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- SCImago Journal Rank (SJR): **1.742i**
SCImago Journal Rank (SJR):
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 2014: 1.855
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 2014: 1.722
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1. A new sampling strategy for SVM-based response surface for structural reliability analysis

July 2015

Umberto Alibrandi | Amir M. Alani | Giuseppe Ricciardi

To evaluate failure probability of structures in the most general case is computationally demanding. The cost can be reduced by using the Response Surface Methodology, which builds a surrogate model...



2. Global response sensitivity analysis using probability distance measures and generalization of Sobol's analysis

July 2015

G. Greegar | C.S. Manohar

The study introduces two new alternatives for global response sensitivity analysis based on the application of the L2-norm and Hellinger's metric for measuring distance between two probabilistic models....



3. Optimal design of a novel tuned mass-damper–inertor (TMDI) passive vibration control configuration for stochastically support-excited structural systems

October 2014

Laurentiu Marian | Agathoklis Giaralis

This paper proposes a novel passive vibration control configuration, namely the tuned mass-damper–inertor (TMDI), introduced as a generalization of the classical tuned mass-damper (TMD), to suppress...



4. Assessment of the efficiency of Kriging surrogate models for structural reliability analysis

July 2014

B. Gaspar | A.P. Teixeira | C. Guedes Soares

This paper presents an assessment of the efficiency of the Kriging interpolation models as surrogate models for structural reliability problems involving time-consuming numerical models such as nonlinear...



5. Shape-Memory-Alloy supplemented Lead Rubber Bearing (SMA-LRB) for seismic isolation

July 2015

Masanobu Shinozuka | Samit Ray Chaudhuri | Sudib Kumar Mishra

Optimization of isolation system involves a trade-off between the isolation efficiency and isolator displacement to ensure optimal performance. Quite often, the latter aspect is overruled, even though,...



6. An adaptive algorithm to build up sparse polynomial chaos expansions for stochastic finite element analysis

April 2010

Géraud Blatman | Bruno Sudret

Polynomial chaos (PC) expansions are used in stochastic finite element analysis to represent the random model response by a set of coefficients in a suitable (so-called polynomial chaos) basis. The...



7. A probabilistic analysis of the dynamic response of monopile foundations: Soil variability and its consequences

July 2015

M. Damgaard | L.V. Andersen | L.B. Ibsen | H.S. Toft | J.D. Sørensen

The reliability of offshore wind turbines is highly influenced by the uncertainties related to the subsoil conditions. Traditionally, the evaluation of the dynamic structural behaviour is based on a...



8. Estimation of small failure probabilities in high dimensions by subset simulation

October 2001

Siu-Kui Au | James L. Beck

A new simulation approach, called ‘subset simulation’, is proposed to compute small failure probabilities encountered in reliability analysis of engineering systems. The basic idea is to express the...



9. Metamodel-based importance sampling for structural reliability analysis

July 2013

V. Dubourg | B. Sudret | F. Deheeger

Structural reliability methods aim at computing the probability of failure of systems with respect to some prescribed performance functions. In modern engineering such functions usually resort to running...



10. A new adaptive response surface method for reliability analysis

April 2013

N. Roussouly | F. Petitjean | M. Salaun

Response surface method is a convenient tool to assess reliability for a wide range of structural mechanical problems. More specifically, adaptive schemes which consist in iteratively refine the experimental...



11. Material spatial randomness: From statistical to representative volume element

April 2006

Martin Ostoja-Starzewski

The material spatial randomness forces one to re-examine various basic concepts of continuum solid mechanics. In this paper we focus on the Representative Volume Element (RVE) that is commonly taken...



12. On the efficacy of stochastic collocation, stochastic Galerkin, and stochastic reduced order models for solving stochastic problems

July 2015

R.V. Field | M. Grigoriu | J.M. Emery

The stochastic collocation (SC) and stochastic Galerkin (SG) methods are two well-established and successful approaches for solving general stochastic problems. A recently developed method based on...



13. Markov chain splitting methods in structural reliability integral estimation

April 2015

Oindrila Kanjilal | C.S. Manohar

Monte Carlo simulation methods involving splitting of Markov chains have been used in evaluation of multi-fold integrals in different application areas. We examine in this paper the performance of these...



14. Modified Metropolis–Hastings algorithm with delayed rejection

July 2011

K.M. Zuev | L.S. Katafygiotis

The development of an efficient MCMC strategy for sampling from complex distributions is a difficult task that needs to be solved for calculating the small failure probabilities encountered in the high-dimensional...



15. New method for efficient Monte Carlo–Neumann solution of linear stochastic systems

April 2015

C.R. Avila da S. | A.T. Beck

The Neumann series is a well-known technique to aid the solution of uncertainty propagation problems. However, convergence of the Neumann series can be very slow, often turning its use highly inefficient....



16. MCMC algorithms for Subset Simulation

July 2015

Iason Papaioannou | Wolfgang Betz | Kilian Zwirgmaier | Daniel Straub

Subset Simulation is an adaptive simulation method that efficiently solves structural reliability problems with many random variables. The method requires sampling from conditional distributions, which...



17. Filter models for prediction of stochastic ship roll response

July 2015

Wei Chai | Arvid Naess | Bernt J. Leira

In this paper, the shaping filter technique is introduced to study the stochastic roll response of a vessel in random beam seas. Specifically, the roll motion is described as a single-degree-of-freedom...



18. General network reliability problem and its efficient solution by Subset Simulation

April 2015

Konstantin M. Zuev | Stephen Wu | James L. Beck

Complex technological networks designed for distribution of some resource or commodity are a pervasive feature of modern society. Moreover, the dependence of our society on modern technological networks...



19. A cell-vertex finite volume scheme for solute transport equations in open channel networks

January 2013

Hidekazu Yoshioka | Koichi Unami

A solute particle in a water flow behaves as a stochastic process, which is modeled by a stochastic differential equation. The solute transport equation governing macroscopic dynamics of solute concentration...



20. Analysis of structural reliability under parameter uncertainties

October 2008

Armen Der Kiureghian

Formulation of structural reliability requires selection of probabilistic or physical models, which usually involve parameters to be estimated through statistical inference — a process that invariably...



21. Interacting multiple-models, state augmented Particle Filtering for fault diagnostics

April 2015

Michele Compare | Piero Baraldi | Pietro Turati | Enrico Zio

Particle Filtering (PF) is a model-based, filtering technique, which has drawn the attention of the Prognostic and Health Management (PHM) community due to its applicability to nonlinear models with...



22. Karhunen–Loève expansion for multi-correlated stochastic processes

October 2013

H. Cho | D. Venturi | G.E. Karniadakis

We propose two different approaches generalizing the Karhunen–Loève series expansion to model and simulate multi-correlated non-stationary stochastic processes. The first approach (muKL) is based on...



23. Model-based and data-driven prognostics under different available information

April 2013

Piero Baraldi | Francesco Cadini | Francesca Mangili | Enrico Zio

In practical industrial applications, different prognostic approaches can be used depending on the information available for the model development. In this paper, we consider three different cases:...



24. Reliability analysis of structures using neural network method

January 2006

A. Hosni Elhewy | E. Mesbahi | Y. Pu

In order to predict the failure probability of a complicated structure, the structural responses usually need to be estimated by a numerical procedure, such as finite element method. To reduce the computational...



25. A response surface method based on weighted regression for structural reliability analysis

January 2005

Irfan Kaymaz | Chris A. McMahon

Approximation methods such as the response surface method (RSM) are widely used to alleviate the computational burden of engineering analyses. For reliability analysis, the common approach in the RSM...



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