

Preface

Artificial Life has come a long way. Since the inception of the field about 16 years ago with a seminal workshop at the Santa Fe Institute, the field has developed quickly. Its interdisciplinary roots have been both a blessing and a curse. Critical people would say that nothing was new in the ideas of Artificial Life, since many other disciplines had addressed the very same questions, though probably under different names. Other critics would state that the difficulty of interacting in an interdisciplinary way with colleagues from so many other and divergent fields would be so great that true progress could not come from such an enterprise, as those involved would be too busy understanding – or misunderstanding – each other. Admirers, on the other hand, would speak of a bold new attack on the most fascinating questions of science with this new approach. Others would say that new perspectives were opened by the questions the area of Artificial Life asked so pointedly. For those involved in this effort over some years, it has always been very interesting and fascinating to work on these questions.

From our discussions it also seems that Artificial Life is beginning to become mainstream. Evolutionary biology, computational and systems biology, and computational social science, to name a few, are disciplines benefitting from ideas hedged in Artificial Life. This, plus the success of open-ended evolutionary games in the entertainment industry, the sensibility achieved with decades of work behind us in artificial evolutionary approaches with fixed fitness measures, and the development of technology towards a networked, asynchronous, world of interacting entities, have all conspired to prepare the floor for Alife research coming into its own. Notably the concept of emergence of new qualities from the interaction of entities without this quality has been a huge success in recent years.

Artificial Life in Europe has always been a vivid activity. Beginning in 1991, a series of workshops and conferences have been held in close coordination with the emerging International Conference on Artificial Life. The present conference is the seventh in a series begun in Paris (France) in 1991, with its successors in Brussels (Belgium) in 1993, Granada (Spain) in 1995, Sussex (England) in 1997, Lausanne (Switzerland) in 1999, leading up to the preceding conference 2001 in Prague. They have left traces in the form of proceedings volumes published by Springer-Verlag or MIT Press. This, the 7th European Artificial Life Conference, held in Dortmund, Germany in September 2003, was no exception.

We would like to cordially thank Gundel Jankord for organizing the conference secretariat, Christina Lorenz and Philip Limbourg for their help in preparing these proceedings, our students at Dortmund University for their help in running the conference, and Alfred Hofmann from Springer-Verlag for accepting the conference into the LNCS/LNAI series. Dr. Holger Lange, Prof. Dr. Thomas Martinetz, and Dr. Frank Schweitzer, the other members of our organizing committee, did a wonderful job, and the members of this year's program committee are to be congratulated on their fine selection of papers. We would like to thank

the additional reviewers who were really indispensable for getting the decisions right. Numerous others made themselves available when we needed them, and we would like to express our sincere gratitude to all who helped make ECAL 2003 in Dortmund possible.

More than 140 submissions are testimony to the fact that Alife is an active research area. The contributions selected for these proceedings, from various fields from artificial chemistries to robotics and autonomous agents, show the breadth and depth of thinking in our area. Origin of life, life-like behavior, and phenomena of the living are all central pieces of this endeavour. Evolution, development, and learning/adaptation are means to achieve survival in ever changing environments. These provide the themes in our community, and technology is both driving the progress and profiting from its results. With a number of invited lectures we tried to open our eyes to the development both within our field and beyond.

We think that the mystery of life and the living is still not solved. We hope that Alife research is one of the approaches that stands to answer particular questions in this regard, and stands to answer them decisively. Whether and when this happens is still an open question. May the meeting in Dortmund and these proceedings help us to move forward in this quest to solve one of the most fascinating problems of humankind.

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Organization

ECAL 2003 was organized in collaboration with the Department of Computer Science, University of Dortmund and the Fraunhofer Institute for Autonomous Intelligent Systems (FhG-AIS), Sankt Augustin, Germany. It was held in the Zeche Zollern II/IV in Dortmund Bövinghausen, which is part of the Westfälische Industriemuseum.

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