

**VIIth International Conference on
Event Perception and Action**

Proceedings



**August 8-13, 1993
University of British Columbia
Vancouver, BC, Canada**

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University of British Columbia
Vancouver BC, Canada

Organized by

John B. Pittenger
University of Arkansas at Little Rock

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- University of British Columbia

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The conference organizers are indebted to the symposia organizers for their efforts: Catherine T. Best and Eleanor J. Gibson (Perceptual Learning in Infancy); R. Wagenaar, R. van Emmerik, P. Haggard, and D. Mestre (Dynamics of Movement Disorders); Patrick A. Cabe and Steven B. Flynn (Event Recognition: Current Perspectives); Leonard S. Mark, Gerda Smets, Kees Overbeeke, and Oded Flascher (Ecological Psychology and Human Factors); R. Bootsma and T. Stoffregen (Velocity Control in Action); Robert E. Shaw and Judith A. Effken (Ecological Psychology and the New Artificial Intelligence: Seeking Common Ground); Carol A. Fowler and Jeffrey Kinsella-Shaw (Ecological Perspectives on Language); Sverker Runeson (Collision Dynamics); Patricia Zukow-Goldring (An Ecological Approach to Development); James M. M. Good and S. Stavros Valenti (Ecological Approaches to Intersubjectivity); Glenn E. Meyer (Illusion and Reality); Harry Heft (Navigation and Environmental Cognition: Ecological Considerations); J. A. S. Kelso and M. T. Turvey (Dynamical Themes in Perception and Action); Rainer Guski, Wolf-D. Heine, and Hollis Fitch (Ecological Acoustics); Francene Reichel and J. Farley Norman (Surface Perception); Peter Beek, Karl Newell and Gary Riccio (Affordances and Task Constraints in Intentional Systems); Dean Owen and Walter Johnson (Visual Control of Locomotion); and Robert E. Shaw, Nathan Knobler, William Mace and Ron Growney (Lessons from Highly Refined Perception-Action Cycles in the Arts).

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Monday - August 9

8:00-12:00 Registration

8:45-9:30 **Opening**

9:30-11:30 **Perceptual Learning in Infancy**

Organizers: Catherine T. Best and Eleanor J. Gibson

9:30 Infant Speech Perception as an Instance of Perceptual Learning:
Perceptual Experience and the "Magnet Effect"

Patricia K. Kuhl

9:55 Selectivity in Nonnative Speech Discrimination

Janet F. Werker

10:20 Amodal Relations and Intermodal Learning in Infancy

Lorraine F. Bahrick

10:45 Arm Movements in the Neonate: Establishing a Frame of Reference for
Reaching

Audrey L. H. van der Meer

11:10 Commentary

Catherine T. Best

11:20 Discussion

11:30-12:30 Lunch

12:30-13:30 **Poster Session**

Important: While the poster room will be open all day, please note that there are *two* periods each day when reading the posters does not overlap with the symposia. First, there will be a two-hour interval between the morning and afternoon sessions on each day (e.g., 11:30-13:30 on Monday, 12:00-14:00 on Tuesday, etc.). Poster authors are asked to be available at their poster station to answer questions during the last hour of this interval (e.g., 12:30-13:30 on Monday, 13:00-14:00 on Tuesday, etc.). Second, the poster room will be open for one hour after the end of the last symposium of the day.

13:30-15:30 **Dynamics of Movement Disorders**

Organizers: R. Wagenaar, R. van Emmerik, P. Haggard, and D. Mestre.

13:30 Introduction

P. Haggard

13:35 Perception-Action Coupling in Parkinson's Disease

D. Mestre, O. Blin, J. P. Azulay, I. Sangla, C. H. U. Simone, and C. van den Brand.

- 14:00 The Structure of Postural Dynamics in Tardive Dyskinesia
R. E. A. van Emmerik, K. M. Newell and R. L. Sprague.
- 14:25 Self-Optimization and Dynamical Systems Analysis of Movement Disorders
K. G. Holt and S. F. Jeng.
- 14:50 Dynamic Models of Human Walking in Health and Disease
R. C. Wagenaar and R. E. A. van Emmerik
- 15:15 Discussion
- 15:30-16:00 Coffee Break
- 16:00-18:00 **Event Recognition: Current Perspectives**
Organizers: Patrick A. Cabe and Steven B. Flynn
- 16:00 On the History of the Event Perception Concept and its Applications
Gunnar Johansson
- 16:30 The Problem of Visual Event Recognition
Geoffrey P. Bingham
- 16:50 Perceiving Causality of Dynamic Events: Experiments with Expert Billiard Players Shed New Light on an Old Debate.
Heiko Hecht
- 17:10 Physical vs Animated Events in Collision Dynamics Perception
Steven B. Flynn
- 17:30 Discussion
Claudia Carello
- 17:45 Questions and Answers

Note: Poster Room Open until 19:00

- 19:30-22:00 **Evening Discussion Group: Ecological Psychology and the Arts**
Conveners: Nathan Nobler and William Mace

Discussions of research and matters of mutual interest to all people interested in ecological psychology and aesthetics. Among the formal presentations will be these from the Laboratory for Form Theory, Delft University of Technology, The Netherlands:

- Expressing Tastes in Packages
C. J. Overbeeke and G. J. F. Smets
- Color Research with a Focus on Perceiver's Actions
J. P. Claessen, G. J. F. Smets, and C. J. Overbeeke

Tuesday - August 10

- 8:30-10:00 **Ecological Psychology and Human Factors**
Organizers: Leonard S. Mark, Gerda Smets, Kees Overbeeke, and Oded Flascher
- 8:30 Symposium Introduction: The Problem of Presence in Virtual Environments
Symposium Organizers
- 8:35 Virtual Environments and the Ecological Theory of Perception
Lawrence J. Hettinger and Michael Haas
- 8:55 Modelling Objects in a Virtual Environment: About Direct Manipulation and Affordances
Gerda J. Smets, Kees J. Overbeeke and Pieter Jan Stappers
- 9:15 The Application of Ecological Human Factors Principles to Virtual Environment Interface Design
J. K. Caird and P. A. Hancock
- 9:35 Extending the Affordances of an Audio-Visual Network
Bill Gaver
- 9:55 General Discussion
- 10:00-10:30 Coffee Break
- 10:30-12:00 **Velocity Control in Action**
Organizers: R. Bootsma and T. Stoffregen
- 10:30 Controlling Hand Velocity on Hitting
Reinoud Bootsma and Luis Sardinha
- 10:40 How do Somersaulters Control their Angular Velocity?
Benoît G. Bardy and Brice Isableu
- 10:50 Tau Control of Velocity of Approach in Looking and Hitting
David N. Lee
- 11:10 Separate Control of Velocity and Position
Jeroen Smeets and Eli Brenner
- 11:30 Controlling Interceptive Actions in Cerebral Palsy
Ruud van der Weel
- 11:50 Discussion
- 12:00-12:45 Lunch
- 12:45-13:30 **Poster Session**
See description of Monday Poster Session.
- 13:30-15:00 **Ecological Psychology and the New Artificial Intelligence: Seeking Common Ground**
Organizers: Robert E. Shaw and Judith A. Effken

- 13:30 Adaptive Behavior in Natural and Artificial Agents
Randall D. Beer
- 13:50 Building Autonomous Agents as a Research Strategy for Understanding Perception and Action
Paul F. M. J. Verschure
- 14:10 Challenges Confronting Artificial Models of Ecological Intelligence
Peter N. Kugler
- 14:30 Discussant
David Kirsh
- 14:50 Questions and General Discussion
- 15:00-15:30 Coffee Break
- 15:30-17:00 **Ecological Perspectives on Language**
Organizers: Carol A. Fowler and Jeffrey Kinsella-Shaw
- 15:30 Natural Symbol Systems and Ecological Linguistics
Dennis Waters
- 15:48 Biologocal Foundations for an Ecological Ontology of Sign and Symbol Systems
Jeffrey Kinsella-Shaw and Robert E. Shaw
- 16:06 An Ecological Grounding for Sign and Symbol Functions
Robert E. Shaw and Jeffery Kinsella-Shaw
- 16:24 Transient and Enduring Evidence of the Origin of Language Forms in Language Use
Carol A. Fowler
- 16:34 Telescoping of Language Forms in Spontaneous Speech
Elena T. Levy
- 16:52 Discussion

Note: Poster Room Open until 18:00

- 17:00-19:00 **Evening Discussion Group: Human Factors and Ecological Psychology**
Conveners: Len Mark, Gerda Smets, Kees Overbeeke, John Flach, and Oded Flascher.
- 19:30-21:30 **Workshop on the Study of Language from the Ecological Perspective**
Conveners: Carol Fowler and Jeff Kinsella-Shaw

One purpose of the workshop is to define the scope of a theory of language from the ecological perspective. Some discussion will focus on the paradox of an ecological theory of symbol use. A second purpose is to work out the topics for research and the research methodologies that an ecological approach to

WEDNESDAY - AUGUST 11

8:30-9:00 **ISEP Meeting**

9:00-10:30 **Apprehending Dynamic Events: Invariants versus Cue-Heuristics**

Organizer: Sverker Runeson

Moderator: Geoffrey P. Bingham

9:00 Introduction

Geoffrey P. Bingham

9:10 Understanding Dynamics Based on Cue-Heuristics

Heiko Hecht

9:30 The Reality and Perceptual Relevance of Informative Invariants:
Ontological Aspects and Empirical Results

Sverker Runeson

9:50 Questions and General Discussion

10:30-11:00 Coffee Break

11:00-13:00 **An Ecological Approach to Development**

Organizer: Patricia Zukow-Goldring

11:00 Responses to Invisible Afforeances: Intentionality in Infancy

Nancy Rader

11:20 A Realist Theory of Language Development

Cathy Dent-Read

11:40 When Gestures Speak Louder than Words: Educating Attention to the
Relation Between Words and World

Patricia Zukow-Goldring

12:00 Development of Language and Social Behavior in Autism

Katherine Loveland

12:20 Applying Methods from Perceptual Development to Examining
Emotional Development in Children with Autism

Arlene Walker-Andrews

12:40 Discussant

Eleanor J. Gibson

13:00-14:00 Lunch

14:00-15:00 **Poster Session**

See description of Monday Poster Session.

15:00-17:00 **Intersubjectivity**

- 15:00 Introduction
James M. M. Good and S. Stavros Valenti
- 15:10 The Ecological Approach to Language
Edward S. Reed
- 15:35 Affective Affordances: The Emergence and Regulation of Shared Affect
G. P. Ginsburg and Melanie Harrington
- 16:00 The perception of intentionality as a basis for intersubjectivity
Dankert Vedeler
- 16:20 Constraints on Between-Person Coordination
R. C. Schmidt
- 16:40 Discussion

Note: Poster Room Open until 18:00

- 17:30-19:00 **Evening Discussion Group: Development and Intersubjectivity.**
Conveners: Jim Good, Stavros Valenti, and Patricia Zukow
- 20:30-22:00 **Evening Discussion Group: Tau and Time-to-Contact**
Convener: Claire Michaels

New discoveries (conceptual and empirical) may be presented during the first half hour. (Bring your data!) A discussion of these and other tau-related posters and presentations will follow.

Thursday - August 12

- 8:30-10:00 **Illusion and Reality**
Organizer: Glenn E. Meyer
- 8:30 Perceiving Complete Objects in the Face of Occlusion
James T. Enns and David I. Shore
- 8:46 Illusions, Appearance and Reality
John M. Kennedy
- 9:02 What is Contained within an "Image"? Evidence from Massive Failures to Make Discoveries from Imagery
Daniel Reisberg
- 9:18 Illusions of Light, Shadow and Contrast
Glenn E. Meyer
- 9:34 Subjective Contours and Visual-Geometric Illusions: Do They Share Common Mechanisms?
Stanley Coren and Renata Harland
- 9:50 Discussion
- 10:00-10:30 Coffee Break
- 10:30-12:00 **Navigation and Environmental Cognition: Ecological Considerations**
Organizer: Harry Heft
- 10:30 Navigating with the Aid of Topographic Maps
Herbert L. Pick, Jr. and William B. Thompson
- 10:45 Path Integration: A Neglected Form of Human Navigation
Jack M. Loomis, Roberta L. Klatzky, and Reginald G. Golledge
- 11:00 The Calibration of Walking without Vision, Models of Perceptual-Motor Organization, and Knowledge of Spatial Layout.
John J. Rieser
- 11:15 The Representation of a Circular Route: Identification of Landmarks and Configuration
Edward H. Cornell, C. Donald Heath, and Tammy L. Dukewich
- 11:30 Way-Finding as Event Perception: The Structure of Route Information
Harry Heft and Marion H. Kent
- 11:45 Discussion
- 12:00-13:00 Lunch
- 13:00-14:00 **Poster Session**
See description of Monday Poster Session.

- 14:00-15:30 **Dynamical Themes in Perception and Action**
Organizers: J. A. S. Kelso and M. T. Turvey
- 14:00 A Physical Foundation for Gibson's Approach to Perception and Action
A. S. Iberall
- 14:40 Dynamical Analyses of Perception and Interlimb Coordination: An Overview of Research
M. T. Turvey
- 15:20 Discussion
- 15:30-16:00 Coffee Break
- 16:00-17:30 **Ecological Acoustics**
Organizers: Rainer Guski, Wolf-D. Heine, and Hollis Fitch
- 16:00 Introduction
Rainer Guski and Wolf Heine
- 16:05 Issues in Auditory Looming
Larry Rosenblum
- 16:25 Getting Around by Means of Sound
David Lee
- 16:45 Speech Perception is Not Special: A Comparison of Speech to Nonspeech
Carol Fowler
- 17:05 Acoustic Texture in Distance Perception
Rainer Hoeger
- 17:25 General Discussion
- Note: **Poster Room Open until 18:30**
- Time TBA **Evening Discussion Group: Affordances and Human-Environment Interfaces**
Conveners: Gary Riccio and Vernon McDonald

Friday - August 13

- 8:00-10:00 **Surface Perception**
Organizers: Francene Reichel and J. Farley Norman
- 8:00 The Perception of Contradictory Motion and Binocular Disparity Fields
*J. Farley Norman, James T. Todd, James S. Tittle,
and Victor J. Perotti*
- 8:25 Lightness of Curved Surfaces
Ennio Mingolla and Larry Arend
- 8:45 Recovering 3-D Surfaces from 2-D Velocity Gradients
*Myron L. Braunstein, Jeffrey C. Liker, Asad Saidpour,
and James S. Tittle*
- 9:10 From Deforming Images to Perceived Surfaces
Joseph S. Lappin, Ulf B. Ahlstrom, and Warren D. Craft
- 9:30 Reconceptualizing Accretion/Deletion of Texture
Albert Yonas, Maya Sen, and David Knill
- 9:50 Discussion
- 10:00-10:30 **Coffee Break**
- 10:30-12:00 **Affordances and Task Constraints in Intentional Systems**
Organizers: Peter Beek, Karl Newell and Gary Riccio
- 10:30 On Affordances and Tasks
Karl Newell
- 10:45 Affordances for Multicriterion Control
Vernon McDonald
- 11:00 Questions and Discussion
- 11:15 Controlling Nested Subsystems in Cascade Juggling on the Basis of
Optical Information
Tony Santvoord and Peter Beek
- 11:30 Multimodal Perception and Multicriterion Control of Nested Systems
Gary Riccio
- 11:45 Discussion
- 12:00-13:00 **Lunch**
- 13:00-14:00 **Poster Session**
See description of Monday Poster Session

- 14:00-15:30 **Visual Control of Locomotion**
Organizers: Dean Owen and Walter Johnson
- 14:00 Isolating Optical Invariants in Performance
Dean Owen
- 14:10 An Integration of the Ecological and Engineering Approaches to
Control of Locomotion
Walter Johnson
- 14:20 Examining the Mapping between Event Kinematics and Potential
Optical Control Variables
Mary Kaiser
- 14:30 The Analysis of Optic Flow for the Recovery of Object and Observer
Motion
George Andersen
- 14:40 A Constraint-Based Global Perspective on Information for Control
John Flach
- 14:50 Optical Flow and Control
William Warren
- 15:00 Panel Discussion.
- 15:20 General discussion.
- 15:30-16:00 Coffee Break
- 16:00-17:30 **Lessons from Highly Refined Perception-Action Cycles in
the Arts**
*Organizers: Robert E. Shaw, Nathan Knobler, William Mace
and Ron Growney*
- 16:00 Some of the Operative Factors in the Production of Drawings
Nathan Knobler
- 16:23 The Intentional Dynamics of Chinese Calligraphical Art
Robert E. Shaw
- 16:46 Aesthetic Judgments of Dance: The Role of Visual Information
Jacquelyn T. Gray and Ulrich Neisser
- 17:09 Moving the Window on Perception-Action Cycles
William M. Mace
- 17:19 Discussion

Note: Poster Room Open until 18:30

19:00 **Banquet in the Museum of Anthropology**