Agent Environments for Multi-Agent Systems - 10 Years Later

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Summary

In 2004, researchers in multi-agent systems became more and more aware that agent systems consist of more than only agents. The E4MAS workshop that was organized in conjunction with AAMAS 2004 emerged from this awareness. The driver for E4MAS 2004 was the following statement announced at the workshop website: There is a general agreement in the multi-agent research community that agent environments are essential for multi-agent systems, yet researchers neglect to integrate the agent environment as a primary abstraction in their models and tools for multi-agent systems [1].

During three successful editions of E4MAS and various additional activities, a substantial group of researchers worked intensively on the subject of agent environments. The results of these efforts have been archived in various books and special issues [2–6]. One of the primary outcomes of this endeavor was a principled understanding that the agent environment should be considered as a primary design abstraction, equally important as the agents. Different models and architectures have been proposed to design agent environments, and these designs have been validated in a variety of application domains. A special issue on agent environments in the Journal on Autonomous Agents and Multi-Agent Systems in 2007 included a set of influential papers that define the role of agent environments, their engineering, and outline challenges in the field [7–11]. The challenges have been the drivers for numerous follow up research efforts.

The goals of this special edition of E4MAS are:

1. To reflect on the past 10 years of research and engineering on agent environments for multi-agent systems;
2. To investigate to what extent the challenges identified a decade ago have been tackled;
3. To outline challenges for future research on a short and longer term.

Proceedings will be published in a Lecture Notes in Computer Science volume.

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