York Vision Group

York University, Toronto

Annual Report, June 1986 to June 1987

Faculty

Stuart Anstis  Spatio-temporal aspects of vision including visual motion. Stuart is on sabbatical leave during 1987-88.

Michael Dawson  The psychophysics and computer modelling of visual processes. Michael is moving to the University of Alberta.

Howard Flock  Achromatic brightness perception.

Keith Grasse  Electrophysiology of the visual system.

Ian Howard  Space perception, eye movements, visual-vestibular interactions.

Peter Kaiser  Colour vision. Peter is on the Board of the Lighting Research Institute and the Executive Committee of the Commission Internationale d'Eclairage.

Hiroshi Ono  The visual perception of direction and distance, eye movements. Hiroshi is on sabbatical 1987-88 and will be two months in Japan as a guest of the Japanese Government. He won the Faculty of Arts Outstanding Teaching Award for 1986.


Paul Stager  Human factors in aerospace performance, visual search. Paul has been reappointed Canadian representative to the Council of the International Ergonomics Association.
Martin Steinbach  Eye movements, visual-motor coordination. Martin has a Research Fellowship in 1987-88.

**Research Associates**

Esther Gonzalez  Working with Ono and Steinbach on visual development in one-eyed children. Congratulations on the arrival of baby Alexandra.

Bonnie Moidell  Working with Steinbach and Ono on egocentric localization in one-eyed children.

Masao Ohmi  Working with Howard on the oculomotor system and visual-vestibular interactions.

Marian Regan  Starts a Research appointment in September to work on time-series analysis of evoked potentials.

Ram Vimal  Working with Kaiser on colour vision.

**Post Doctoral Fellows**

Karin Arnold  Karin arrives in September to work with Anstis on colour vision in animals.

Linda Bowns  Linda arrived in March from studying with O. Braddick in Cambridge, England. She will be working with Ono on the psychophysics of space perception.

Bill Simpson  Bill arrived in April from studying with J. Kennedy at the University of Toronto. He will be working with Howard on mechanism of spatial orientation.
Graduate students (supervisors)

Richard Bird (Howard)  Richard had his NSERC Scholarship renewed.
Bob Cheung (Howard)
Debbie Giaschi (Anstis)  Debbie won the O.P.A. prize for her M.A. thesis, a Province of Ontario Graduate Scholarship and an ARVO travel grant.
Hameluck, D. (Stager)
Haruo Hibino (Kaiser)  Hauro won a Government of Canada Scholarship.
Lynne Kirshner (Steinbach)
Alistair Mapp (Ono)
Chieko Murasugi (Howard)  Chieko won a Province of Ontario Graduate Scholarship.
Steven Nusinowitz (Flock)
Maureen Reed (Anstis)  Maureen had her NSERC Scholarship renewed.
Peter Oberle (Flock)
Andrew Portal (Regan)
Josée Rivest (Ono)  Josée had her NSERC Scholarship renewed.
James Tam (Ono)  James won an NSERC Postdoctoral Scholarship.
James Zacher (Howard)  James had his NSERC Scholarship renewed.
Research Grants

Anstis  NSERC Operating Grant (continuation) for work on visual motion.
       NSERC Equipment Grant.
       President's NSERC Grant.

Dawson  NSERC Operating Grant (new) for computational studies of vision.
       President's NSERC Grant.
       Faculty of Arts Grant.

Flock  Faculty of Arts Grant.

Grasse  NSERC Operating Grant (new) for electrophysiology.
       NSERC Equipment Grant.
       MRC Operating Grant (new).
       MRC Equipment Grant.
       President's NSERC Grant.
       Excellence Fund Grant.

Howard  NSERC Operating Grant (renewal) for work on visual stability.
       DCIEM Contract for work on the visual-vestibular system.
       DCIEM Contract for work on illusory self motion.
       President's NSERC Grant.


Kaiser  NSERC Operating Grant (renewal) for work on colour vision.
       President's NSERC Grant.

Ono  NSERC Operating Grant (continuation) for work on binocular vision.

Regan  NSERC Operating Grant (continuation) for work on visual information processing of motion and form.
       NSERC Equipment grant.
       MRC Operating Grant (continuation) for the assessment of visual pathway disorders.

Stager  DCIEM Contract for evaluation of a visual horizon device.
       Dept. of Transport Contracts for evaluating airtraffic systems.
       U. B. C./ Mcmillan Bloedel Contract for evaluation of control systems for logging equipment.

Steinbach  NSERC Operating Grant (renewal) for work on eye movements.
          Atkinson College Research Grant for work on motion aftereffects.

with Ono  NIH Grant (continuation) for work on monocular enucleation.
Total annual value of grants for June 1986-June 1987  $787,000
Total annual value of grants for June 1987-June 1988  $1,022,000
Books and Chapters in Books


Papers in Refereed Journals


Anstis, S. M. and Harris, J. P. Magnification factor for adaptation of a visual transient mechanism. Journal of the Optical Society of America, in press.


Maurer, D., Lewis, T., Cavanagh, P., and Anstis. S. M. Luminous efficiency of colors in


Higashiyama, A. and Ono, H. "Koko", "soko" and "asoko" ("here" and "there") as visual dividers of space. *Japanese Psychological Research, in press.*


Regan, D. Sinewave gratings and low-contrast letter charts in ophthalmology and
neurology. Clinical Vision Research, in press.


Regan, D. and Regan, M. P. Human visual response to two-dimensional patterns cannot be explained entirely in one-dimensional Fourier terms. *Vision Research*, in press.


Total number of refereed papers 50
**Published Proceedings**


**Talks and Abstracts**


Reports and Patents


Guzman, O. and Steinbach, M. Method and apparatus for manipulating the contrast in sine wave gratings and other visual patterns. U. S. Patent 4,384,768.

Colloquia

Stuart Anstis
Nordita (Institute of Atomic Physicists), Copenhagen, Denmark, 1986.
Department of Psychology, University of Toledo, Ohio, November, 1986.
Department of Psychology, Universite de Montreal, March 1987.

**Michael Dawson**
Department of Psychology, York University, 1986.
McCluhan Centre, University of Toronto, 1987.
Department of Psychology, University of Alberta, 1986.
Colloquia (cont.)

Ian Howard
Department of Physiology, Free University of Berlin, Aug., 1986.
Institute of Neurology, Munich, Sept., 1986.
Department of Psychology, University of Toronto, Dec., 1986.
Department of Psychology, University of Guelph, March, 1987.
Department of Psychology, University of Louisville, Feb., 1987.
Department of Psychology, University of Western Ontario, April, 1987.

Peter Kaiser
Department of Psychology, York University, April, 1987.

Hiroshi Ono
Department of Psychology, Vanderbilt University, Nov., 1986.

David Regan
Department of Medical Physics, University of Nijmegan, 1986.
Department of Ophthalmology, University of Amsterdam, 1986.
Department of Ophthalmology, University of Louvain, Belgium, 1986.
Department of Physics, University of Utrecht, The Netherlands, 1986.
Neuroscience Centre, London University, 1986.
Department of Physics, NRC, Ottawa, 1986.
Departments of Physiology and Psychology, UBC, Vancouver, 1986.
Department of Brain Science and Cognition, MIT, 1986.
Department of Psychology, York University, 1986.
Departments of Psychology, Ophthalmology, Computer Science and the Playfair Institute of the University of Toronto, 1986-87.

Paul Stager
Graduate courses taught at Simon Fraser and Victoria Universities, Summer, 1986.
Two colloquia given to the Defence and Civil Institute of Aviation Medicine.

Martin Steinbach
Tokyo Metropolitan Neurosciences Institute, June, 1986.
Department of Ophthalmology, University of Toronto, 1986.
**Vision Group Seminars**

David Regan.  *The Neural Processing of Motion and Spatial Form.*


Ian Howard.  *Sensory Factors in the Control of Pursuit Eye Movements.*

Nicholas Swindale  Dalhousie University. *Neural Mechanisms of Visual Acuity.*


Ram Vimal.  *Spatial Frequency Tuning and Discrimination.*

Patrick Cavanagh  University of Montreal. *Shape from Shadows.*

Marilyn Schneck  Hospital for Sick Children. *Scotopic Vision in infants.*


Steve Ellis  Ames Laboratories, California. *Exocentric Direction Judgments.*

Brock Fenton  Biology Department, York. *Sensory Performance in Bats.*

Hansraj Doma  University of Toronto. *Rods, Cones and Saccades.*
**Plans for the Coming Year**

Brian Rogers of the Department of Experimental Psychology, Oxford is coming in September to spend several weeks in the department.

Dr. Saida of the Industrial Products Research Institute of Japan will be visiting York from June 7th. to July 7th.

John Findlay of the Department of Psychology, Durham University will be with us for about two weeks in October.

Professor Emiko Inoue from Japan is coming in September to spend six months working with Ian Howard.

Michael Jenkins has been appointed as Assistant Professor in the Department of Computer Science at York. Michael is a graduate of the Computer Science Department at the University of Toronto and is interested in computational approaches to vision.

David Regan has just been awarded a grant of approximately one million dollars from the United States Airforce Office of Scientific Research. This is a first installment towards the cost of a neuromagnetometer; an instrument for studying magnetic potentials associated with neural activity in local regions of the human brain. It will be used for studying visual and auditory processes in normal humans and in patients with disorders of vision and hearing.

We are taking the initiative in organizing a weekend conference on vision at Glendon College at the end of September or in October, 1987. The hope is that visual scientists, including graduate students, in and around Toronto will get to know each other and found a local Vision Society.

Martin Steinbach is collaborating with the University of Toronto and the newly formed Eye Institute of Ontario in the organization of an Oculomotor Symposium to be held in April, 1988. David Robinson will be the Keynote speaker.