

# **Eighth International Conference on Perception and Action**

## **Proceedings**

July 9-14, 1995  
Faculty of Sport Sciences, University of the Mediterranean  
Marseille, France

## **Organized by**

Benoît G. BARDY  
University of the Mediterranean

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The conference organizers are indebted to the symposia organizers for their efforts: Blandine Bril and Audrey van der Meer (The acquisition of perceptuo-motor skills: The current status of ecological developmental theories); Steve Flynn and Thomas Stoffregen (Event dynamics perception: Collisions and beyond); Kim Vicente (Human factors); Lawrence Rosenblum and Rainer Guski (Ecological acoustics); Yves Guiard and Gregor Schöner (Rhythmic and discrete movement: The challenge of a unified account); Maggie Shiffrar (The visual perception of biological motion); Jürgen Konczak (Intrinsic dynamics of pathological motor patterns); Valérie Cornilleau-Peres and William Warren (Interaction between perception of self-motion, object-motion and layout); Benoît Bardy, Jean-Jacques Temprado, and Michel Laurent (Perception-action coupling and learning in sport); John Wann (Motion control in virtual environments: Empirical and applied approaches); Jerry Ginsburg and Jim Good (The emergent nature of affordance in social interaction); Hal Sedgwick (Is picture perception special?); Reinoud Bootsma and Geoffrey Bingham (Visually guided reaching); Richard Carson (Asymmetries in coordination: Dynamical perspectives); John Rieser (Representation, action, and the development of representation-action couplings); John Pickering (Affordance, action and value: A post-modern perspective); Robert Remez (Amodal perceptual organization of spoken events); Patrick Cabel (Haptic information for spatial perception).

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**PROGRAM**

**SUNDAY - JULY 9**

18:00 - 22:00 **Registration and "Get Together"**

CMCI, World Trade Center  
2, rue Henri Barbusse  
13 001 Marseille  
-91.39.33.85-

In addition to the registration time for Sunday show above, the Conference Center Registration Desk will be open every day from 8:00 to 12:00. The Registration Desk is located in the hall next to Room Europe 57.

[ Program continued on next page ]

**MONDAY - JULY 10**

8:30 - 10:00 **Opening**

10:00 Coffee break

10:30 - 12:10 **The Acquisition of Perceptuo-Motor Skills: The Current Status of Ecological Developmental Theories**  
*Audrey L. H. van der MEER and Blandine BRIL*

10:40 Understanding change in infant skill acquisition  
*Karen E. ADOLPH and Robert S. SIEGLER*

11:00 Dynamics in development  
*Beatrix VEREIJKEN*

11:20 Development is cultural learning  
*John PICKERING*

11:40 Beyond perception and action, what develops? Self-awareness in a meaningful environment  
*Philippe ROCHAT*

12:00 Discussion

12:10 Lunch and Poster Session

14:00 - 15:40 **Event Dynamics Perception: Collisions and Beyond**  
*Steve FLYNN and Thomas A. STOFFREGEN*

14:05 Experimental quality on a collision course  
*Sverker RUNESON*

14:35 Amodal completion in intrasaccadic motion: Stimulus or event?  
*Bruce BRIDGEMAN, Heiner DEUBEL, and Werner SCHNEIDER*

14:55 Object dynamics and the anticipatory modulation of grip force  
*Alan WING, Randy FLANAGAN, and James TRESILIAN*

15:15 Issues in the visual perception of caught weight  
*Steve FLYNN, Thomas A. STOFFREGEN, and Jay SMART*

15:35 Discussion

15:40 Coffee break

16:00 - 17:40 **Human Factors**  
*Kim VICENTE*

16:10 Perceptually-based displays can improve monitoring and control: Will what they teach transfer to the use of traditional displays?  
*Judith A. EFFKEN, Nam-Gyoon KIM, and Robert E. SHAW*

16:35 Some constraints on an ecological theory of strategic action  
*Alex KIRLIK*

17:00 Ecological design and telepresence: Preserving space-function-distance relationships  
*Bill BUXTON*

17:25 Discussion

*Program*

*VIIIth International Conference on Perception and Action*

- 17:40 Break
- 18:00 - 19:00 Poster Session
- 18:00 - 20:00 **Evening Discussion: Ecological Approaches to Developmental Psychology and Social Psychology: Some Common Concerns**  
*James GOOD and Blandine BRIL*
- The purpose of this discussion group is to provide an opportunity to identify issues and problems of common concern to researchers utilising the ecological approach in their studies of human development and social behaviour. It is intended to focus on topics which have not been covered directly in this year's symposia, e.g., the role of culture, the importance of social context, the nature of social development.
- 20:00 - Free Evening

**TUESDAY - JULY 11**

- 8:00 Coffee
- 8:30 - 10:10 **Ecological Acoustics**  
*Larry ROSENBLUM and Rainer GUSKI*
- 8:40 Ecological acoustics: Which ecology? What acoustics?  
*James A. BALLAS*
- 9:00 The auditory categorisation of the sound of falling wooden blocks  
*Stef DECOENE*
- 9:20 Studies on the auditory perception of impending collision  
*Andreas HELLMANN*
- 9:40 Acoustic information for imminence of object pass by  
*Terri ERWIN*
- 10:00 Discussion
- 10:10 Coffee break
- 10:30 - 12:10 **Rhythmic and Discrete Movement: The Challenge of a Unified Account**  
*Yves GUIARD and Gregor SCHÖNER*
- 10:35 Fitts' law in the rhythmic versus discrete case: Chronometric and kinematic data  
*Yves GUIARD*
- 10:55 Imitation of rhythmical patterns: Symbolic and «direct» mediation between perception and action  
*Stefan VOGT*
- 11:15 On rhythmic and discrete synergies: Current theories and new directions  
*Michael T. TURVEY*
- 12:00 Discussion
- 12:10 Lunch and Poster Session
- 14:00 - 15:40 **The Visual Perception of Biological Motion**  
*Maggie SHIFFRAN*
- 14:00 The global perception of biological motion across time  
*Maggie SHIFFRAN*
- 14:25 Perception of biological motion patterns in unusual orientations  
*Marina A. PAVLOVA*
- 14:50 Perception of biological motions by infants  
*Bennett L. BERTENHAL*
- 15:15 Motor-perceptual interactions  
*Paolo VIVIANI*
- 15:40 Coffee break

Program

- 16:00 - 17:40 **Intrinsic Dynamics of Pathological Motor Patterns**  
*Jürgen KONCZAK*
- 16:10 Interlimb coupling in hemiplegic CVA patients  
*Charles B. WALTER and Christine CUNNINGHAM*
- 16:30 Effects of L-DOPA administration and visual cues on the kinematics of Parkinsonian gait  
*Daniel R. MESTRE, Carien van den BRAND, Olivier BLIN, and Jean Philippe AZULAY*
- 16:50 Dynamics of movement coordination and tremor during gait in Parkinson's disease  
*Richard E. A. van EMMERIK and Robert C. WAGENAAR*
- 17:10 Central timing mechanisms in Parkinson's disease: On the control of repetitive lip- and finger movements  
*Jürgen KONCZAK*
- 17:30 Discussion
- 17:40 Break
- 18:00 - 19:00 Poster Session
- 20:00 - **Bouillabaisse Evening:** (optional)  
Les Salons de la Réale  
25, rue Fort Notre Dame  
13001 Marseille  
-91.54.19.10-

VIIIth International Conference on Perception and Action

WEDNESDAY - JULY 12

- 8:00 Coffee
- 8:30 - 10:10 **Interaction Between Perception of Self Motion, Object Motion and Layout**  
*Valérie CORNILLEAU-PERES and William H. WARREN, Jr.*
- 8:40 Judgements of object motion and ego-motion  
*Albert van den BERG and Eli BRENNER*
- 9:05 Visual control of posture  
*Stan GIELEN and Tjeerd DIJKSTRA*
- 9:30 Neural mechanisms for detecting object motion, self motion, and time-to-collision  
*Barrie J. FROST*
- 9:55 Discussion
- 10:10 Coffee break
- 10:30 - 12:10 **Perception-Action Coupling and Learning in Sport**  
*Benoît G. BARDY, Jean-Jacques TEMPRADO, and Michel LAURENT*
- 10:40 Coordination and control in volley-ball serve: A preliminary study  
*Jean-Jacques TEMPRADO, Martin FARRELL, Michel LAURENT, and Muriel DELLA-GRASTA*
- 11:00 Multispecification: No choice  
*Gilles MONTAGNE, Michel LAURENT, and Alain DUREY*
- 11:20 Learning to hit accelerating objects  
*Reinoud J. BOOTSMA and Valérie FAYT*
- 11:40 Prospective control in somersaulting  
*Benoît G. BARDY*
- 12:00 Discussion
- 12:10 Lunch and Poster Session
- 14:00 - 15:30 **Annual Meeting of the International Society for Ecological Psychology (ISEP)**
- 15:30 Coffee break
- 16:00 - 17:40 **Motion Control in Virtual Environments: Empirical and Applied Approaches**  
*John P. WANN*
- 16:10 Time-to-passage and time-to-contact judgments in non-constant optical flow fields  
*Mary K. KAISER and Heiko HECHT*
- 16:30 Time-to-wall-crossing (TWC) and perspective flight path displays  
*Max MULDER, Hans C. van der VAART, and Erik THEUNISSEN*

*Program*

- 16:50 Virtually controlled locomotion  
*William H. WARREN, Jr.*
- 17:10 Controlling steering and braking during simulated and real driving  
*David N. LEE, John P. WANN, and Simon K. RUSHTON*
- 17:30 Discussion

17:40 Break

18:00 - 19:00 Poster Session

18:00 - 20:00 **Evening Discussion: The "When" and "Where" of Goal-Directed Action**  
*Jeroen B. J. SMEETS*

How can we integrate the neurophysiological knowledge of spatial perception into an ecological description of goal-directed action? If you have ideas, you can present them during the first half hour. A discussion of the merits and limitations of the presented approaches will follow.

20:00 - Free Evening

*VIIIth International Conference on Perception and Action*

**THURSDAY - JULY 13**

8:00 Coffee

8:30 - 10:10 **The Emergent Nature of Affordance in Social Interaction**  
*Jerry P. GINSBURG and James M. GOOD*

8:30 Introduction and overview  
*James M. GOOD*

8:35 Affordances in human learning and development  
*Edward S. REED*

9:00 Object-affordances guiding mother-child interaction  
*L. van LEEUWEN, R. KAUFMANN-HAYOZ, F. KAUFMANN, and D. WALTHER*

9:25 Affordances are relationships  
*Alan FOGEL*

9:50 Discussion: The joint creation and detection of affordances  
*Jerry P. GINSBURG*

10:10 Coffee break

10:30 - 12:10 **Is Picture Perception Special?**  
*Harold A. SEDGWICK*

10:40 Illusions and pictorial representation  
*Barbara GILLAM*

11:05 Perceiving layout in pictures and natural scenes  
*James E. CUTTING*

11:30 Visual perception of events and action from kinematic (video) and static (photographic) displays  
*Alan P. COSTALL and S. Stavros VALENTI*

11:55 Picture perception is on a continuum with direct perception  
*Harold A. SEDGWICK and Andrea L. NICHOLLS*

12:10 Lunch and Poster Session

14:00 - 15:40 **Visually Guided Reaching**  
*Reinoud J. BOOTSMA and Geoffrey P. BINGHAM*

14:10 Environmental pitch, pointing, and orienting  
*Arnold E. STOPER and Abigail BAUTISTA*

14:35 Picking up a moving object: Emergent timing in the reaching movement  
*Frank T. J. M. ZAAL, Reinoud J. BOOTSMA, and Piet C. W. van WIERINGEN*

15:00 Monocular perception of egocentric distance via head movement and its use in guiding a reach  
*Geoffrey P. BINGHAM and Christopher C. PAGANO*

15:25 Discussion

Program

- 16:00 - 17:40 **Asymmetries in Coordination: Dynamical Perspectives**  
*Richard G. CARSON*
- 16:10 Asymmetrical coupling in multifrequency tapping: Fast hand dominates slow hand  
*Lieke PEPPER, Peter J. BEEK, and Piet C. W. van WIERINGEN*
- 16:30 Asymmetry effects in subjects with spastic hemiparesis  
*Bert STEENBERGEN, Wouter HULSTIJN, Aviva DE VRIES, and Maria BERGER*
- 16:50 Nonlinear dynamics of bimanual laterality  
*Paul J. TREFFNER*
- 17:10 Asymmetries in coordination: Constraints on dynamic stability  
*Winston D. BYBLOW, Romeo CHUA, Richard G. CARSON, and Michael KHAN*
- 17:30 Discussion
- 17:40 Break
- 18:00 Poster Session
- 19:00 **Reception Hosted by the City of Marseille**  
Hôtel de Ville  
2, Place Mazeau  
13 002 Marseille

VIIIth International Conference on Perception and Action

FRIDAY - JULY 14

- 8:00 Coffee
- 8:30 - 10:10 **Representation, Action, and the Development of Representation-Action Couplings**  
*John J. RIESER*
- 8:40 Object representations and infants reaching for objects in the dark  
*Rachel K. CLIFTON*
- 9:00 Planning and perceiving as complementary processes in the guidance of action  
*Claes H. von HOFSTEN*
- 9:20 Locomotion and the organization of knowledge  
*Herbert L. PICK*
- 9:40 Young children's knowledge of changing perspective when locomoting through imagined surroundings and manipulating imagined objects  
*John J. RIESER*
- 10:00 Discussion: *James A. THOMSON*
- 10:10 Coffee break
- 10:30 - 12:10 **Affordance, Action and Value: A Postmodern Perspective**  
*John PICKERING*
- 10:40 Beyond goals: The place of values in a world of postmodern affordances  
*Bert H. HODGES*
- 11:00 An ecological approach to intelligence  
*John T. SANDERS*
- 11:20 Propagating cultural knowing  
*Patricia ZUKOW-GOLDRING*
- 11:40 Gibsonian and quantum mechanical perspectives on the evolution of perceptual systems  
*Endre E. KADAR, Robert E. SHAW, and Oded M. FLASCHER*
- 12:00 Discussion
- 12:10 Lunch and Poster Session
- 14:00 - 15:40 **Amodal Perceptual Organization of Spoken Events**  
*Robert E. REMEZ*
- 14:00 Effects of listener expectation on eye movement behavior during audiovisual perception  
*Eric VATIKIOTIS-BATESON, Inge-Marie EIGSTI, Sumio YANO, Kevin G. MUNHALL, and Philip RUBIN*
- 14:20 Read my lips: Where? How? When? And ... so What?  
*Christian BENOIT, Christian ABRY, Marie-Agnès CATHIARD, Thierry GUIARD-MARIGNY, and Tahar LALLOUACHE*

*Program*

- 14:40 Modality matters  
*Lynne E. BERNSTEIN*
- 15:00 What role may amodal event informatin play in infants' perception of non-native versus native phonetic contrasts  
*Catherine T. BEST*
- 15:20 Articulatory dynamics specified across modalities  
*Lawrence D. ROSENBLUM*
- 15:40 Coffee
- 16:00 - 17:40 **Haptic Information for Spatial Perception**  
*Patrick A. CABE*
- 16:10 Left/right differences in object holding and motor skills in 6-month-old infants  
*Arlette STRERI*
- 16:30 Spatial perception by dynamic touch  
*Christopher C. PAGANO*
- 16:50 Distal touch: Space, haptics and orientation  
*John KENNEDY, Guisepppe MIRABELLA, and Akalya NAVARATNAM*
- 17:10 Haptic distal spatial perception mediated by strings  
*Patrick A. CABE*
- 17:30 Discussion
- 17:40 Break break
- 18:00 - 19:00 Poster Session
- 20:00 **Conference Banquet at the "Vieille Charité"**  
Vieille Charité  
2, rue de la Vieille Charité  
13002 Marseille  
-91.56.28.38-

**1**

**THE ACQUISITION OF PERCEPTUO-MOTOR SKILLS:  
THE CURRENT STATUS OF ECOLOGICAL DEVELOPMENTAL THEORIES**

SYMPOSIUM ORGANIZERS

Audrey L. H. van der MEER<sup>a</sup> and Blandine BRIL<sup>b</sup>

- a. Department of Psychology, University of Edinburgh, Edinburgh, Scotland, U.K.*  
*b. Cognition et Contexte, Ecole des Hautes Etudes en Sciences Sociales, Paris, France.*

Within the ecological approach to development, two main approaches can be discerned. First, there is the direct perception approach to perceptual learning and development. A good example of research from within this approach is affordance research (e.g., Adolph, Eppler, & Gibson, 1994), examining whether infants can detect what the environment offers them in terms of their own changing action capabilities. Second, there is the dynamical systems approach to development (e.g., Smith & Thelen, 1994). This approach exploits dynamical tools and concepts in an attempt to give a comprehensive description of developmental phenomena.

Whatever the approach, the context of action is central to the analysis. Here context includes "natural" components such as gravity as well as material or social elements of the environment. An emphasis is made on the way these elements will shape human experience since the very beginning of life: it offers possibilities for actions. Learning, then, is viewed as the exploration of the perceptuo-motor workspace resulting from the interplay between the environment, the task, and the organism (Newell, 1986).

A study of the recent literature enables one to conclude that infant research from an ecological perspective is a very active area - one of the growth points within ecological psychology (Gordon, 1989). However, some dissatisfied voices can now be heard from within our own camp (Michaels & Beek, 1994). Is it enough for ecological developmentalists to report that infants do as well as adults on a whole range of tasks? Are the possibilities of pattern dynamics overestimated with respect to developmental problems?

This symposium invites developmentalists to share their views on the state of ecological theories of development and learning, to reflect on what we should aim to achieve over the next few years, and to back up their ideas with novel empirical data.