

Simon L. Cotter

CONTACT INFORMATION

Mathematics Institute
The University of Warwick
Coventry
CV4 7AL

Email: simon.cotter@gmail.com
WWW: www.mathematicians.org.uk/slc/

EDUCATION

PhD, Mathematics, University of Warwick (expected submission date: March 2010)

- Thesis Topic: Applications of MCMC Methods on Function Spaces
- Supervisor: Professor Andrew M. Stuart
- Areas of Study:
 - Data assimilation for Eulerian and Lagrangian data in Stokes' flow, including model error terms. Formulation of infinite dimensional Metropolis-Hastings MCMC algorithms to sample from well-defined posterior distributions. Implementation of algorithms in C.
 - Rare transition sampling in Langevin dynamics; independence sampler MCMC method developed to efficiently explore the path state space in the limit of low-temperature stochastic particles.
 - Shape registration problem; Using a data assimilation framework for working out the "distance" between a noisily observed shape and a template shape, with applications in the biomedical sciences.

MMath, University of Warwick

- 1st Class Hons, June 2006.

WORK EXPERIENCE (NON-ACADEMIC)

2003-2005 BTEExact: Summer Placement Student

- This position included modem testing, cable characterisation, and noisy ADSL transmission line simulations in JAVA. Paper published on modem performance in the presence of 100 Hz repetitive impulse noise, caused by faulty household electricals.

PUBLICATIONS

S. L. Cotter, M. Dashti, J. C. Robinson and A. M. Stuart, *Bayesian Inverse Problems for Functions and Applications to Fluid Mechanics*, Inverse Problems 25 (2009).

S. L. Cotter, M. Dashti, and A. M. Stuart, *Approximation of Bayesian Inverse Problems for PDEs*, Submitted to SIAM Journal for Numerical Analysis

S. L. Cotter, M. Dashti, J. C. Robinson and A. M. Stuart, *MCMC Methods on Function Space and Applications to Fluid Mechanics*, Submitted to Inverse Problems.

L. Humphrey, A. Wallace and S. L. Cotter, *Performance of Various ADSL CPE in Presence of 100 Hz Repetitive Impulse Noise* ITU-T SG15/Q4 LC-031, Lake Tahoe August 2004.

AWARDS

- Peter Carpenter Memorial Graduate Student Travel Fund - £500 awarded towards cost of attending conference in Barcelona in May 2010.

TALKS

- December 2009, Reading-Warwick Data Assimilation Day.
- July 2009, EPSRC Symposium Capstone Conference, invited talk.
- June 2009, SIAM: Computational and Mathematical Issues in the Geosciences, Leipzig Germany, invited talk.
- April 2009, BAMC, Nottingham University.
- March 2009, EPSRC Symposium Workshop on MCMC, Warwick University.
- December 2008, Junior Data Assimilation Researcher's Day, Reading University.
- April 2008, BAMC, Manchester University.
- March 2008, Applied Mathematics and Statistics Seminar, Warwick University.

TEACHING EXPERIENCE

Lecturer, Fundamental Tools for MSc in Financial Maths, Mathematics Institute, University of Warwick

- 2007-2009 Autumn: (Course Organiser '08-'09) 5 hours lecturing over 1 week to class of approx. 50 students, exam writing and marking.

Teaching Assistant, Mathematics Institute, University of Warwick

- 2008-2009 Autumn: Fundamental Tools for MSc in Financial Maths.
- 2007-2008 Autumn: Fundamental Tools for MSc in Financial Maths; Spring: Maths by Computer, Numerical Analysis.
- 2006-2007 Autumn: Matrix Analysis and Algorithms; Spring: Maths by Computer, Numerical Analysis.

Undergraduate Supervisor, Mathematics Institute, University of Warwick

- 2006-2008 Supervisor of first and second year undergraduate students in groups of four.

Seminars

- April 2008 and May 2009, gave reviews of two academic papers in the Applied Mathematics and Statistics Seminar, Warwick University.

COMPUTER EXPERIENCE

- Regularly use C, matlab and python.
- Have used JAVA and visual basic also.
- HPC programming using MPI in C.
- Have experience of manipulating sequences of plots into movies.

REFEREES

Prof. Andrew Stuart, Mathematics Institute, University of Warwick, Coventry, CV4 7AL, UK.

Prof. Gareth Roberts, Department of Statistics, University of Warwick, Coventry, CV4 7AL, UK.