

## Foreword

The 2011 SKILLS International Conference (SKILLS 2011) marks the official end of the European SKILLS project ([www.skills-ip.eu](http://www.skills-ip.eu)), funded from 2006 to 2011 by the European Commission under the FP6 program (IST #035005).

The SKILLS project focuses on the acquisition, interpretation, storage, maintenance and transfer of human skill using multimodal technologies such as virtual and augmented realities, human-machine interfaces, interaction design, and robotic systems. A novel approach to technology-assisted acquisition or rehabilitation is proposed, based on the direct and multimodal interaction between learner and technology. Perception-action, affordance-based, and cognitive accelerators embedded in specific training protocols are used at various stages of learning in several (real) trainee – (virtual) trainer situations. The application domains are Sport (rowing), Entertainment (juggling), Surgery (maxillofacial), Rehabilitation (upper- limb), Robotics (programming by demonstration), and Industrial maintenance (assembling).

Two years ago, at a general assembly, the decision was taken to organize an international conference to coincide with the final review of the SKILLS project. Montpellier was deemed to be the most suitable venue as the conference date coincides with the beginning of the construction of EuroMov; a new centre of European scale for research, technology and innovation in the Sciences of Movement at Montpellier-1 University (UM1), which originated within the SKILLS framework. Our challenge as an EU consortium was to attract the international community and present the results of our project whilst remaining open to converging influences arising from the global community in this domain.

The current proceedings witness this bidirectional influence. Included are 100 chapters summarizing the science and technology presented in Montpellier. The SKILLS conference includes 3 keynote lectures, 26 oral communications in open sessions or thematic symposia, and 74 posters. The speakers come from 20 countries; Australia, Belgium, Canada, Denmark, Finland, France, Germany, Ireland, Israel, Italy, Japan, Luxemburg, Mexico, Netherlands, Poland, Spain, Switzerland, Tunisia, UK, and USA. The conference's attendees consist of approximately 200 researchers, students, and engineers, from several disciplines in science, technology, and art. In addition, the conference includes 6 large demonstration platforms allowing participants to enact the results of the SKILLS project by testing our training accelerators and protocols. These proceedings have been published by EDP Sciences [Bardy, B. G., Lagarde, J., & Mottet, D. (2011, Eds.), *Proceedings of the 2011 International SKILLS Conference*. Paris (France): EDP Sciences.

Many thanks are due.

Firstly, we wish to acknowledge all the scientists who contributed to this volume and participated in the conference. We would also like to express our gratitude and encouragement to the authors whose submissions were not successful. We are deeply obliged to our co- chairs, Daniel Gopher and Ulrich Bockholt, for their help in preparing the SKILLS scientific program, and to the 27 members of the scientific committee who have evaluated the contributions; they are too numerous to appear here but their names are listed in this volume. We would like to thank everyone who has contributed to this conference.

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Finally, we are indebted to Massimo Bergamasco, Professor of Applied Mechanics at the Scuola Superiore Sant'Anna in Pisa and coordinator of the SKILLS project and his management team for their immeasurable support throughout the years.

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**Benoît G. Bardy Julien Lagarde Denis Mottet**  
Chairs, The 2011 SKILLS Conference