

## Post-doctoral position – HPC for Uncertainty Quantification

**The Chair of Risk, Safety and Uncertainty Quantification in Engineering** develops computational methods for managing the uncertainties in physical models used in various engineering fields, with emphasis on structural mechanics models. These methods enable the rigorous assessment of risk and safety for engineering systems that supports rational decision-making under uncertainty.

The Chair launches the development of a computational platform that gathers state-of-art algorithms in uncertainty quantification and structural reliability with the aim of fully incorporating recent technologies in high performance computing (distributed computation) in connection with the HPC Brutus cluster provided by ETH's IT services.

**The ideal candidate** has a Ph.D in mechanical or civil engineering (with emphasis on computational mechanics) or related area (e.g. applied mathematics, statistics, computer science with links to engineering applications). He/she has a strong background in scientific computing and proven skills in at least 3 of the following items:

- a. Software engineering in object-oriented design and advanced Matlab programming skills
- b. Probability & statistics
- c. High performance /distributed computing (MPI)
- d. Numerical analysis (partial differential equations, optimization)
- e. Computational mechanics

He/she is familiar with uncertainty quantification techniques and has some proven experience in at least 2 of the following topics:

- a. Structural reliability methods
- b. Polynomial chaos expansions
- c. Gaussian process modeling (kriging)
- d. Statistical learning methods (SVM)
- e. Bayesian techniques (MCMC methods)
- f. Global sensitivity analysis

We are looking for highly motivated candidates who are self-driven, have excellent communication and writing skills (fluent English is mandatory) and enjoy working in an interactive international environment with PhD students, applied statisticians and engineers. The position is available as of October 1<sup>st</sup>, 2012 and planned for 2 years.

**Applications** with a resume, a list of past research projects & publications, two reference letters and a personal statement why you are interested in this position, should be sent online until July 31, 2012 to: ETH Zurich, Mr. Hans-Peter Widmer, Human Resources, 8092 Zurich.

**Online information:** <http://internet1.refline.ch/845721/1986/++publications++/1/index.html>

**Salary:** According to ETH Zurich standards, the gross salary is CHF 84'700 for the first year and 89'000 for the second year.

**For additional information** please contact Bruno SUDRET ([sudret@ibk.baug.ethz.ch](mailto:sudret@ibk.baug.ethz.ch)), Institute of Structural Mechanics, Chair of Risk, Safety and Uncertainty Quantification.