

Research Fellow - in Computational Optimization and Uncertainty Quantification

Supervisor and Location:

We are looking for 3 Research Fellows (Postdoc) to work with Distinguished Professor Christine Shoemaker <https://sites.google.com/site/shoemakernusgroup/home> in the Department of Industrial and Systems Engineering at the National University of Singapore.

The National University of Singapore (NUS) is a leading global university, ranked usually as 1st in Asia and internationally ranked 12th and 24th, respectively, in the 2015 (QS) [QS World University Rankings](#) and 2017 Time World University Rankings. (Engineering rankings are higher). Singapore is a beautiful and interesting city that is a leading international tourist destination. The official language of Singapore and NUS is English.

Job Requirements:

- A PhD degree in an optimization/statistical/numerical analysis field (e.g. Operations Research, Industrial/Systems Engineering, or Applied Mathematics) or in Computer Science or in Engineering area including numerical optimization. (Candidates about to complete their PhDs may also apply.)
- Extensive experience in developing complex computer codes, preferably including Python or C++.
- Ability to construct and write papers for leading international research journals and conferences.

It is an advantage, but not a requirement for a candidate to have expertise in any one of the following areas: distributed computing, algorithm proofs, machine learning, uncertainty quantification, surrogates, water resources/quality or chemical processes for waste to energy conversion.

Research Focus and Goals:

The successful candidates will work with Prof. Shoemaker's group (possibly collaborating with other faculty at NUS) to develop, implement and evaluate serial and parallel optimization or uncertainty quantification algorithms for simulation models and/or apply the algorithms to complex engineering problems, which probably have multiple local minima. Computational efficiency is greatly enhanced with Surrogate algorithms. The candidate will have the opportunity to develop research skills, improve domain knowledge and expertise, attend international conferences, and work on the new Singapore Supercomputer (NSCC).

Professor Shoemaker's group focuses on HPC computational optimization and uncertainty algorithms and their application to engineering problems. Professor Shoemaker, NAE, was at Cornell University in US before coming to NUS in 2015. She is co-author (with Prof. Bindel and D. Eriksson at Cornell Univ.) of open source surrogate global optimization toolbox "pySOT" in Github (which has had over 16,000 downloads) that will be used in this research at NUS, in part on the NSCC supercomputer.

Review of Applications and Appointment Conditions:

The initial term of appointment shall be for 12 months, with funds available for extension for multiple years subject to performance criteria. The salary is internationally competitive, Vacation leave and medical benefits will be provided <http://www.nus.edu.sg/careers/whatyougettoenjoy.html>

Review of applications will begin immediately and continue until the three positions are filled. Additional positions will probably become available. Job applications and inquiries should be sent to Prof. Shoemaker at ceesca@nus.edu.sg. Applicants should include a vitae and indicate desired start time in the email message. Please also put "**Job Application-RF**" in the email subject line. The email message can also include any information required to understand how the applicant's background relates to the qualification requirements listed in this announcement.