



COLLÈGE
DE FRANCE
— 1530 —



PETER WALL INSTITUTE
FOR ADVANCED STUDIES
THE UNIVERSITY OF BRITISH COLUMBIA | VANCOUVER



**SENSORIMOTOR
COMPUTATION**

“SENSORIMOTOR COMPUTATION: THE CONTROL OF GAZE”

WORKSHOP ORGANIZED BY

PR. ALAIN BERTHOZ, CHAIRE DE PHYSIOLOGIE DE LA PERCEPTION ET DE L’ACTION, COLLEGE DE FRANCE

PR. DINESH PAI, PETER WALL INSTITUTE FOR ADVANCED STUDIES, UNIVERSITY OF BRITISH COLUMBIA

3 MAY 2010

PUBLIC SESSION AT THE COLLÈGE DE FRANCE, PARIS, FRANCE

ROOM 5

11, PLACE MARCELIN BERTHELOT, PARIS 5TH

— FREE ENTRANCE —

The control of gaze provides a unique window into the sophisticated and effective solutions used by the human brain to interact with the environment. The scientific goal of the Sensorimotor Computation project is to develop a deep and constructive understanding of these processes using computational models.

This workshop brings together a group of leading experts from Europe and Canada to review the current understanding of the neural control of eye and head movements, the current state of the project, and to define new research directions. With this goal in mind, participants will present their views on the state of their research areas and on the important challenges ahead.



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- 09h00 – 09h15 **Dianne NEWELL**
Director of the PWIAS, Canada
Alain BERTHOZ
Professor at the Collège de France, Chair of Physiology of Perception and Action, France
Opening remarks
- 09h15 – 10h00 **Dinesh PAI**
Professor and Canada Research Chair, University of British Columbia; PWIAS, Canada
Overview, and Biomechanics of the Oculomotor System
- 10h00 – 10h30 **Kathleen CULLEN**
Professor and William Dawson Scholar, McGill University; PWIAS, Canada
The dynamic regulation of multimodal integration in the control of gaze
- 10h30 – 11h00 Break
- 11h00 – 11h30 **Klaus HEPP**
Professor at the Institute for Theoretical Physics, ETH Zürich, Switzerland
A biologically realistic cortical model of eye movement control in reading
- 11h30 – 12h00 **Jeroen GOOSSENS**
Assistant professor at the Radboud University Nijmegen Medical Centre, The Netherlands
Neural control of saccade kinematics and gaze trajectories
- 12h00 – 12h30 **Christopher HARRIS**
Professor of neuroscience at the University of Plymouth, UK
Optimizable Hamiltonians for Oculomotor Control: Beyond Physiology
- 12h30 – 14h00 Break
- 14h00 h 14h30 **Daniel BENNEQUIN**
Professor of mathematics at the University Denis Diderot Paris VII, France
Geometry and function of the motor map in the superior colliculus
- 14h30 – 15h00 **Benoît GIRARD**
Researcher at the Institut des Systèmes Intelligents et de Robotique (ISIR), UPMC-CNRS, France
Subcortical decisions: towards models of the tecto-basal loops for saccadic selection
- 15h00 – 15h30 **Tony PRESCOTT**
Professor of Cognitive Neuroscience at the University of Sheffield, UK
Control of "gaze" in the rat vibrissal system: insights from neuroethology and robotics
- 15h30 – 16h00 Break
- 16h00 – 16h30 **Stefano RAMAT**
Associate professor of Biomedical Engineering at the University of Pavia, Italy
Saccades, models, membranes and patients: from behavior to the bench and back
- 16h30 – 17h00 **Alain BERTHOZ**
Professor at the Collège de France, Chair of Physiology of Perception and Action, France
Conclusion of the day

With the participation, from the University of British Columbia, of **John Steeves**, Professor and BC Leadership Chair, ICORD and of **Antony J. Hodgson**, Associate Professor, Mechanical Engineering; from the CNRS, of **Alexej Grantyn**, Researcher, Emeritus and, from the Institut des Systèmes Intelligents et de Robotique (ISIR) UPMC-CNRS of **Vincent Hayward**, professor.