Faculty

Doug Crawford  Assistant Professor of Psychology and Biology.
Interests: three-dimensional eye and head movements, visuomotor neurophysiology.

James Elder  Assistant Professor of Psychology.
Project Leader, Human Performance Laboratory.
Interests: visual psychophysics, computational vision, image coding.

Keith Grasse  Associate Professor of Psychology and Biology.
Project Leader, Human Performance Laboratory.
Interests: neurophysiology of the visual system, eye movements, auditory, neurophysiology, neuropharmacology.

Laurence Harris  Professor of Psychology and Biology.
Project Leader, Human Performance Laboratory.
Interests: neurophysiology and psychophysics of visual, vestibular and oculomotor systems.

Ian Howard  Distinguished Research Professor of Psychology and Biology.
Director of the Centre for Vision Research.
Co-Director of the Human Performance Laboratory.
Interests: space perception, eye movements, visual-vestibular interactions.

Michael Jenkin  Associate Professor and Chair of Computer Science.
Project Leader, Human Performance Laboratory.
Interests: computer vision, robotics and image understanding.

Peter K. Kaiser  Professor Emeritus of Psychology and Biology
Interests: colour science, auditory scene and distance, eye movements.

Evangelos E. Milios  Associate Professor of Computer Science.
Interests: computer vision, computational auditory scene analysis, human-computer interaction.

Hiroshi Ono  Professor of Psychology.
Project Leader, Human Performance Laboratory.
Interests: visual perception of direction and distance, eye movements.

Jonathan Ostroff  Associate Professor of Computer Science.
Research Associate, Human Performance Laboratory.
Interests: real-time systems, control systems.

David Regan  CAE/NSERC Industrial Research Professor.
Distinguished Research Professor of Psychology and Biology, York University.
Professor of Ophthalmology and Medicine, University of Toronto.
Co-Director, Human Performance Laboratory.
Fellow of the Royal Society of Canada.
Interests: psychophysics of spatial vision, motion, stereopsis, colour vision, vision aviation, visually evoked magnetic and electrical brain activity, visual disorders, auditory psychophysics.

Josée Rivest  
Associate Professor of Psychology, Glendon College  
Interests: multiple attributes in localization of contours and perceptual learning.

Faculty cont’d.

Paul Stager  
Professor of Psychology.  
Research Associate, Human Performance Laboratory.  
Interests: human factors in aerospace performance and system design.

Martin Steinbach  
Professor of Psychology and Biology, York University  
Director, The Eye Research Institute of Canada.  
Professor of Ophthalmology, University of Toronto.  
Senior Scientist, Dept. of Ophthalmology, Hospital for Sick Children.  
Director of Research, Department of Ophthalmology, University of Toronto.  
Interests: eye movements, visual-motor coordination, clinical disorders of the oculomotor system.

Evan Thompson  
Assistant Professor of Philosophy  
Interests: philosophical foundations of cognitive science, the philosophy of psychology, and the philosophy of perception.

Laurie Wilcox  
Assistant Professor of Psychology.  
Interests: stereopsis/depth perception.

Research Associates

Dr. Bob Cheung  
With I.P. Howard
Dr. Reuben Gellman  
With M. Steinbach
Dr. Esther Gonzalez  
With M. Steinbach
Dr. Xiang-Hua Hong  
With D. Regan
Linda Lillakas  
With H. Ono and M. Steinbach
Heather Jenkin  
With I.P. Howard
Dr. Maureen Reed  
With M. Steinbach
Dr. Marian Regan  
With D. Regan
Marita Roussou  
With E. Milios
Jim Zacher  
With I.P. Howard

Post Doctoral Fellows

Dr. Elizabeth Irving  
With M. Steinbach
Dr. Masahiro Ishii  
With I.P. Howard
Dr. Masayuki Sato  
With I.P. Howard
Dr. Stephen Palmisano  
With I.P. Howard
Dr. Makoto Ichikawa  
With H. Ono
Dr. Shoji Sunaga  
With P. Kaiser

Visiting Scientists 1997-98
Dr. Andy Clarke  Benjamin Franklin Klinikum, Berlin
Dr. Brian Rogers  Oxford University, U.K.
Dr. Kenzo Sakurai  Tohoku Gakuin University, Japan
Dr. Stuart Anstis  University of San Diego, LaJolla

Visiting Scientists 1998-99
Dr. S. Doi    Toyota Research Laboratory, Japan
Dr. Casper Erkelens  University of Utrecht
Dr. Kwonsaeng Park  Department of Psychology, Keimyung University
Dr. Brian Rogers  Oxford University, U.K.
Dr. Kenzo Sakurai  Tohoku Gakuin University, Japan.
Masahiro Suzuki  Grad Student, Chukyo University, Nagoya, Japan working with Dr. Ono
Dr. M. Swanston  University of Abertay Dundee, Scotland
Dr. N. Wade  Dundee University, Scotland

Graduate students  Supervisor

Robert Allison   Obtained Ph.D. in Spring, 1998
Nicole Aucoin    3rd year M.Sc. Jenkin
Isabelle Boutet  2nd year M.A. Rivest
Melike Ceylan    1st year M.A. Crawford
Dalia Darwish    1st year M.Sc. Howard
Xueping Fang    Obtained M.Sc. in Fall, 1997
Richard Goldberg 2nd year M.Sc. Elder
Rob Gray        Obtained Ph.D. in Summer, 1998
Philip Grove    1st year Ph.D. Ono
Lorraine Gunther 3rd year M.A. Ono
Yeola Harris    2nd year M.A. Wilcox
Denise Henriques 1st year Ph.D. Crawford
Ghee Ho        6th year Ph.D. Stager
Gang Hu         1st year M.Sc. Howard
Iraj Mantegh   2nd year Ph.D. Jenkin
Radha Kohly    2nd year M.A. Regan
Agnieszka Kopinska 2nd year M.A. Harris
Eliana Klier    1st year Ph.D. Crawford
Dan Kriechman  2nd year M.Sc. Harris
Jochen Lang    Obtained M.Sc. in Fall, 1997
Arlene Lipsman 1st year M.Sc. Jenkin
Lewis Lo        2nd year M.Sc. Ostroff
Peter Mente     2nd year Ph.D. Harris
Zusheng Rao     2nd year M.Sc. Milios
Yiannis Rekleitis 2nd year Ph.D. Milios
Matt Robinson  3rd year M.Sc. Jenkin
Greg Reid      2nd year M.Sc. Milios
Michael Smith   1st year Ph.D. Crawford
Jennifer Steeves 2nd year Ph.D. Steinbach
Ken Tam        Obtained M.Sc. in Summer, 1998
Sherry Trithart 2nd year M.A. Elder
Susanna Yanivker 2nd year M.Sc. Grasse
Dan Zikovitz   2nd year M.Sc. Harris
Students Arriving Sept. 1998

Scott Duggan 1st year MA. Regan
Dimitrios Llianos 1st year M.Sc. Crawford
Fara Redlick 1st year M.Sc. Harris
Adam Sachs 1st year M.Sc. Elder
Liliana Velisavljevic 1st year Ph.D. Elder
Jennifer Warner 1st year M.A. Rivest

E. Lynn Kirshner Memorial Scholarship for 1997

The Lynn Kirsher Scholarship for 1997 was shared amongst 3 students:

Rob Gray, Ph.D. Student in Psychology, for Accuracy of estimating time to collision using binocular and monocular information. *Vision Research*, in press.

Research Grants (Annual for 1997/98)

<table>
<thead>
<tr>
<th>Grant</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ontario Centre of Excellence Grant - Elder, Grasse, Harris, Howard, Jenkin, Ono and Regan, HP Lab</td>
<td>456,000</td>
</tr>
<tr>
<td>Ontario Research and Development Fund (ORDCF)</td>
<td>76,000</td>
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<tr>
<td><strong>Crawford</strong></td>
<td></td>
</tr>
<tr>
<td>MRC Operating Grant. Brainstem control of 3-D eye and head movements</td>
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<tr>
<td>MRC Scholarship. Neural control of 3-D eye and head movements</td>
<td>59,000</td>
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<tr>
<td>NSERC Research Grant. Human eye, head, and arm movements in 3-D space</td>
<td>21,000</td>
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<tr>
<td>Sloan Fellowship</td>
<td>23,777</td>
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<tr>
<td><strong>Elder</strong></td>
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<tr>
<td>IRIS Research Grant, with J. Tsotos, Toronto and J. Clark, McGill</td>
<td>100,000</td>
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<tr>
<td>Contract with DND DRDB, with P. Shepherd, CRESTech</td>
<td>50,000</td>
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<tr>
<td>NSERC Research Grant</td>
<td>25,000</td>
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<tr>
<td>Crestech Opportunity Fund, with Tsotsos, U. of T.</td>
<td>20,000</td>
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<tr>
<td>Faculty of Arts Computer Matching Award</td>
<td>1,800</td>
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<tr>
<td><strong>Grasse</strong></td>
<td></td>
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<tr>
<td>NSERC Operating Grant</td>
<td>28,000</td>
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<tr>
<td>NSERC Equipment Grant</td>
<td>20,000</td>
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<tr>
<td><strong>Harris</strong></td>
<td></td>
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<tr>
<td>NSERC Operating Grant. The detection of conflict in visual-vestibular interactions</td>
<td>29,000</td>
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<tr>
<td>NSERC Collaborative Research Grant, with Michael Jenkin</td>
<td>68,000</td>
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<tr>
<td><strong>Howard</strong></td>
<td></td>
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<tr>
<td>NSERC Operating Grant. Spatio-temporally disparity detection and vergence</td>
<td>39,000</td>
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<tr>
<td>NASA. Visual orientation in unfamiliar gravito-inertial environments</td>
<td>70,840</td>
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<tr>
<td>DCIEM Contract. Post-rotary effects on attitude perception during rolling manoeuvre</td>
<td>78,000</td>
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<tr>
<td>DCIEM Contract. Effects of noisy disparity in stereoscopic virtual-reality systems</td>
<td>77,250</td>
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<tr>
<td>CSA Contract. Experiments on the Neurolab Space Shuttle mission</td>
<td>67,517</td>
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<tr>
<td><strong>Jenkin</strong></td>
<td></td>
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<tr>
<td>NSERC Operating Grant. Embedded stereo vision</td>
<td>23,000</td>
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<tr>
<td>NSERC Equipment Grant, with G. Dudek</td>
<td>68,351</td>
</tr>
<tr>
<td>CITO Grant, with Y. Lesperance</td>
<td>75,000</td>
</tr>
<tr>
<td>CITO Grant, with J. Tsotos and E. Milios</td>
<td>50,000</td>
</tr>
<tr>
<td><strong>Kaiser</strong></td>
<td></td>
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</tbody>
</table>
NSERC Operating Grant. Studies in colour vision 29,000

**Milios**
NSERC Operating Grant. Computational auditory scene analysis 25,500
PWGSC Contract. Numeric and symbolic processing for sonar info. management with Jenkin 20,000

**Ono**
NSERC Operating Grant. Sensory and motor aspects of space perception 30,500
ATR Human Information Processing Laboratories. Vertical disparity and visual direction. US$10,000. @1.44 Can 14,400
Faculty of Arts Research Grant. Accommodative vergence 3,975

**Ostroff**
NSERC Operating Grant 26,000

**Regan**
NSERC/CAE Industrial Chair 132,452
NSERC Operating Grant 71,000
AFOSR Grant 246,622

**Rivest**
NSERC Operating Grant. The role of attention on processing multiple attributes images 18,000

**Steinbach**
NSERC Operating Grant. Human oculomotor control 38,750

**Evan Thompson**
SSHRC Standard Research Grant. The human consciousness of time: Phenomenology and cognitive science 28,920

**Wilcox**
NSERC Women's Faculty Award 35,000
MRC Research Grant 28,000
MRC Equipment Grant, with R. Hess, McGill 14,100
NSERC Research Grant 20,000
NSERC Equipment Grant 24,000

Total annual value of grants $2,457,195

Publications July 1997-June 1998

Books


Chapters in Books


Papers in Refereed Journals


**Papers in Refereed Journals cont’d.**


**Published Abstracts and Proceedings**


**Published Abstracts and Proceedings cont’d.**


**Published Abstracts and Proceedings cont’d.**


**Conference Presentations**


Harris, L.R., Jenkin, M. and Zikovitz, D. *Barany Satellite* (Germany), 1998.


Lang, J., and Jenkin, M. Actively building models with VIRTUE. This paper was awarded the 1997 E. Lynn Kirshner Award for research in Vision Science at York University. *ACCV’98*, Hong Kong, 1998.


**Conference Presentations cont’d.**


Regan, D. Flight simulator displays: some considerations when training collision avoidance skills and when displaying textured surfaces. *Invited lecture Japanese/Canadian Workshop on Three-Dimensional Virtual Reality*. Toronto University, March, 1998.

Regan, D. Monocular and binocular processing of time–to–collison and direction–of–motion information: relevance to highway safety. *Inter–university Eye Institute, Academic Hospital*, University of Amsterdam, April, 1998.


**Colloquia**
Laurence Harris
Kenneth Craik Club, University of Cambridge, Cambridge, UK, Sept. 16, 1997
Dept. Psychology, University d’Montreal, Quebec, Oct. 10, 1997
Dept. Psychology, McMasters University, Hamilton, Ontario, Mar. 17, 1998

Hiroshi Ono
Chukyo University, November 1997
University of Kyushu, November 1997
NHK laboratory, December 1997

Martin Steinbach
Hospital for Sick Children, Ophthalmology Rounds, April, 1998
Eye Research Institute of Canada, June, 1998

Evan Thompson
Carleton University, Ottawa, Nov. 21, 1997
University of Windsor, Windsor, Feb. 6, 1998
State University of New York at Buffalo, Feb. 24, 1998
Canisius College, Buffalo, Feb. 25, 1998
Indiana University, April 6, 1998

Colloquia cont’d.

Laurie Wilcox
Department of Psychology, University of Toronto, February, 1998
Department of Neuroscience, University of Pennsylvania, March, 1998
Department of Optometry, University of Glasgow, August, 1998

Collaborative Research

Doug Crawford
Dr. Daniel Guittton, Montreal Neurological Institute. Eye-head coordination during gaze shifts.

James Elder
Dr. Greg Dudek, Dept. of Computer Science, McGill University. Contour-based image compression.
Dr. James Clark, Dept. of Electrical Engineering, McGill University. Visual attention and virtual reality.
Dr. John Tsotsos, Dept. of Computer Science, University of Toronto. Visual attention and virtual reality.

Laurence Harris
Dr. Conrad Wall, MIT.
Dr. Andy Smith, Royal Holloway, London.
Ian P. Howard
Dr. Ron Kruk, CAE. Visual factors in flight simulators.
Dr. C. Oman, MIT. Space shuttle Neurolab mission.
Dr. B. Cheung, DCIEM. Orientation in flight simulators.
Dr. Lochlan Magee. DCIEM. Effect of noise in stereoscopic systems.
Dr. B. Rogers, Oxford University.

Michael Jenkin
Dr. G. Dudek, Dept. of Computer Science, McGill University.
Dr. D. Wilkes, Ontario Hydro Technologies. Swarm robotics.

Evangelos Milios
Dr. G. Dudek, Dept. of Computer Science, McGill University.
Dr. D. Wilkes, Ontario Hydro Technologies. Swarm robotics.
Dr. E. Prassler, FAW, University of Ulm, Germany. Dynamic mobile robot navigation system.
Dr. J. Tsotsos, Dept. of Computer Science, Univ. of Toronto. Architectures for auditory attention.

Hiroshi Ono
Dr. H. Kaneko, ATR Human Information Processing Laboratories, Kyoto, Japan.
Dr. S. Ohtsuka, NTT Human Interface Laboratories, Kanagawa, Japan.
Drs. Nicholas Wade and Michael Swanston, University of Dundee on visual motion and orientation.

David Regan
Dr. R. Kruk of CAE. Visual factors in aviation and flight simulator design.
Dr. L. Reid, Institute of Aerospace Science, University of Toronto. Flight simulators.

Martin Steinbach
Drs. B. Gallie, S. Kraft and N. Mungan, Hospital for Sick Children.
Dr. Y. Yucel, Ophthalmology U. of T.
Dr. Iain Donaldson, University of Edinburgh.

Collaborative Research cont’d.

Laurie Wilcox
Dr. D. Knill, University of Pennsylvania, Philadelphia.
Dr. D. Smith and Catherine Day, Toronto Hospital for Sick Children.
Drs. C. Baker and R. Hess, McGill University, Montreal.

Awards and Honours

Doug Crawford
MRC Scholar
Alfred P. Sloan Fellow

David Regan
Invited by PAGSE (Royal Society of Canada plus 22 scientific societies) to address an invited audience of politicians, bureaucrats and scientists on the theme of “Economic Benefits to Canada of Research in Science and Technology: Dr. Regan was the only scientist speaking. Title: “Invention, advice and making sure that the country that pays the bill collects the reward”. Talk reprinted in full in York Faculty of Arts Newsletter. Over 80 copies requested, mostly by Federal and Provincial governments.
**Martin Steinbach**  
Listing in Canada's Who's Who  
5th Annual Emerson Woodruff Lecturer, University of Waterloo

**Laurie Wilcox**  
NSERC Women's Faculty Award, five year award 1995-2000.

**International Conference**

The Centre for Vision Research is hosting an International Conference on Vision and Attention, June 22-27, 1999.

**Centre for Vision Research Lecture Series**

<table>
<thead>
<tr>
<th>Lecturer</th>
<th>Institution</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bart Anderson</td>
<td>MIT</td>
<td>Layered representations of depth, lightness, and opacity</td>
</tr>
<tr>
<td>Dianne Broussard</td>
<td>Playfair, Uof T</td>
<td>Motor learning in the vestibulo-ocular reflex</td>
</tr>
<tr>
<td>Andy Clarke</td>
<td>Klinikum, Berlin</td>
<td>Vestibular adaptation during microgravity</td>
</tr>
<tr>
<td>James J. Clark</td>
<td>McGill</td>
<td>Spatial attention and saccadic eye movements</td>
</tr>
<tr>
<td>Steven Dakin</td>
<td>McGill</td>
<td>First- and second-order cues to orientation</td>
</tr>
<tr>
<td>James Elder</td>
<td>York U.</td>
<td>What is the right model for the local blurring of natural images?</td>
</tr>
<tr>
<td>Peter Hallet</td>
<td>U. of T.</td>
<td>Seeing variable stars</td>
</tr>
<tr>
<td>Denise Henriques</td>
<td>York U</td>
<td>Dynamic retinotopic coding</td>
</tr>
<tr>
<td>Eliana Klier</td>
<td>York U.</td>
<td>Eye to head transformation</td>
</tr>
<tr>
<td>Evangelos Milios</td>
<td>York U</td>
<td>Binaural sound localization</td>
</tr>
<tr>
<td>Hiro Ono</td>
<td>York U.</td>
<td>Solution to Leonardo da Vinci's paradox by the visual system</td>
</tr>
<tr>
<td>Stephen Palmisano</td>
<td>York U.</td>
<td>Perceiving self-motion in depth</td>
</tr>
<tr>
<td>Sasha Petrov</td>
<td>Acad. of Sc. USSR</td>
<td>After images and computing gaze direction</td>
</tr>
<tr>
<td>Martin Regan</td>
<td>York U</td>
<td>Advice, invention, and reward</td>
</tr>
<tr>
<td>Hongjin Sun</td>
<td>York U.</td>
<td>Visual processing of impending collision</td>
</tr>
<tr>
<td>Dejan Todorovic</td>
<td>Yugoslavia</td>
<td>Mobile reference frames</td>
</tr>
<tr>
<td>Frans Verstraten</td>
<td>Utrecht, Holland</td>
<td>The role of attention in perceiving motion</td>
</tr>
</tbody>
</table>