Preface

There was a time, not that long ago, when the preface for a conference on "multiagent systems" would require a definition of that term and a justification for why such systems are important to study. As recently as the mid-1990s, as the First International Conference on MultiAgent Systems (ICMAS'95) was being organized by relatively small research communities in America, Europe, and Asia, the field had the flavor of being an interesting but peripheral undertaking compared to the primary concerns of artificial intelligence.

Times have certainly changed! For a variety of reasons, including the ubiquity of networked computing systems, practical applications of those systems in areas like electronic commerce and digital libraries, and the consequent recognition that complex software systems will ultimately be comprised of sophisticated components with relationships that undergo ongoing redefinition and negotiation, multiagent systems have become much more of a central concern. Concurrently, there has been an explosion of interest in multiple agents in virtual environments, in games, and in robotic applications (such as Robocup). This evolution is evidenced in the growth of the community of researchers now involved in multiagent system research: the small initial core of researchers has been enriched by many others who previously had concentrated in areas such as machine learning, planning, and reasoning under uncertainty, and who have come to recognize the challenge and importance of those concerns in the context of multiagent systems. Multiagent initiatives and projects have taken root in corporate, government, and academic settings.

As we begin a new century and millennium, therefore, the multiagent systems field is recognized as holding promise for improving our understanding about how complex interactions can be understood and harnessed to help us meet technological and social needs. These proceedings provide a snapshot of the best contemporary work in the field, both in terms of full papers that describe research results in some detail, and briefer abstracts that could herald up-and-coming breakthroughs in the field. The papers suggest the diversity of ideas, methodologies, theories, and applications associated with the field. Many of these have only taken shape in recent years, and were unforeseen even as recently as at ICMAS'95. As the research challenges and insights continue to evolve, it is a certainty that the field will continue to thrive on the diverse contributions of the many researchers who are bound together by their mutual interest in understanding the phenomena that arise when agents interact, in investigating the interplay between agents as individuals and as participants in collective settings, and in formulating languages, architectures, mechanisms, and engineering and evaluation methodologies that apply to multiagent systems.

As the next installment of the premiere conference series on multiagent systems, this, the Fourth International Conference on MultiAgent Systems (ICMAS-2000), continues the tradition of presenting papers of the highest quality. Of the 220 papers received, 42 were selected for full presentation, an acceptance rate of only 19 percent, sustaining the selectivity trend established by ICMAS'98 (23 percent), ICMAS'96 (28 percent) and ICMAS'95 (33 percent). The number of submissions has also continued to rise, which is good news for the field (but was less good news for our reviewers). Each paper was evaluated by at least three members of our distinguished program committee, who then (when there was no clearcut consensus decision on a paper) engaged in discussions to carefully select the papers in this volume.

We would therefore like to extend our thanks to the program committee for taking on the work and responsibility for determining what results were ready to be published and, in many ways more importantly, for the work they did in providing helpful feedback to authors of papers that do not appear here, to nurture the research that could well comprise future ICMAS proceedings. We also of course want to thank the authors who submitted their work, and especially the authors of the papers appearing at the conference, for all of their hard work and their contributions to continuing the tradition of excellence of the conference. Rounding out the technical aspects of the conference, we appreciate the contributions of the invited speakers and panelists who are participating in ICMAS-2000.

Of course, behind the scenes of such a conference are the efforts of many others who have worked to make it a reality. Mike Huhns, as Finance Chair, has tackled the complex and uncertain tasks of making financial projections, balancing budgets, and processing registration fees. Christian Lemaître, as Publicity Chair, has maintained the website as the conference took shape, and has propagated announcements about the conference to the relevant communities. Piotr Gmytrasiewicz, as Publications Chair, has found an excellent publisher, gotten the details about publication out to authors, and has shepherded the creation of these proceedings. Klaus Fischer, as Workshops Chair, has put together a small, high-quality slate of workshops associated with ICMAS-2000, as well as coordinating with our larger federated workshops (Agent Theories, Architectures, and Languages [ATAL'00] and Cooperative Information Agents [CIA'00]). Munindar Singh, as Tutorials Chair, has constructed a panel of tutorials given by the very best instructors in the field. Sandip Sen, as Student Travel Scholarships Chair, has sought out support to help students attend the conference, and has overseen the administration of scholarships. Chenqi Zhang and Mike Wooldridge, as Regional Liaisons for Asia/Pacific and Europe/Africa respectively, provided great help in getting the word out in those parts of the world, and Mike in particular worked tirelessly and enthusiastically to help drum up support for the conference. C.K. Miner & Associates admirably handled the local arrangements in Boston.

Finally, we would like to acknowledge the generosity of our sponsors. Our principal sponsor has been the International Foundation for MultiAgent Systems (http://www.engr.sc.edu/research/CIT/IFMAS/IFMAS.html). At the time of this writing, we are pleased to have received support from Charles River Analytics, from Nokia, from the US Defense Advanced Research Projects Agency (DARPA) Agent-Based Computing initiative, and from the US National Science Foundation (Computation and Social Systems program). In most cases, financial contributions from these sponsors have been targeted specifically to supporting student participation in ICMAS-2000. ICMAS-2000 has been held in cooperation with AAAI.

Not surprisingly, ICMAS-2000 is itself the product of a multiagent system. Without the contributions of those listed above (and many others including supportive families, coworkers, and employers), ICMAS-2000 would not have been possible. We extend our thanks to all involved, and hope that the reader of these proceedings will be inspired to actively participate in the multiagent community of ICMAS.

Ed Durfee
General Chair

Sarit Kraus, Hideyuki Nakashima, Milind Tambe
Program Co-Chairs