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Preface

PRIMA has emerged as a major platform for academic and research exchange on agent technologies. The PRIMA workshop series was initiated as a workshop of the Pacific Rim International Conference in Artificial Intelligence (PRICAI) to provide a forum that would bring together research in the areas of agent technology and multi-agent systems, both in the Pacific Rim region and beyond. The inaugural workshop in the series was held in Singapore in 1998, with subsequent meetings in Kyoto (1999), Melbourne (2000), Taipei (2001), Tokyo (2002), Seoul (2003), Auckland (2004), Kuala Lumpur (2005) and Guilin (2006). At the 10th PRIMA in Bangkok in November 2007, the Steering Committee agreed that the series had grown in size and achieved a level of maturity to become a conference series of its own. It was therefore agreed that from Bangkok in 2007 PRIMA would stand for the Pacific Rim International Conference on Multi-Agent Systems.

PRIMA 2007 received 102 valid submissions. Each submission was peer-reviewed by at least three referees selected from the Program Committee. As a result of the selection process, 22 submissions were accepted as full research papers, yielding an acceptance rate of 22.22%. In addition the program included 11 application papers and 16 short papers. A special session on Agent-Oriented Software Engineering (AOSE) was organized by Graham Low from the University of New South Wales (Australia) and Ghassan Beydoun from the University of Wollongong (Australia), where papers were invited from the AOSE community, but put through the same rigourous reviewing process. The papers finally selected for PRIMA 2007 represent a range of themes – expanding the horizons of the agent metaphor, consistent with the way the computing landscape has moved from what was once stand-alone systems to the situation where the real power is realized through distributed, open and dynamic systems. We are faced with new opportunities and great challenges in a computing milieu where intelligent and autonomous agents interacting with one another solve problems of ever-growing complexity and difficulty.

We congratulate and thank the authors of all the papers submitted and the reviewers who carefully reviewed them. We appreciate the academic institutions, especially Rangsit University of Thailand, for hosting and supporting this event. We acknowledge the support rendered by the sponsors, and the members of the committees for doing a splendid job.

November 2007

Aditya Ghose
Guido Governatori
Ramakoti Sadananda

Opening Address

It gives me great pleasure and honor to welcome you all to Rangsit University and to Thailand on the occasion of the 10th Pacific Rim International Workshop on Multi-Agent and Autonomous Agents. As I notice there is a strong distinguished academic community providing a sustained backing to the PRIMA workshop series. I am pleased to have served as Honorary Chairman. In that capacity and as President of Rangsit University, I extend a warm welcome to you all.

Some of you here are also participating in the International Conference on IT for Empowerment (ITE2007). I extend my welcome to you too.

I am a layman as far as the multi-agent systems are concerned. Like every one else I know only one kind of agent: the travel agent. He is the agent of the airlines to me. He enjoys considerable autonomy in the way he charges fees or the way he deals with the airlines. The travel agent is now increasingly embodied in the pages of the worldwide web, thus augmenting effectiveness and efficiency. Well, when you generalize and virtualize this mundane concept of "agency" it emerges as a mighty concept, transcending boundaries of all kinds.

From the program I see your papers addressing a grand spectrum of areas – from human science to biology and from engineering to game theory. You are designing software agents and intelligent agents roaming around the Internet negotiating with one another. The Internet is now the media for the planet. We all operate on the Internet. I do not want to dwell on technical and philosophical aspects of your research. But let me talk to you about a common concern for all of us – no matter where you come from - the threat of climate change. Currently there are world-wide discussions on global warming and the possible serious consequences, means to prevent or mitigate it and/or maybe to face it. The recent Nobel awards recognize that the threat is real and largely manmade. There is an urgent need for collective action. We are in Bangkok and are among the most vulnerable—especially the place we are now assembled in. I ask you – every one of you – as researchers in information technologies, what you can offer.

The situation facing us is complex – especially because while facing the climate crisis, we have to carry the unfinished responsibilities of development. There is still a huge segment of the world population that is undernourished, under-informed and living under unacceptable standards. There is a notion, especially following the Second World War, that typically innovations emerge from the war efforts. We are heading towards a war. But this is war of a different kind. It is not a war of conflict but one of cooperation. The global crisis with all its threats and horrors is pushing us to work together with greater interactions than ever before. You may design agents – the agents who represent us individually and collectively—with skills to negotiate win – win deals for all of us to face the impending manmade catastrophy. This is not utopian. There is boundless

potential in intelligent information systems when backed by the strength of the collective minds of all of us.

I see great promise in agent research. I am pleased you have decided to assemble here and I welcome you to our university – especially to our main campus – a few kilometers north of here in the fertile land of Rangsit. Given your fertile mind, interaction with our young students and colleagues will germinate great ideas. I am happy to see that despite being busy in your path-breaking research, you are interested in student research. As an educationist I join you in working for students – in working for the future. I am delighted to see the doctoral mentoring program. This event will go a long way. One of the concerns of our research students, and even the faculty who advise them, is that being in small groups they face frustrating isolation. This is a bane in developing countries, including Thailand where it is hard to get peer-to-peer interaction. A meeting with distinguished researchers like you means a lot to them. It means a lot in terms of building their confidence and in refining their ideas. I am sure there is always benefit in talking to the innocent students whose innocent questions may open new agendas for research. Let me borrow from Shakespeare "it is twice blest: It blessth him that gives and him that takes".

Again with great pleasure and honor I welcome you all to my university, to the city of Angeles and to the land of smiles.

November 2007 Arthit Ourairat

Invited Speakers

Yaser S. Abu-Mostafa, CalTech, USA: Ensemble Learning

One of the core ideas of multi-agents is the accomplishment of a collective task through the contributions of multiple units. The same idea arises in the context of computational learning, where a learning task is accomplished by contributions from an ensemble of learning units. Ensemble learning is a very active area of research, and some of its algorithms such as AdaBoost are in wide use in practical applications. This talk gives the background of ensemble learning and describes its main algorithms. Some of the theoretical questions in ensemble learning parallel those in multi-agents, such as the level of supervision and independence of the individual learners. The key question, however, is why ensemble learning works so well. Several attempts at answering the question theoretically have consequently been shown to be false. Many of these ideas are discussed and it is shown that it is not only a curiosity to answer this question, but an important step in the optimal design of ensemble learning algorithms.

Hideyuki Nakashima, Future University, Hakodate, Japan: Future of Multi-agent Systems Research with Eastern Philosophy

Leon Sterling, University of Melbourne, Australia: Agent-Oriented Modelling for Complex Socio-technical Systems

Agent-oriented software engineering has emerged as an active research area in the past decade. This talk argues that agent concepts are useful from the earliest stages of system conceptualization. The agent paradigm is useful even if systems are implemented without using agent concepts. Examples of agent modes are presented.

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