i>Aug 2000</i>		York University

Visiting Sabbaticants

<i>Jul 2009-</i>	Taejung Kim	Geomatics	Inha University, Seoul, South Korea
<i>Jul 2010</i>		Engineering	
<i>Jul 2008-</i>	Wendy Adams	Psychology	University of Southampton, UK
<i>Jul 2009</i>			

<i>Jul 2008- Jul 2009</i>	Erich Graf	Psychology	University of Southampton, UK
<i>Jul 1999 – Jun 2000</i>	Amnon Krupnik	Geomatics Engineering	Technion, Israel

Research Scientists & Engineers

			Current Position
<i>Jul 2017-</i>	Attila Gall		Senior Software Engineer, York University
<i>Jul 2017-</i>	Kartikeya Bhargava		Software Engineer, York University
<i>2014</i>	Nada el-Assal		Data Scientist, Miovision, Waterloo
<i>Jun 2008- Mar 2009</i>	Toufiq Paraq		Bioinformatics Specialist, Janelia Farm Research, VA, USA
<i>Sept 2000-</i>	Yuqian (Bob) Hou		Senior Research Scientist, York University
<i>Nov 2000- Jun 2003</i>	Ronen Goldstein		RBC Capital Markets
<i>May 1999- July 2000</i>	Gregory Wu		Technical Staff, Physics Computing Services, University of Toronto

Program & Project Managers

			Current Position
<i>Jul 2017-</i>	Khaing Khaing Lin		Project Manager, ISSUM
<i>May 2016-</i>	Irina Kapsh		Program Manager, NSERC CREATE DAV

Supervisory and Internal Examining Committees

<i>2018- Present</i>	Svetozar Valtchev	Ph.D.	Mathematics & Statistics	Supervisory Committee
<i>2017- Present</i>	Sanjida Sharmin Mohona	M.A.Sc	Electrical Engineering & Computer Science	Supervisory Committee
<i>2017</i>	Ronda Lo	M.A.	Psychology	Examining Committee
<i>2015</i>	Junjie Zhang	Ph.D.	Earth and Space Science & Engineering	Examining Committee
<i>2014- Present</i>	Steffen Lindenthal	Ph.D.	Earth and Space Science & Engineering	Supervisory Committee

2014-2015	Glen Berseth	M.Sc.	Computer Science & Engineering	Examining Committee
2014-Present	Hongming Huai	Ph.D.	Computer Science & Engineering	Supervisory Committee
2014-2017	Hengyue Pan	Ph.D.	Computer Science & Engineering	Supervisory Committee
2013-2015	Matthew Balcarras	M.Sc.	Biology	Supervisory Committee
2013	Michael Veksler	M.Sc.	Biology	Examining Committee
2012	Martin Dimkovski	M.Sc.	Computer Science & Engineering	Examining Committee
2012	Yao Zhang	M.Sc.	Computer Science & Engineering	Supervisory Committee
2012-2014	Ravi Persad	M.Sc.	Earth, Space Science & Engineering	Examining Committee
2011-2012	Adrian Bartlett	M.A.	Psychology	Examining Committee
2011-2012	Wei Gao	Ph.D.	Computer Science	Examining Committee
2011-2013	Larry Wang	Ph.D.	Earth, Space Science & Engineering	Research Evaluation Committee
2011-2015	Chao Luo	Ph.D.	Earth, Space Science & Engineering	Research Evaluation Committee
2009-2013	Inna Tsirlin	Ph.D.	Psychology	Supervisory Committee
2009-2012	Yaniv Morgenstern	Ph.D.	Psychology	Supervisory Committee
2009	Kevin MacKenzie	Ph.D.	Psychology	Supervisory Committee
2009	Muna Shabaneh	M.Sc.	Computer Science	Examining Committee
2008	Nicole Daniels	M.Sc.	Biology	Outside Examiner
2007	Steve Liang	Ph.D.	Earth and Atmospheric Sciences	Supervisory Committee
2006	Olena Borzenko	M.Sc.	Computer Science	Outside Examiner
2006	Gerald Keith	Ph.D.	Psychology	Supervisory Committee
2006	Hoda Dehmeshki	Ph.D.	Computer Science	Supervisory Committee
2006	Helen Karpouzos	M.A.	Psychology	Supervisory Committee
2005	Peter Carr	M.Sc.	Computer Science	Outside Examiner
2005	Wei Xu	M.Sc.	Computer Science	Outside Examiner

2005	Andrejs Vorozcovs	M.Sc.	Computer Science	Outside Examiner
2005	Ji-Young Oh	PhD	Computer Science	Outside Examiner
2004	Gerald Keith	M.A.	Psychology	Supervisory Committee
2003	Michael Vesia	M.Sc.	Kinesiology	Outside Examiner
2002	Steve Prime	M.A.	Psychology	Supervisory Committee
2002	Slava Konovalova	M.Sc.	Biology	Supervisory Committee
2001	Patrick Zhao	M.Sc.	Computer Science	Outside Examiner
2001	Marie Bomba	M.Sc.	Kinesiology & Health Science	Outside Examiner
2001	Ho-Kong Ng	M.Sc.	Computer Science	Outside Examiner
2000	Paul Doerfling	M. A.	Kinesiology & Health Science	Dean's Representative
2000	Michael Smith	Ph.D.	Psychology	Supervisory Committee
1999	Gang Hu	M.Sc.	Biology	Outside Examiner
1999	Melike Ceylon	M.A.	Psychology	Supervisory Committee
1998	Anthony Singhal	M.A.	Kinesiology & Health Science	Outside Examiner
1998	King-Yuen Wong	M.Sc.	Computer Science	Dean's Representative
1998	Eliana Klier	M.Sc.	Biology	Outside Examiner
1997	Benjamin Wong	M.Sc.	Computer Science	Outside Examiner
1997	Michael Smith	M.A.	Psychology	Supervisory Committee
1997	Ann Lindeis	Ph.D.	Psychology	Supervisory Committee

External Examinations

- 2018 Sochor, J. *Automatic Traffic Video Surveillance: Fine-Grained Recognition of Vehicles and Automatic Speed Measurement*, PhD thesis, Brno University of Technology, Czech Republic.
- 2013 Nakaguro, Y. *Application of quadratic snakes to segmentation of complex shaped objects*, PhD thesis, Sirindhorn International Institute of Technology, Thailand.
- 2011 Liu, Y. *A Problem in Graphics and Vision via Graph-Cut based Energy Optimization*, PhD thesis, Department of Computer Science, University of Western Ontario
- 2011 Taylor, C. *On the summation of visual noise*, PhD thesis, Department of Psychology, Neuroscience & Behaviour, McMaster University
- 2010 Levinshtein, A. *Low and Mid-Level Shape Priors for Image Segmentation*, PhD thesis, Department of Computer Science, University of Toronto

- 2009 Hussain, Z. *Perceptual Learning of Complex Patterns*, PhD thesis, Department of Psychology, Neuroscience & Behaviour, McMaster University
- 2008 McCloskey S.P., *Investigating Blur in the Framework of Reverse Projection*, PhD thesis, Department of Computer Science, McGill University
- 2007 Law A., *Experiments in Object Tracking in Image Sequences*, Master's thesis, Department of Electrical and Computer Engineering, McGill University

Other Teaching-Related Activities

- 1998 York University Release-Time Teaching Fellowship and Development Grant, for *Integrated disciplinary and computer training in an active learning environment*

SERVICE**Administrative Positions**

- 2017- Seminar Coordinator, Centre for Vision Research
- 2001-2006 Coordinator, Brain, Behaviour and Cognitive Sciences, Graduate Program in Psychology

Committees***Departmental***

- 2018-2019 Member, Software Engineering Faculty Search Committee, Department of Electrical Engineering and Computer Science
- 2017-2018 Member, Graduate Executive Committee, Department of Electrical Engineering and Computer Science
- 2016-2017 Chair, Computational Neuroscience Faculty Search Committee, Department of Psychology
- 2015-2016 Member, EECS PhD Proposal Committee, Department of Electrical Engineering and Computer Science
- 2015-2016 Member, Tenure & Promotion File Preparation Committee, Department of Electrical Engineering and Computer Science
- 2014-2016 Member, Tenure & Promotion Committee, Department of Electrical Engineering and Computer Science
- 2014-2016 Member, Graduate Executive Committee, Department of Electrical Engineering and Computer Science
- 2014-2015 Chair, Canada Research Chair Tier II in Digital Media Search Committee, Department of Electrical Engineering and Computer Science
- 2013-2015 Co-Chair, Graduate ECE Proposal, Department of Electrical Engineering and Computer Science
- 2012-2015 Member, Graduate Computer Engineering Committee, Department of Electrical Engineering and Computer Science
- 2013-2014 Chair, Tenure & Promotion File Preparation Committee, Department of Electrical Engineering and Computer Science
- 2010-2014 Member, Website Committee, Department of Computer Science and Engineering
- 2010-2014 Member, Digital Media Program Committee, Department of Computer Science and Engineering
- 2012-2013 Member, Software Engineering Faculty Search Committee, Department of Electrical Engineering and Computer Science
- 2010-2011 Member, Computer Graphics Faculty Search Committee, Department of Computer Science and Engineering
- 2008-2009 Chair, Graduate Computer Engineering Committee, Department of Computer Science and Engineering
- 2007-2008 Member, Tenure File Preparation Committee for Richard Murray, Department of Psychology

2006-2009	Member, Computer Engineering Program Committee, Department of Computer Science and Engineering
2006-2008	Member, Petitions Committee, Department of Computer Science and Engineering
2004-2005	Member, Tenure and Promotion Committee, Department of Psychology
2004-2005	Chair, Brain, Behaviour and Cognitive Sciences Search Committee, Department of Psychology
2003-2006	Member, Graduate Executive Committee, Department of Psychology
2003-2006	Member, Research Awards Committee, Department of Psychology
1999-2005	Member, Computing Committee, Department of Psychology
1998-2001	Member, Executive Committee, Department of Psychology
1999-2000	Member, Departmental Chair Search Committee, Department of Psychology
1999-2000	Member, Research Methods Faculty Search Committee, Department of Psychology
1998	Member, Clinical Neurobiology Faculty Search Committee, Department of Psychology
1998	Member, Sub-Committee on Psychology Reports, Department of Psychology

Research Centre

2017-	Member, Steering Committee, Centre for Vision Research (Ex Officio)
2018-2019	Chair, VISTA Partnership Committee
2017-2018	Member, VISTA Partnership Committee
2015-2016	Member, Writing Team, Canada First Research Excellence Fund Initiative
2014-2016	Member, Executive Committee, Centre for Information Visualization and Data-Driven Design
2011-2015	Member, Steering Committee, Centre for Vision Research (Elected)
2011-2013	Chair, Centre for Vision Research CREATE Programme Scientific Committee
2003-2006	Member, Steering Committee, Centre for Vision Research
1999-2000	Member, Kirshner Award Committee

Faculty

2017-2018	Dean's Representative, Chair Search Committee, Department of Earth and Space Science and Engineering, Lassonde School of Engineering
2011-2012	Chair, Lassonde School of Engineering Faculty Search Committee (two full professor leadership positions and one tenure-track position)
2007-2008	Member and Affirmative Action Representative, Geomatics Engineering Faculty Search Committee, Faculty of Science and Engineering
2005-2006	Member, Engineering Faculty Search Committee, Faculty of Science and Engineering

- 2000-2001 Member, Engineering Design Faculty Search Committee, Faculty of Pure and Applied Science
- 1999-2000 Member, Information Technology Council, Faculty of Arts
- 1997-1998 Member, Committee on Examinations and Academic Standards, Faculty of Pure and Applied Science

University

- 2015-2016 Member, Strategic Projects Opportunity Review Team
- 2013-2014 Member, Senate Executive Committee
- 2011-2014 Faculty of Health Senator (Elected)
- 2008-2009 OGS Ontario Graduate Scholarship Panel

Activities

Departmental

- 2017-2018 Mentor for new faculty member, Department of Psychology
- 2013-2014 Rated NSERC CGS-M Applications, Department of Psychology
- 2013-2014 Adjudicated nominations for the Norman S. Endler Research Fellowship for the Brain, Behaviour and Cognitive Sciences area
- 2012-2013 Faculty mentor for new faculty member, Department of Computer Science & Engineering
- 2011-2012 Teaching evaluation for Amir Asif's application for promotion to Full Professor, Department of Computer Science & Engineering
- 2010-2011 Rated Ontario Graduate Scholarship applications (Master's), Department of Psychology
- 2008-2009 Teaching evaluation for faculty member promotion to Full Professor, Department of Computer Science & Engineering
- 2007-2008 Prepared nomination of undergraduate student for the Murray G. Ross Award, Department of Computer Science & Engineering
- 2007-2008 Rated Ontario Graduate Scholarships applications (Master's), Department of Psychology
- 2006-2007 Organized first Brain, Behaviour and Cognitive Sciences Program Recruiting Day, Department of Psychology
- 2006-2007 Candidacy file preparation coordinator, Department of Psychology
- 2004-2005 Faculty mentor for new faculty member, Department of Psychology
- 2003-2004 Developed advertising poster for Brain, Behaviour & Cognitive Sciences area of Psychology Department
- 2001-2002 Evaluated teaching for Department of Psychology Junior Tenure and Promotion Committee, Department of Psychology
- 1999-2000 Helped to draft portions of the Departmental Plan on technology-enhanced learning and new appointments, Department of Psychology

- 1999-2000 Prepared submission for Faculty of Pure and Applied Science Strategic Academic Initiatives Fund, Department of Psychology
- 1998-1999 Rated undergraduate student applications for Ontario Graduate Scholarships, Department of Psychology
- 1997-2000 Advised York B.Sc. students majoring in Psychology, Department of Psychology
- 1997 Rated graduate student applications for Ontario Graduate Scholarships, Department of Psychology

Research Centre

- 2014-2015 Organized and chaired 3rd Bootcamp for the York CREATE Training Program in Vision Science and Applications.
- 2013-2014 Organized and chaired 2nd York University CVR Research Retreat
- 2013-2014 Organized field trip to Ottawa for York CREATE Training Program in Vision Science and Applications.
- 2012-2013 Organized and chaired 1st Bootcamp for the York CREATE Training Program in Vision Science and Applications.
- 2012-2013 Organized and chaired 1st York University CVR Research Retreat
- 2010-2014 Manager of Centre for Vision Research Website
- 2007-2014 Lecturer, Centre for Vision Research Vision Science Summer School
- 2007-2008 Led the design and development of a new brochure and website for the Centre for Vision Research
- 1998 Designed and distributed Centre for Vision Research poster

Faculty

- 2018-2019 Internal Reviewer, NSERC Discovery Grant competition, Faculty of Health
- 2017-2018 Panelist for NSERC I2I York Proposal Development Workshop, Lassonde School of Engineering
- 2017-2018 Teaching evaluation for faculty application for promotion to Full Professor, Lassonde School of Engineering
- 2014-2015 Discovery Grant Faculty Mentor, Lassonde School of Engineering
- 2014-2015 CFI Grant Faculty Mentor, Lassonde School of Engineering
- 2009-2010 Drafted Proposal for new Organized Research Unit: FIRE (Focus on Innovation in Research and Innovation) (With R. Hornsey.), Faculty of Pure & Applied Science
- 2006-2007 Participated in CEAB Review of York Engineering Programme, Faculty of Pure & Applied Science
- 2006-2007 Helped review and revamp General Education Requirements for York Engineering Program, Faculty of Science
- 1999-2000 Coordinated between Psychology and Mathematics Departments and drafted proposal for new joint faculty position in Neural Computation, Faculty of Arts
- 1997-2000 Participated in calling campaign to attract top high-school students to York University, Faculty of Arts

University

- 2017-2018* Chair, York University Symposium on Coding Caring: Creating AI that Makes Dollars and Sense
- 2017-2018* Lead, York University AI Task Force
- 2017-2018* Panelist for ORF-RE York Proposal Development Session

COMMUNITY SERVICE

- 2006-09* Member, Board of Directors, Howard Park Children's Centre
- 2008-09* Coach, West-End United Soccer Club

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