PhD Studentship in Bayesian computation for big-data applications using elastic cloud-computing architectures

University of Cambridge - Department of Engineering

**Qualification type:** PhD  
**Location:** Cambridge  
**Funding for:** UK Students, EU  
**Funding amount:** Not specified  
**Hours:** Full Time  
**Placed on:** 7th December 2015  
**Closes:** 30th April 2016  
**Reference:** NM07800

We are in the midst of an information revolution where advances in science and technology are increasingly reliant on the analysis of data.

In a wide variety of modern applications, the mathematical models devised to accurately capture the dynamics and interactions of the data generating processes are very high dimensional and the only computationally feasible and accurate way to perform any kind of statistical inference is with Monte Carlo algorithms. Examples of such algorithms tailored to deal with the challenges posed by the complexity of the models and the data-size include Markov Chain Monte Carlo (MCMC), sequential Monte Carlo (SMC) and stochastic gradient algorithms (or combinations of these.)

This project aims to devise new Bayesian Monte Carlo algorithms that are computationally efficient for big-data applications with the additional aim of exploiting elastic cloud-computing architectures.

Cloud computing offers a significant resource for big data applications and its primary appeal is that it circumvents the need for expensive in-house computing facilities.

Candidate profile: An undergraduate degree in Engineering, Applied Mathematics, or Statistics with a good academic record. A strong mathematical background is essential, especially in probability and inference. Some knowledge of optimization is desirable. Prior research experience in any of these areas would be a plus.

The PhD studentship is funded by the UK EPSRC and is available for an Oct 1, 2016 entry to the University of Cambridge. Home students are eligible for full funding including the University Composition Fee and Student Maintenance at standard EPSRC rates. EU/ Swiss students can be considered for a Fees-only award. There is no funding available for Overseas applicants.

For further details contact Dr S Singh, sss40@cam.ac.uk

Applications should be made online via the Cambridge Graduate Admissions Office before the deadline: http://www.admin.cam.ac.uk/students/gradadmissions/prospec/apply/ with Dr Sumeet Singh as the potential supervisor.

The University values diversity and is committed to equality of opportunity.

**Advert information**

**Type / Role:** PhD  
**Subject Area(s):** Mathematics and Statistics, Mathematics, Statistics, Engineering and Technology, Other Engineering  
**Location(s):** South East England