# Preface

This volume contains the proceedings of the Fifth International Conference on Cellular Automata for Research and Industry (ACRI 2002) that was held in Geneva on October 9–11, 2002. After more modest beginnings in 1994 as a largely Italian conference, over the years ACRI has gradually become firmly established as one of the premier conferences in the field of cellular automata in Europe and beyond.

Although the field of cellular automata is a relatively old and established one, these simple but powerful systems and their newer variations continue to attract the interest of researchers after more than half a century since the seminal work of Ulam and Von Neumann. The ACRI series of conferences has the ambition of being an internationally renowned forum for all those interested in the theory and applications of cellular systems.

The contributions collected in this volume concern cellular automata in various fields such as theory, implementations and applications. In addition, several fields of research (e.g. the multi-agents approach) adopt methodologies that show strict affinities to cellular automata, but without the label "Cellular Automata". Therefore, one of our intentions was to enlarge the cellular automata community to include new related techniques.

The papers in these proceedings demonstrate the wide and varied applicability of cellular automata. These papers have been selected from among about 50 submitted contributions. Each paper was reviewed by at least two members of the program committee. We are extremely grateful to these reviewers for their willingness to offer their expertise to ensure the decision-making process was as fair as possible. The results of the selection are seen in the high quality of the papers published within this volume, many of which are by internationally recognized researchers.

The published papers range from theoretical contributions to applications of cellular automata in various fields, some classical and some novel, including lattice gases, pattern classification, cryptography and authentication. Less well known models have received attention, such as probabilistic, asynchronous, and multilevel automata. Among the new applications and models, one may mention highway traffic, pedestrian and spatial population dynamics, new environmental applications and collective intelligence.

We would like to express our sincere thanks to the invited speakers Olga Bandman, Serge Galam and Kai Nagel, who gave keynote talks on hot topics in the context of standard cellular automata and beyond.

This conference would have been considerably poorer without the support of many people and organizations who helped in different ways to make this event possible. We already remarked on the important role of the Program Committee. We would also like to thank Illycaffè (Trieste) and the Troisième Cycle Romand d'Informatique (Fribourg) for their generous financial support. We also thank Sissa, the International School for Advanced Studies (Trieste), which hosted a successful previous edition of this conference, for its support in the final production of this volume.

We feel that these proceedings amply demonstrate that cellular automata are a lively research topic that, far from being exhausted, will bear new fruits and new models in the pure and applied sciences.

October 2002                                          Stefania Bandini,
                                                       Bastien Chopard,
                                                       Marco Tomassini

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