Preface

In many ways, our immune systems are as complex as our brains. They learn, predict, remember and adapt, protecting us from the maelstrom of pathogens that infect us daily. Computer Science frequently takes inspiration from the seemingly endless capabilities of natural systems. It should therefore be no surprise that, like the field of Artificial Neural Networks inspired from brains, we now have a vigorous field of research known as Artificial Immune Systems (AIS), inspired by our own immune systems.

Although still relatively new, the previous 10 years has seen the paradigm of AIS rapidly establish itself as an important biological metaphor. Researchers all over the world fruitfully exploit "immunological ideas" in many different ways to provide mechanisms for tackling a wide variety of applications.

In this volume we present the proceedings of ICARIS 2003, the 2nd International Conference on Artificial Immune Systems. This was the second international conference entirely dedicated to the field, and followed the extremely successful first conference held in Canterbury, UK in 2002. The number and diversity of papers in this year's conference is a tribute to the ever-growing number of researchers in the area, and representative of the solid foundation of work that now exists in this area. The range of topics considered is wide. For example, at one end of the spectrum we see a selection of papers providing a necessary theoretical grounding for the field. At the other end, we have an exciting range of applications to real-world problems, covering, for example, job-shop scheduling and fault detection in refrigeration systems.

As last year, the conference was divided into two streams, technical and conceptual. The conceptual stream provided an important platform for determining the future direction of this domain, and the variety of papers published in this stream suggest an exciting future for the field. Also, this year we devoted a special session to the topic of "Immunocomputing," supported by the Commission of the European Communities Directorate-General Information Society IST Programme on Future and Emerging Technologies. This is a new computational paradigm that aims to implement the principles of information processing using proteins and immune networks in new kinds of computer algorithms and software, leading to the concept of a new kind of computer, the "immunocomputer." (Analogous to the widely spread neurocomputers, which are based on the models of neurons and neural networks.)

ICARIS 2003 could not have happened without the help of a large number of people. Thanks to Chris Osborne for providing the online registration system, to Simon Garret for UK publicity arrangements, to Dipankar Dasgupta for publicity in the US and to Andy Secker for helping out with the proceedings. Emma Hart took care of local arrangements, and was invaluably assisted and advised by Jennifer Willies. Finally, thanks are of course due to all of the program committee for ensuring that the material presented at the conference was of the

highest quality. Forty-one papers were submitted for review, of which 26 were accepted.

We hope you enjoyed Edinburgh and ICARIS 2003, and we look forward to welcoming you again in the future to ICARIS 2004.

September 2003   Jon Timmis, Peter Bentley, Emma Hart
                                                                            Editors
                                                                      ICARIS 2003

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