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NEW PPP

NXP Semiconductors
Numerical Mathematics Working Party

Tuesday March 24, 2009, 10.00-12.30h

High Tech Campus 1 (The Strip), Rm Raman
5656 AE Eindhoven

Automated Response Surface Model Generation and Adaptive Sampling

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ABSTRACT

Thanks to rapid advances in computing hardware, computer simulations have become a viable alternative for real-life controlled physical experiments.
Unfortunately the computational cost of computer simulations remains a barrier, one simulation may take many minutes, hours, or days. As a result visualization, optimization, and design space exploration or the simulation response quickly becomes prohibitively expensive.
Consequently, surrogate modeling methods (= response surface models, metamodels) such as Neural Networks, Kriging models, Support Vector Machines, rational functions, etc. have become a standard technique for tackling this problem.
This talk will discuss the problems involved in surrogate modeling and present a fully automatic approach (and associated software implementation) to surrogate model generation, applicable to a wide range of domains.
In concrete terms the goal is to provide an automated answer to the following question from a domain expert: "I need an approximation model for my problem with 5% accuracy, using a minimal number of computer simulations".

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