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Preface

We are very pleased to present this LNCS volume, the proceedings of the 8th International Conference on Parallel Problem Solving from Nature (PPSN VIII). PPSN is one of the most respected and highly regarded conference series in evolutionary computation and natural computing/computation. This biennial event was first held in Dortmund in 1990, and then in Brussels (1992), Jerusalem (1994), Berlin (1996), Amsterdam (1998), Paris (2000), and Granada (2002). PPSN VIII continues to be the conference of choice by researchers all over the world who value its high quality.

We received a record 358 paper submissions this year. After an extensive peer review process involving more than 1100 reviews, the programme committee selected the top 119 papers for inclusion in this volume and, of course, for presentation at the conference. This represents an acceptance rate of 33%. Please note that review reports with scores only but no textual comments were not considered in the chairs' ranking decisions.

The papers included in this volume cover a wide range of topics, from evolutionary computation to swarm intelligence and from bio-inspired computing to real-world applications. They represent some of the latest and best research in evolutionary and natural computation. Following the PPSN tradition, all papers at PPSN VIII were presented as posters. There were 7 sessions: each session consisting of around 17 papers. For each session, we covered as wide a range of topics as possible so that participants with different interests would find some relevant papers at every session.

The conference featured three distinguished keynote speakers: Mandyam Srinivasan, Benjamin Wah and Lee Giles. Their backgrounds in biology, engineering and computer science, respectively, reflect the interdisciplinary nature of PPSN VIII. Prof. Srinivasan's talk was on "Parallel Problem Solving in Honeybees: Vision, Navigation and 'Cognition'." Prof. Wah's talk was on "Constraint Partitioning and Its Applications in Parallel Problem Solving." We are very grateful to them for contributing valuable time from their busy schedules.

PPSN VIII included 8 tutorials and 6 workshops. We were extremely fortunate to have such an impressive list of internationally leading scientists from across natural computation as tutorial speakers. They provided an excellent start to the five-day event. The workshops offered an ideal opportunity for participants to explore specific topics in natural computation in an informal setting. They were sowing the seeds for the future growth of natural computation.

To encourage and reward high-quality research in the international community, PPSN VIII presented a prize of £1,100 cash plus £350 travel costs for our Best Paper Award. As far as we are aware, this is the largest prize ever awarded for a best paper at an evolutionary/natural computation conference. The prize was sponsored by the Honda Research Institute (Europe) through Dr. Bernhard Sendhoff. All accepted papers were eligible to enter the competition. A separate

Best Student Paper Award, sponsored by HP Labs via Professor David Cliff, was also given at the conference. In addition, we received generous support from Thales Research and Technology (UK) through Dr. Sophie Kain. PPSN VIII would not have been possible without the support of the Centre of Excellence for Research in Computational Intelligence and Applications (CERCIA) and the School of Computer Science at the University of Birmingham. We are very grateful to these sponsors and would like to extend our thanks to them.

The success of a conference depends on its authors, reviewers and organizers. PPSN VIII was no exception. We are grateful to all the authors for their paper submissions and to all the reviewers for their outstanding work in refereeing the papers within a very tight schedule. We relied heavily upon a team of volunteers to keep the PPSN VIII wheel turning. In particular, the following people at Birmingham contributed a significant amount of time and expertise: Jun He, Delia Sexton, Mark Roberts and Angela Richardson. We are very grateful for their efforts.

September 2004

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Edmund Burke
Jose A. Lozano
Jim Smith
Juan Julián Merelo Guervós
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