Gareth Peters
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Professional Experience

August, 1995 to December, 1995

Plant Sciences and Biotechnology
Latrobe University,
Melbourne, Victoria,
03 9479 3099
Research (Scholarship Holder)

December, 1999 to March, 2000

NEC Australia
Mulgrave Plant/Technology Centre
649-655 Springvale Rd Mulgrave
Melbourne, Victoria
(03) 9264 3111
Junior Engineer

December, 2000 to March 2001

Astrophysics and Super Computing Centre
Swinburne University / Parkes Radio Telescope
Glenferrie
Melbourne, Victoria
Vacation Scholarship

March, 2002 to 2003

The University of Melbourne
Parkville Campus
Melbourne, Victoria
3rd Year Laboratory Demonstrator

April, 2004 to May, 2004

Universite Paul Sabatier Toulouse III
Laboratoire de Statistique et Probabilités
Toulouse, France
Visiting Research Position with Prof. Pierre Del Moral.

Sep, 2005 to March 2007

Commonwealth Bank of Australia
48 Martin Place,
Sydney, Australia
Associate Quantitative Analyst, Market and Operational Risk. Providing mathematical modelling advice, methodology and development which involved extensive collaboration with CSIRO. Implementation of systems and methodological development for the Advanced Measurement Approach for operational risk developed for the entire Bank and subsidiaries.

Awards for achievement:

Economic and Capital spot award (x2),

Group Risk Management service award

Nominated for the Financial and Risk Management innovation award decided by the CFO.

Sep, 2005 to Present

Commonwealth Scientific & Industrial Research Organisation CSIRO
Maquarie University Research Park,
Sydney, Australia
Working on a project on modelling of Commodities, pricing, filtering and prediction aspects in financial mathematics. Supervised by Dr. Pavel Shevchenko.

Education

2006 to present

University of NSW (UNSW)
Sydney, Australia
PhD: Statistics Department. PhD on advanced methodology for Monte Carlo, Markov Chain Monte Carlo, Bayesian Modelling, Sequential Monte Carlo, numerical sampling, optimisation and integration techniques. Time Series analysis and Machine Learning.

2005

University of British Columbia (UBC)
Vancouver, Canada
Research Assistant : Statistics Department and Computer Science Department Joint research (Laboratory of Computational Intelligence).

2003 to 2005

Cambridge University
Cambridge, UK
MSc. research: Statistical Signal Processing Laboratory, Cambridge University Engineering Department.

1998 to 2003

The University of Melbourne
Melbourne, Victoria
- Bachelor Science (1st class, major: Mathematics/Statistics, minor: Physics)
- Bachelor Engineering (Hons. 1st class, Electrical / Communications / Systems Engineering)

1997 to 1998

Monash University
Melbourne, Victoria
Bachelor Science (Deans Scholars Program)
Transferred to Melbourne University

1995 to 1997

Melbourne High School
Melbourne, Victoria
Victorian Certificate of Education (Tertiary entrance rank 98.5%)

Achievements and Awards

- ***CSIRO Postgraduate Top Up Scholarship*** *– Centre of Mathematics and Information Sciences - Group Risk Management 3 years.*
- ***Australian Postgraduate Award*** *for study at UNSW Mathematics and Statistics department for the duration of 3.5 years.*
- ***Mathematics Department PhD top up scholarship*** *for the duration of PhD.*
- *Awarded travel Scholarship to attend Bayesian Topics in tropics conference – Brisbane (QUT) (Sept. 2006).*
- ***Cambridge Commonwealth Trust scholarship*** *for study at Cambridge University for the duration of 3 years.* (2003-2004)
- ***Fellow of Cambridge Commonwealth Society*** (life member)
- ***Sir John Monash Scholarship*** *duration of Science Degree* (undergraduate 1997-1998)

- ***First Class Honours Electrical Engineering*** (major : communications and statistical signal processing, systems engineering)

- ***First Class degree in Mathematics*** *(majors: Stochastics and Applied Mathematics)*

- ***Deans Honours List*** *at Monash University and Melbourne University* (1997, 1999)

- *Entrance to accelerated* ***Science Scholars Program*** *Monash University* (1997)

- ***Deans Honours List*** *at Monash University and Melbourne University* (1997, 1999)

- *Entrance to accelerated* ***Science Scholars Program*** *Monash University* (1997)

- *Scholarship to study at* ***Parkes Radio Telescope and The Super Computing and Astrophysics Centre*** (Swinburne University, 2000)

- *Accepted to give seminar at 67th Annual Meeting of the Institute of Mathematical Statistics, Barcelona, 24/07/04-25/07/04*

- *Awarded position in the Machine Learning Summer School, Berder Island France, 12/09/04-25/09/04*

- *Scientific Enquiry Graduation Prize* (Melbourne High School, 1996)

- *Science Talent Search Major Prize winner* (1995)

- ***Victorian Country champion*** *1998*
  Power lifting 84kg category.

- ***Full colours rowing*** *(1st VIII) (Melbourne High School)*

- *Participated in the Operational Risk Modelling Master Class, Shangri-la Hotel, Sydney, Australia, September 05*

Publications

- "**Simulation of the Annual Loss Distribution in Operational Risk via Panjer Recursions and Volterra Integral Equations for Value at Risk and Expected Shortfall Estimation**", Gareth Peters, Adam Johansen and Arnaud Doucet. - Journal of Operational Risk.

- **"Bayesian Inference, Monte Carlo Sampling and Operational Risk",** Gareth Peters and Scott Sisson, Journal of Operational Risk, vol. 1, no. 3.

- **"Sharp Propagation of Chaos Estimates for Feynman-Kac Particle Models ",** *Pierre Del Moral, Arnaud Doucet, Gareth Peters, Teoriya Veroyatnosteri i ee Primeneniya (to be reprinted in SIAM Theory of Probability and Its Applications), vol. 51, no. 3, 2006.*

Presentations and Seminars

- **“Snapshot Review of Research Directions in Commodity Modelling**" - CSIRO, Centre for Mathematics and Information Sciences, Risk Management Seminar, 14/05/07.
- “**Adaptive MCMC and Transdimensional MCMC**”, UNSW Statistics Seminar group, 25/8/06
- “**Reinforcement Learning and Multi-Agent Systems**”, UBC Laboratory of Computational Intelligence Seminar group, 14/07/05
- **"Sequential Monte Carlo Samplers"**, UBC Computer Science, Laboratory for Computational Intelligence seminar group, 15/02/04
- **"Trans-Dimensional Sequential Monte Carlo"**, QinetiQ, Great Malvern, 31/03/04.
- **"Theoretical Aspects of SMC : Convergence, Central Limit Theorem and Bias"**, Cambridge University Signal Processing Seminar Part 1, 25/06/04
- **"Theoretical Aspects of SMC : Convergence, Central Limit Theorem and Bias"**, Cambridge University Signal Processing Seminar Part 2, 29/06/04
- **"SMC Samplers and Trans-Dimensional Monte Carlo"**, Particle and Monte Carlo Methods", Barcelona, 24-25/07/04
- **"SMC Samplers Overview"**, Machine Learning Summer School, Berder Island, France, 12/09/04

Memberships

- **Journal Of Operational Risk** (JOP) Reviewer, 2007
- **Neural Information Processing** (NIPS) Reviewer 2005.
- **Journal of Artificial Intelligence** (JAI) Reviewer 2005.
- **EWB: Member of Engineers With Out Borders** – University of British Columbia Chapter, Canada, (2005)
- **Esso: Diversity In Engineering Mentor Scheme**, Mentor at Agilant Technologies (1999)
- **Cambridge Society –** University of Cambridge, UK
- **Cambridge Commonwealth Fellow –** University of Cambridge, UK, Life Member (2003 +)

Experience

Lived in : Melbroune - Australia (24 years), Cambridge – UK (2 years), Sydney – Australia (1 year), London – UK(2 weeks), Vancouver – Canada (1 year), Toulouse – France (1 month), Paris – France (2 weeks), Berder – France (2 weeks), Rome – Italy (1 week).

Referees

Referee 1 : Dr. Scott Sisson
Senior Lecturer UNSW Mathematics
Department of Statistics
Scott.Sisson@unsw.edu.au

Referee 2: Dr. Arnaud Doucet
Lecturer Cambridge University Engineering Department
Statistical Signal Processing Laboratory
Trumpington Street
CB2 1PZ, Cambridge, UK
ad2@eng.cam.ac.uk

Referee 3 : Professor William Fitzgerald
Head of Statistical Signal Processing Laboratory
Cambridge University Engineering Department
Trumpington Street
CB2 1PZ, Cambridge, UK