Statistical and Behavioural Model Analysis Tools

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Workshop description

In our proposed worksop, we would like to introduce a set of loosely coupled software components intended to help modellers to explore the behaviour of their models either by performing *"smart"* parameter space explorations and/or participatory experiments by executing their models within a web-based environment. The first tool on which an introductory tutorial is given is called *The Model Exploration Module* [1] or *MEME*, a generic tool that enables orchestrating experiments, managing results. MEME supports model analysis over a range of simulation platforms (RepastJ, NetLogo, Mason). It was designed to run large-scale parameter space explorations on grid/cloud systems or sensitivity analysis through statistical methods based on techniques known in the literature as *Design of Experiments*. The second framework is called the *The Participatory Extension v2.0* [2] or *PET v2.0*, which is a further developed version of the original PET [3], a robust and generic web framework that allows modellers to extend their models to participatory simulations. It is a web application that incorporates agent-based simulations into a web interface compatible with any of the major web browsers, enabling users to administrate, run and participate in simulations in a way that they are familiar with, applying the mechanisms and practices they use every day while browsing web-pages and using other web-based applications. Applications of PET v2.0 may include online case studies for demonstrative and teaching purposes, or to conduct laboratory experiments for behavioural studies of a model.

The tutorial has no particular requirements, but experience in implementing agent-based models is an advantage. The frameworks are introduced through a supplied model, no programming is necessary.

References
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- Ivanyi, Marton, Rajmund Bocsi, Laszlo Gulyas, Vilmos Kozma and Richard Legendi. "The multi-agent simulation suite." In Emergent Agents and Socialities: Social and Organizational Aspects of Intelligence. Papers from the 2007 AAAI Fall Symposium, pp. 57-64. 2007