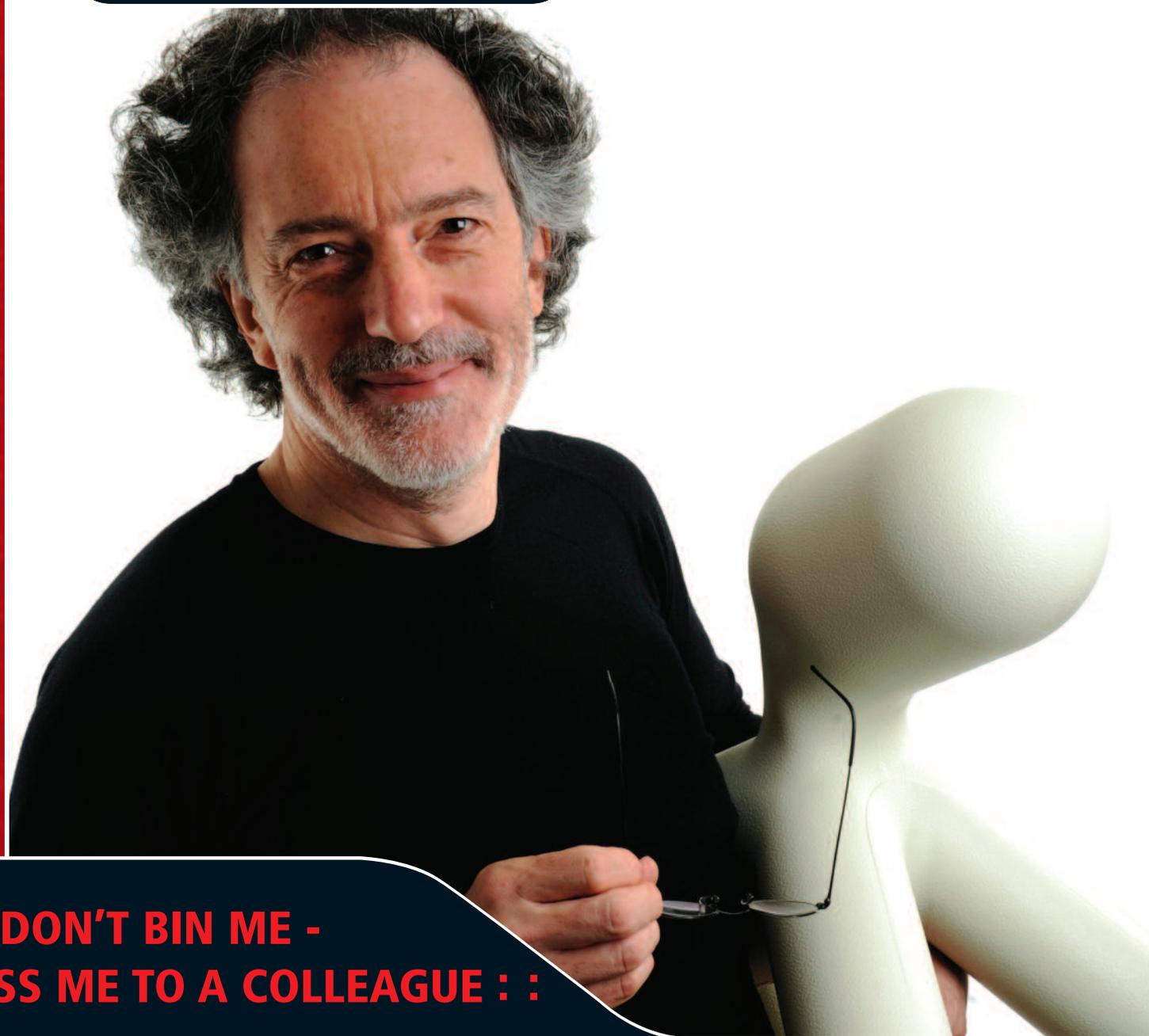


THE SCIENCE OF BETTER AT THE HEART OF ANALYTICS

INSIDE O.R.

SEPTEMBER 2010 NO 477



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PASS ME TO A COLLEAGUE ::**

**A WORLD FIRST IN SIMULATION
UNVEILED AT OR52**

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EDUCATION OFFICER REPORT

ANALYTICS IN MY ORGANISATION



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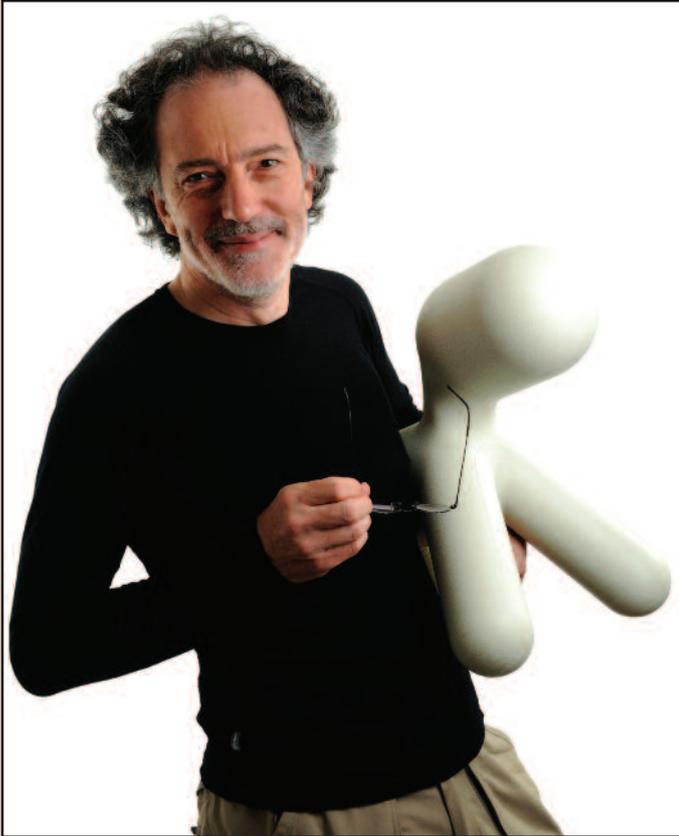
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A WORLD FIRST IN SIMULATION UNVEILED AT OR52

NIGEL CUMMINGS

Now is the time for us all to simulate!



Mark Elder

Readers of Inside OR cannot fail to have noticed I have written a great deal about simulation and associated topics during 2010. I also started a series of articles about O.R. and analytics, and accessing O.R. resources via the internet. As you may have guessed, I find it stimulating to write about topics I am passionate about. Thus it is no surprise that I am presenting this article to you, an article which concerns both simulation and the internet - dual passions.

This article looks at an exciting new way to simulate via the internet, but first, a few words about simulation. Historically, simulations used in different fields developed largely independently, but 20th century studies of Systems theory and Cybernetics combined with an increased use of computers across all those fields have led to some unification and a more systematic view of the concept.

Computer simulation attempts to model real-life or hypothetical situations on a computer so study can be undertaken to see how the system works. By changing variables in simulation models predictions may be made about the behaviour of systems.

Computer simulation has become a useful part of modelling many natural systems in physics, chemistry and biology, and human systems in economics and social science, as well as in engineering to gain insight into the operation of those systems. A good example of the usefulness of using computers to simulate would be that of network traffic simulation. In such simulations, the model behaviour will change each simulation according to the set of initial parameters assumed for the environment.

Computer simulation is often used as an adjunct to, or substitution for, modelling systems for which simple closed form analytic solutions are not possible. There are many different types of computer simulation, the common feature shared by all is the attempt to generate a sample of representative scenarios for models in which a complete enumeration of all possible states would be prohibitive or impossible.

Once 'expensively' confined to mainframes, and then to mini computers, but more recently available to personal computer users, the use of simulation technologies has grown in line with the brute strength of computers and developments in artificial intelligence and data analysis.

This article largely concerns Discrete Event Simulation (DES) a speciality of the Simul8 Corporation. Simul8 Corporation develops, markets, and supports highly cost effective DES simulation software that enhances the way people make and communicate decisions.

Founded in 1994, the company came about due to the 'vision' of Mark Elder, its CEO. He realised early on that computer simulation should not be confined to the largest computers, the largest problems and the largest budgets. Simulation he thought, could just as effectively be applied to smaller and possibly more mundane problems on less powerful computing platforms.

Mark's vision coincided with the world's growing use of Microsoft Windows as a computing platform. In 1995 Simul8 for Windows was launched; it is now used worldwide in enterprises such as Ford and Hewlett Packard (and many smaller organisations too) to make hundreds of important decisions year on year. For 2010 the Simul8 family of simulation applications has grown to include an exciting new simulation product you can be a part of - YouSIMUL8.

YouSIMUL8 is the world's first simulation sharing website, it is unfettered by computer operating systems, and open to virtually all who have access to a web browser - this means that YouSIMUL8 and the simulations it plays home to, can be just as easily accessed from your PC, iPad, your Smartphone or almost any type of portable computing device that supports web browsing. With YouSIMUL8, simulation technologies are now portable, and available to all!

In conversation with Mark Elder at Simul8 Corporation, it struck me that the ability to transport simulation technologies around "literally in the palms of one's hands" could lead to opportunities where the power of simulation could be demonstrated on the "shop

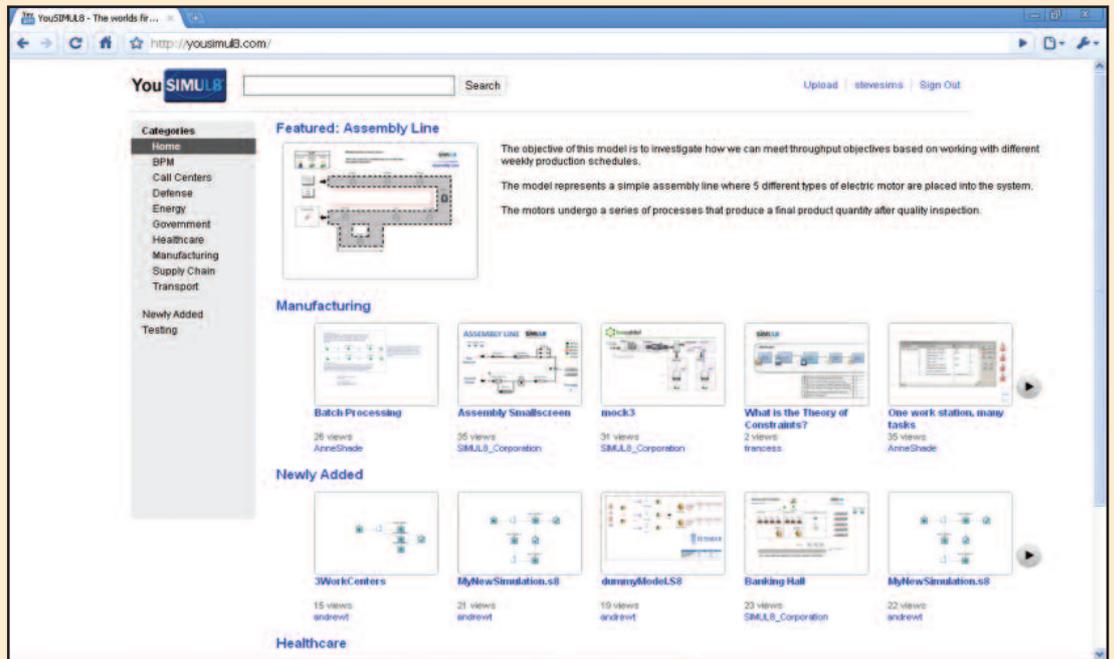
floor". Indeed Mark outlined a number of scenarios where YouSIMUL8 and its portability could make such an impact.

It could for example be applied to demonstrate how processes and productivity could be improved in staff rostering situations, it could be used as a tool to increase patient throughput in hospital environments or to provide understanding and insight of how systems would be able to weather extraordinary conditions, it could also help management understand the effects of large increases in orders, swings in product mix and new client delivery demands.

Regarding this exciting new development for web users, Mark Elder said; "We want to get simulation better known. YouSIMUL8 is instant and part of it is about getting people to share simulations and know the power of them, and to see the importance of modelling." He also said he felt strongly that there was a need for "compelling and poignant simulations that the general public could easily understand."

YouSIMUL8 is the latest and possibly best means of achieving this objective! In YouSIMUL8, simulations run directly from embedded code which can be incorporated into web pages, making simulation instantly accessible to a whole new generation of simulation users.

YouSIMUL8 and the modelling that can be done with it, features in a presentation to be given at our annual conference. **(This year 'OR52' takes place at the Royal Holloway University of London from 7-9 September 2010).**



If you are not fortunate enough to be able to attend our annual conference this year, full details of papers and stream events there, will be available from the Operational Research Society HQ and via the Operational Research website from late September onwards.

Likewise, more information on YouSIMUL8 can be obtained from taking a look at: <http://YouSIMUL8.com/> From this website you can see a new way of doing simulation from the comfort of your desktop, and without having to install simulation applications – the processes behind YouSIMUL8 and the models presented from the website are designed to run speedily and automatically once selected by the user.

Mark Elder also commented that although there were many simulations ready to run from the YouSIMUL8 website, he would like

to encourage others who simulate, to create new models for a variety of applications and endeavours, and to circulate these from their own web site presences via YouSIMUL8 code. To this end he announced that a competition with valuable prizes would shortly be announced, to encourage others to formulate and disperse new models via the internet using YouSIMUL8 technologies.

In addition to seeing YouSIMUL8 simulations live from: <http://YouSIMUL8.com/>, you may also care to explore <http://www.simul8.com/> for further information about the full range of Simul8 products.

