Preface

The Advanced Course on Artificial Intelligence ACAI 2001 with the subtitle "Multi-Agent Systems and Their Applications", held in Prague, Czech Republic, was a joint event of ECCAI (the European Coordinating Committee for Artificial Intelligence) and AgentLink, the European Network of Excellence for Agent-Based Computing. Whereas ECCAI organizes two-week ACAI courses on different topics every second year, AgentLink's European Agent Systems Summer School (EASSS) has been an annual event since 1999. This year, both of these important events were merged together, giving weight to the fact that multi-agent systems currently represent one of the hottest topics in AI research. The name, ACAI 2001 Summer School, is intended to emphasize that this event continues the tradition of regular ECCAI activities (ACAI), as well as the EASSS summer schools of AgentLink.

The Prague ACAI Summer School was proposed and initiated by both the Gerstner Laboratory, Czech Technical University, Prague (GL-CTU) and the Czech Society for Cybernetics and Informatics (CSKI), with the support of the Austrian Research Institute for Artificial Intelligence in Vienna (OFAI). Part of our motivation was catalyzed by experience gained in 1992 during the International Summer School "Advanced Topics in Artificial Intelligence" (see Springer's LNAI vol. 617) which was organized by the same Czech and Austrian bodies.

One of the most important stimulating factors behind the organization of ACAI 2001 was the support provided by the European Commission to the Gerstner Laboratory within the frame of the MIRACLE Center of Excellence project (IST No. ICA1-CT-2000-70002). Additional support was later provided by both the Commission's AgentLink II project (IST-1999-29003) and ECCAI, and the combined financial and conceptual participation of these important international bodies enabled the invitation of a large number of truly world-class lecturers in this field, who have added a unique flavor to the event.

In addition to the combined summer school, there were four co-located affiliated workshops/meetings: the AEMAS 2001 workshop ("Adaptability and Embodiment Using Multi-Agent Systems"), the ESAW 2001 workshop ("Engineering Societies in the Agents' World"), the AgentLink II SIG meetings and the meeting of the FIPA Working Group on "Product Modeling and Manufacturing". Thus, Prague became the "agent-world" capital in the first half of July 2001.

The main goal of the summer school was to present the current state of the art in the theoretical foundations of multi-agent systems as well as to demonstrate the applicability of these systems in many practical tasks. The choice of the topics and lecturers was driven by the desire to cover the field of multi-agent systems with the maximum breadth, while maintaining the utmost quality. As a result, the presentations highlight many different but complementary aspects and viewpoints of this recently established and very active scientific field.

The organizers also wanted to give the opportunity to Ph.D. students to briefly present the results of their ongoing work, to bring them to the attention of the distinguished experts in the field, and to provide a forum for valuable discussion and feedback with them. Thus, the summer school provides space for short presentations given by Ph.D. students within the frame of three students' workshops. Forty student

presentations were selected in a standard refereeing process, from which the best will be included – after some extensions and modifications – into the second, post-summer-school LNAI volume, together with selected papers from the accompanying AEMAS 2001 workshop and the remaining papers delivered by the invited speakers.

We would like to thank all the invited speakers for their willingness to contribute to the summer school and for their pro-active approach, as well as for delivering the promised manuscripts of their presentations in time. We understand that our intention to publish the invited lectures for a summer school in the form of a book is not usual , and we recognize that it may have required additional and unanticipated effort from the presenters, for which we are extremely appreciative. However, we wanted to share – in the form of this separate edited volume − the expertise of the invited lecturers with the wider AI and computing communities, and to provide essential readings to students, academics, and industrial researchers unable to attend the summer school.

Finally, we would like to thank the numerous collaborators who helped substantially to shape the basic ideas as well as to accomplish all the organizational and preparatory activities, namely Hana Krautwurmová, Jiří Lažanský, and Zuzana Hochmeisterová. Our thanks also go to Kamil Matoušek, who carried out the main portion of the computer work related to the preparation of both the camera-ready and electronic versions of this volume, and to Jiří Palouš who managed the ACAI 2001 website.

April 2001

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ACAI 2001

Ninth ECCAI Advanced Course

&

AgentLink's Third European Agent Systems Summer School

(EASSS 2001)

Multi-Agent Systems and Their Applications

Prague, Czech Republic, July 2-13, 2001

Program Co-chairs:

Michael LUCK	University of Southampton, UK
Vladimír MAŘÍK	Czech Technical University, Czech Republic
Olga ŠTĚPÁNKOVÁ	Czech Technical University, Czech Republic
Robert TRAPPL	Austrian Research Institute for AI, Austria

Invited Speakers:

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Elisabeth ANDRE	DFKI GmbH, Germany
Luis M. CAMARINHA-MATOS	New University of Lisbon, Portugal
Misbah S. DEEN	University of Keele, UK
Yves DEMAZEAU	Leibnitz-Institute IMAG, France
Jim DORAN	University of Essex, UK
Edmund H. DURFEE	University of Michigan, USA
Klaus FISCHER	DFKI GmbH, Germany
Les GASSER	University of Illinois, USA
Jozef KELEMEN	Silesian University, Czech Republic
Matthias KLUSCH	DFKI GmbH, Germany
Sarit KRAUS	University of Maryland, USA
Yannis LABROU	University of Maryland, USA
Jörg MÜLLER	Siemens, Germany
Bernhard NEBEL	University of Freiburg, Germany
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