



## Technical Council on Theory & Methodology

We would like to inform you of the upcoming opportunity to contribute to the workshop *On-Line Simulation* to be held within the Summer Computer Simulation Conference

### CALL FOR PAPERS

#### On-Line Simulation

### Workshop of the SCS Theory and Methodology Technical Council at the Summer Computer Simulation Conference SCSC 2004,

July 25-29, 2004, San Jose, California, USA

#### Organizers:

- Dr. Helena Szczerbicka, Department of Computer Science, University of Hannover, Hannover, Germany, [hsz@sim.uni-hannover.de](mailto:hsz@sim.uni-hannover.de)
- Dr. Levent Yilmaz, Department of Computer Science & Engineering, Auburn University, Auburn, AL, USA [yilmaz@eng.auburn.edu](mailto:yilmaz@eng.auburn.edu)

For over a decade now, online simulation has been used as a promising approach for on-line control. Online simulation

- is driven by real data measured from the system under control,
- is an integral component of the system's controller serving as the source for future response projection,
- meets the requirement of real-time as set up by the system's operation in order to have the controller be proactive,
- is based on models or parameter spaces that may be subject to changes during the system's evolution,
- can be used for problem domains, in which the nature of the problem changes as the simulation is being performed, and
- can utilize information about performance characteristics of strategies that is acquired during the simulation (i.e., in symbiotic simulation) rather than before.

Unfortunately, the employment of classical off-line simulation techniques for on-line use is not justified, as the approach comes along with several major problems such as analysis of the simulation results (results from former runs might be outdated if operating in transient period) and projection of the future response: On-line simulation should consider the decision making process of the controller, however, this consideration must not cover feedback of the on-line simulation itself, since this would lead to infinite recursion. For the on-line simulation workshop, contributions are solicited that address (but are not limited to) the following topics:

Modeling and on-line validation, Online model recommendation Real-time simulation, Speed-up techniques On-line statistical analysis, Recursion of decision making, Application case studies (flexible manufacturing, urban road traffic, etc)

#### Deadlines and Requirements:

<http://www.scs.org/fernc/ssimc/ssimc04/cfp/scsc04.htm>

February 28, 2004: Full draft papers should be submitted for the peer review process as a PDF file to the <http://scs.proceedingscentral.com> site. Please indicate: **On-Line Simulation** Workshop

April 12, 2004: Notifications of acceptance status will be sent

May 9, 2004: In case of acceptance your final manuscript will need to be submitted electronically as a PDF file to the <http://scs.proceedingscentral.com> site

**As soon as possible:** Please inform the Workshop organizers about your intention and possible title(s) of your contribution.

Organizers of the Workshop consider a publication of a special issue on On-line simulation in the *Simulation: Transactions of The Society for Modeling and Simulation International*. One selected paper of the workshop will be nominated to the best papers award of the SCSC04.

## Technical Council on Theory & Methodology

### Mission

Simulation modeling is a fundamental discipline that effects wide variety of scientific fields from engineering to social sciences. Understanding the theory, methodologies, and conceptual frameworks of simulation modeling is vital for successful deployment of simulations in practice. This technical council is devoted to support research and development of advanced formal theories, conceptual models, and methodologies for systems modeling and associated simulation formalisms. Our primary objective is to promote and facilitate development of next generation simulation methodologies as well as innovative conceptual frameworks that would address emergent problems in future complex application domains.

Rapid advances in problem solving capabilities of computers along with paradigm shifts in computational modeling of systems requires innovative ways to model, understand, and manage complex, distributed, open, heterogeneous, and adaptive systems. For instance, new perspectives such as multi-paradigm and component-based modeling, agent-directed simulation, and simulation in social sciences are some of the few exciting developments. Such emergent conceptions call for significant improvements on existing theories for model specification, simulation formalisms, transformation of formalisms, and evaluation methodologies. Furthermore, simulation methodologies that take advances in distributed simulation and simulation speed-up into account and facilitate maintenance of complex simulation data are also of significant interest. Concomitantly, we expect next generation conceptual formalisms and theories to contribute to the design of more advanced simulation environments as well.

The technical council on theory and methodology will serve as a mediator in exchanging ideas between researchers and practitioners working on diverse modeling and simulation problems. More specifically, we aim to establish a platform to discuss recent directions in methodology development and present actual problems, solutions, interesting projects, and success stories. Such a platform will not only help in networking to facilitate research fund raising, but will also give the necessary impulses for new research directions. Initiation and support for workshops and special issues in the Journal Simulation: Transactions of the SCS are targeted by the council as primary activities

to serve this purpose. Cooperation with other councils of the SCS will extend the impact of efforts being undertaken by Technical Council on T&M. Hence, we would like to contribute to the definition of simulation programs and curricula through participation in the work of the Modelling & Simulation Body of Knowledge Group under the shield of Aegis. Integrated with the technical goals of the council, there is also an educational plan designed to attract and keep young simulationists in the M&S field. Collaboration with the NTSA certification program through course offerings (i.e., summer schools or distance education) will be as part of our activities.

To help Technical Council on T&M achieve its goals, we would like to invite you (SCS members or non-members) to actively participate and contribute to this endeavor.

### Registration

If you would like to participate in the activities of Technical Council on Theory and Methodology, you can register to our listserver

[scs-tm@mailman.eng.auburn.edu](mailto:scs-tm@mailman.eng.auburn.edu).

If you would like to register, add yourself to our mailing list by visiting

<http://mailman.eng.auburn.edu/mailman/listinfo/scs-tm>

With this registration you will be informed on all activities of the technical council via our email list and will be able to post messages. We confirm that we consider your email address as a confidential information and will not redistribute it to third parties. Note that the registration on this side is not automatically an application for the membership in the SCS. However, we strongly encourage you to apply at <http://www.scs.org> for this membership with all its benefits.

### Contacts

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