York Vision Group

York University, Toronto

Annual Report, July 1988 to June 1989

**Faculty**

Stuart Anstis  Professor of Psychology.
Principal Investigator in the Human Performance in Space Laboratory.
Interests: spatio-temporal aspects of vision including visual motion.

Otmar Bock  Scientist in the Human Performance in Space Laboratory.
Adjunct Assistant Professor of Psychology.
Interests: intersensory and sensory-motor coordination.

Howard Flock  Professor of Psychology.
Interests: achromatic brightness perception and the judgment of visual surfaces and spatial arrangements.
Howard was on sabbatical leave during 1988-89.

Keith Grasse  Assistant Professor of Psychology.
Interests: the electrophysiology of the visual system.

Ian Howard  Professor of Psychology.
Director of the Human Performance in Space Laboratory.
Interests: space perception; eye movements; visual-vestibular interactions.

Peter Kaiser  Professor of Psychology.
Interests: colour vision, sensory processes, physiological optics, human factors.
Chairman of CIE Technical Committee 1-20 and Optical Society of America delegation to Inter-Society Colour Council. Member of CIE Executive Committee and Board of Lighting Research Inst.

Masao Ohmi  Scientist in the Human Performance in Space Laboratory.
Adjunct Assistant Professor of Psychology.
Interests: oculomotor system and visual-vestibular interactions.
Hiroshi Ono  Professor of Psychology.
         Principal Investigator in the Human Performance in Space Laboratory.
         Interests: the visual perception of direction and distance; eye movements.

David Regan  Professor of Psychology at York University.
         Professor of Ophthalmology at the University of Toronto.
         Principal Investigator in the Human Performance in Space Laboratory. Interests: visually evoked potentials; visual and auditory disorders; psychophysics of visual motion; stereopsis and colour vision; auditory psychophysics; vision in aviation.
         David was appointed a Fellow of the Royal Society of Canada in April, 1989.

Paul Stager  Professor of Psychology.
         Interests: Human factors in aerospace performance.
         Paul is Canadian representative to the Council of the International Ergonomics Association, IEA Liaison Officer and Executive Council member of the Human Factors Association of Canada.

Martin Steinbach  Professor of Psychology.
         Adjunct Professor of Ophthalmology University of Toronto.
         Interests: eye movements; visual-motor coordination; Clinical disorders of the oculomotor system.
         Martin was on sabbatical leave during 1988-89.

**Research Associates**

Marian Regan  Working with David Regan on time-series analysis of evoked potentials.

Nancy Rush-Smith  Working with Steinbach on visual adaptations in enucleated children at the Hospital for Sick Children.

**Post Doctoral Fellows**

Karin Arnold  Working with Anstis on motion perception.
Linda Bowns  Working with Ono on the psychophysics of space perception.

Tom Heckmann  Working with Howard on illusions of self motion and visual motion.

Xiang-Hua Hong  Working with Regan on visual psychophysics.

Angela Kothe  Working at the Toronto Western Hospital with Regan on visual disorders in neurological patients.

Yasuhisa Nakano  Working with Kaiser on colour vision.

Bill Simpson  Working with Howard on mechanisms of spatial orientation.

**Graduate students (supervisors)**

Bob Cheung (Howard)

Carol Dengis (Steinbach)

Debbie Giaschi (Anstis)  Debbie won an NSERC Post-Doctoral Fellowship.

D. Hameluck (Stager)

Haruo Hibino (Kaiser)  Haruo had his Government of Canada grant renewed.

Lynn Kirshner (Steinbach)

Alistair Mapp (Ono)

Christine Marton (Howard)

Chieko Murasugi (Howard)  Chieko won an NSERC Post-Doctoral Fellowship

Steven Nusinowitz (Flock)

Maureen Reed (Anstis)  Maureen had a baby boy and had her NSERC award renewed.

Peter Oberle (Flock)  Peter obtained his Masters Degree in April, 1989.
James Tam (Ono)

James Zacher (Howard)
Research Grants

Anstis

NSERC Operating Grant (new) for work on visual motion.

Flock

Faculty of Arts Grant.

Grasse

NSERC Operating Grant (continuation) for visual electrophysiology.
NSERC Equipment Grant.
MRC Operating Grant (continuation) for oculomotor studies of brainstem.

Howard

NSERC Operating Grant (continuation) for work on visual stability.
DICIEM Contract for work on the visual-vestibular system.

Howard, Regan

Province of Ontario grant (5 years) for a Human Performance Laboratory in the Institute of Space and Terrestrial Science.

Anstis, Ono, Grass

NSERC Operating Grant (continuation) to work on colour vision.
President's NSERC Grant.

Ono

NSERC Operating Grant (continuation) to work on binocular vision.

Regan

NSERC Operating Grant (new) Visual motion and form.
MRC Operating Grant (new) Sensory deficits from cortical lesions.
NIH grant Visual deficits in multiple sclerosis.
U.S. Air Force Grant to buy a neuromagnetometer.
U.S. Air Force Grant (new) Form and depth from motion.

Stager

Department of National Defence to evaluate prototype avionics.
Indal Technologies Inc. Human-factors evaluation of display system.
Transport Canada, Air Traffic Services Contract to study air traffic control.
DICIEM contract The peripheral vision horizon display.
Transport Canada (Arnott Group) Evaluate air traffic control workstations.

Steinbach

NSERC Operating Grant (continuation) to work on eye movements.

Steinbach, Ono, Gallie, Chew

NIH Grant (continuation) for work on adaptations to monocular enucleation.
Total annual value of grants  $2,200,000
Books

Chapters in Books
Anstis, S. M. The chopstick illusion: Movements of intersections are hard to see. In Troscianko, T. (Ed.) Artificial intelligence and the eye. in press.
Regan, D. Detection and spatial discriminations for objects defined by colour contrast, binocular disparity and motion parallax. In D. Regan (Ed), Spatial Vision. London: MacMillan, in press.
Regan, D. To what extent can visual defects caused by multiple sclerosis be understood in terms of parallel processing? In B. Cohen (Ed.) Vision and the
Papers in Refereed Journals


Giaschi, D. and Anstis, S. M. The less you see it, the faster it moves: Shortening the "on-time" speeds up apparent motion. *Vision Research*, 29, 335-347.


Howard, I. P. and Simpson, W. Human optokinetic nystagmus is linked to the stereoscopic system. *Experimental Brain Research*, in press.


Regan, D. Orientation discrimination for objects defined by relative motion and objects defined by luminance contrast. *Vision Research*, in press.


**Published Proceedings**


**Technical Reports**


**Talks and Abstracts**


Colloquia

Stuart Anstis

Ian Howard
  Department of Physiology, University of Toronto, April, 1989.
**Plans for the Coming Year**

Dr. Tiande Yang, Head, Research Labs of Environmental Medicine in Space Cabin, Institute of Space Medico-Engineering, Beijing, will be visiting the Institute of Space and Terrestrial Science for one year from August, 1988.

Dr. Kenzo Sakurai, Associate Professor, Liberal Arts Department, Tohoku Gakuin University, Sendai will be visiting the Institute of Space and Terrestrial Science for 1 year from August 1, 1988.

Dr. Masaaki Ohkura, Associate Professor of Psychology will be visiting York University for one year from April 1, 1989.

Dr. Koichi Shibuta, from Kyshu University will be starting as a Post-doctoral Fellow in March, 1989.