

Preface

This book regroups the articles that were presented at the ninth international Conference on the Simulation of Adaptive Behaviour (SAB'06) held at the Italian National Research Council, Roma, on September 25-29 2006. The objective of the biennial SAB conference is to bring together researchers in computer science, artificial intelligence, alife, complex systems, robotics, neurosciences, ethology, evolutionary biology, and related fields so as to further our understanding of the behaviours and underlying mechanisms that allow natural and artificial animals to adapt and survive in uncertain environments.

Adaptive behaviour research is distinguished by its focus on the modelling and creation of complete animal-like systems, which - however simple at the moment - may be one of the best routes to understanding intelligence in natural and artificial systems. The conference is part of a long series that started with the first SAB conference, which was held in Paris in September 1990, and was followed by conferences in Honolulu 1992; Brighton 1994, Cape Cod 1996; Zurich 1998; Paris 2000; Edinburgh 2002, Los Angeles 2004. In 1992, the MIT Press introduced the quarterly journal *Adaptive Behaviour* now published by SAGE Publications. The establishment of the International Society for Adaptive Behaviour (ISAB) in 1995 further underlined the emergence of adaptive behaviour as a fully-fledged scientific discipline. The present proceedings are a comprehensive and up-to-date resource of the latest progress in this exciting field.

The 35 papers and 35 poster summaries published here were selected from 140 submissions after a two-pass review process designed to ensure high and consistent overall quality. Articles cover all main areas in animats research, including perception and motor control, action selection, motivation and emotion, internal models and representation, collective behaviour, language evolution, evolution and learning. The authors focus on well-defined models, computer simulations or robotic models, that help to characterize and compare various organizational principles, architectures, and adaptation processes capable of inducing adaptive behaviour in real animals or synthetic agents, the animats. We hope that these articles will provide stimulating reading material, with a good overview of the latest developments in this exciting field.

The conference and its proceedings would not exist without the substantial help of a wide range of people. Foremost, we would like to thank the members of the Program Committee who thoughtfully reviewed all the submissions and provided detailed suggestions on how to improve the articles. We are also indebted to our sponsors.

The enthusiasm and hard work of numerous individuals was essential to the conference's success. Above all, we would like to acknowledge the significant contributions of Diana Giorgini, Gisella Pellegrini, and all the members of the Laboratory for Autonomous Robots and Artificial Life, ISTC-CNR, Roma for

their help with the local arrangements. Finally, once again, we would like to warmly thank Jean Solé for the artistic conception of the SAB'06 poster and the proceeding cover.

We invite readers to enjoy and profit from the papers in this book, and look forward for the next SAB conference in 2008

September 2006

Stefano Nolfi
Program Chair
SAB'06

Organization

FROM ANIMALS TO ANIMATS 9, The Ninth International Conference on the SIMULATION OF ADAPTIVE BEHAVIOR (SAB'06) is organized by the Institute of Cognitive Sciences and Technologies of the Italian National Research Council (CNR), and ISAB (International Society for Adaptive Behavior).

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