6th EUROSIM Congress on Modelling and Simulation
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Ljubljana, Slovenia

http://www.eurosim2007.org

Announcement of a special session:

Alternative Modelling and Comparisons and Benchmarking in Modelling and Simulation

'We report in this article on a variety of modelling techniques and associated tools, in addition to the traditional approach based on ordinary differential equations (ODEs), which provide a range of descriptive and analytical powers. As the field matures, we expect a wider uptake of these alternative approaches for several reasons, including the need to take into account ……..'

Sentences like the above cited introduce abstracts of publication on modelling and simulation, indicating that alternative modelling techniques have become a big need.

In principle, there are two ways to look at alternative modelling techniques:

- In a specific application area, within a project on modelling and simulation, alternative modelling techniques are compared, their advantages and disadvantages are discussed, and hints for choice of a technique are given

- In the area of modelling technique, different modelling approaches are discussed, and advantages and disadvantages of the approaches for different modelling aims are shown, often documented with case studies.

This special session addresses both ways to look at different modelling approaches and to compare them, either within one application, or by means of general comparisons and benchmarking.

In the following a (incomplete) list of modelling methods, which should be compared in this special session:

- Classical ODE and DAE modelling
- PDE Modelling (and different algorithms for solving, e.g. FEM, …)
- Cellular Automata
- DEVS Systems
- Queing Models
- Agent-based models
- Markov Chains
- Neural Nets, ….

In the following modelling paradigms are sketched, worth to be compared and benchmarked:

- Also in modelling OO approaches give better insight into structures - it makes sense to compare classical and OO approaches.
- Hybrid approaches become more and more important – it makes sense to compare these approaches, from total hybrid decoupling of models until complete overall models.

- Symbolic computation is an alternative to analysis in the time domain - it makes sense, to include Symbolic Computation Methods for model analysis (or for model approximation)
- For modelling and simulation of discrete processes, not only classical discrete simulation systems, based on DEVS, can be used - it makes sense to look also for different modelling approaches analysed by different algorithms, like Petri nets, Markov chains, and Queuing Theory applied on approximating model
- The classic basis of continuous modelling and simulation was analysis and simulation in the time domain, and spatial dynamics was shifted to the world of finite differences, finite volume, and finite elements - it makes sense to study the different approaches for incorporating spatial behaviour into time domain analysis

And last but not least we to contribute to this special session by articles on benchmarks and comparisons in modelling and simulation, which in principle are organised summaries of the modelling approaches given above

Please send suggestions and extended abstracts to one of the session organisers.

Session organizer:

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Deadlines:

Announcement of a contribution (to facilitate session organization):
April 30, 2007 (by E-mail to the session organizer)

Submission of 2 page extended abstract or daft paper:
May 20, 2007 (by E-mail to the session organizer)

Acceptance notification after paper review:
June 1, 2007

Full paper (camera ready) due to:
June 30, 2007 (to the conference server with copy to the session organizer)
See also instructions: http://www.eurosim2007.org/Instructions.html