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Gesture in Human-Computer Interaction and Simulation

6th International Gesture Workshop, GW 2005
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Revised Selected Papers

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Preface

The international Gesture Workshops have become the leading interdisciplinary events for dissemination of the latest results on gesture-based communication. The goal of these workshops is to bring together researchers who want to meet and share ideas on advanced research on gesture related to multidisciplinary scientific fields. Depending on the fields, the objectives can be very different. While physiology and biomechanics aim to extract fundamental knowledge of physical gesture, computer sciences try to capture different aspects of gesture and extract features that help to identify, interpret or rebuild the underlying mechanisms of communication gestures. Other approaches and methodologies are followed by cognitive sciences and linguistics, bringing a complementary understanding of motor control and gesture meaning. The results can be enhanced by technological applications or demonstrations. For example, gestural interaction in an augmented or virtual reality context leads to active application areas. Since 1996 gesture workshops have been held approximately every two years, with full post-proceedings usually published by Springer.

Gesture Workshop 2005 (GW 2005) was organized by VALORIA, at the University of Bretagne Sud (Vannes, France), and was held on Berder Island, Morbihan (France) during May 18-20, 2005. This event, the sixth in a highly successful workshop series, was attended by more than 70 participants from all over the world (13 countries). Like the previous events, GW 2005 aimed to encourage multidisciplinary exchanges by providing an opportunity for participants to share new results, show live demonstrations of their work, and discuss emerging directions on topics broadly covering the different aspects of gesture. The very special area where the workshop took place (a small island in the Gulf of Morbihan) provided an occasion for lively discussions and establishment of future collaboration on research centered on gesture as a means of communication. A large number of high-quality submissions was received, which made GW 2005 a great event for both industrial and research communities interested in gesture-based models relevant to human–computer interaction and simulation.

This book is a selection of revised papers presented at Gesture Workshop 2005. Containing 24 long papers and 14 short papers, it offers a wide overview of the most recent results and work in progress related to gesture-based communication. Two contributions on major topics of interest are included from two invited speakers. The contribution from Jean-Louis Vercher (Movement and Perception Lab., Marseille, France) is concerned with fundamental issues of biological motion, and their link with the perception and the synthesis of realistic motion. The contribution from Ronan Boulic et al. (EPFL, Switzerland) highlights the potential of some well-known computer animation methods for motion synthesis. The book covers eight sections of reviewed papers relative to the following themes:

- Human perception and production of gesture
- Sign language representation
- Sign language recognition
- Vision-based gesture recognition
- Gesture analysis
- Gesture synthesis
- Gesture and music
- Gesture interaction in multimodal systems

Under the focus of gesture in Human-Computer Interaction and Simulation, the book encompasses all aspects of gesture studies in emerging research fields. Two sections are devoted to sign language representation and recognition. Pertinent features extracted from captured gestures (signal, image) are used for processing, segmentation, recognition or synthesis of gestures. These topics concern at least three sections of the book. Different kinds of applications are considered, including for example expressive conversational agents, gesture interaction in multimodal systems, and gesture for music and performing arts.

The workshop was supported by the University of Bretagne Sud (France), the French Ministry of Research, the *Conseil Régional de Bretagne* and the *Conseil Général du Morbihan*: we are very grateful for their generous financial support. GW 2005 also received some financial support from COST-European Science Foundation. In particular, the Cost287-ConGAS action, mainly concerned with Gesture Controlled Audio Systems, was strongly represented within the workshop, and we are grateful to the delegates for their contribution to the event and the book. Thanks also to France Telecom R&D (a French telecommunication society) which generously contributed to the sponsoring of GW 2005, and participated in the forum by presenting very relevant demonstrations.

We would also like to express our thanks to the local Organizing Committee (Sylviane Boisadan, Alexis Héloir, Gildas Ménier, Elisabeth Le Saux, Joël Révault, Pierre-François Marteau) as well as Gersan Moguérou for webmastering the GW2005 Internet site. We are also grateful to the university staff and the PhD students from VALORIA who helped in the organization of the workshop.

Finally, the editors are thankful to the authors of the papers, as well as the international reviewers. As a result of their work, this volume will serve as an up-to-date reference for researchers in all the related disciplines.

December 2005

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