

Sergios Agapiou

Date and place of birth: 7th May 1984, Nicosia, Cyprus

Citizenship: Cypriot

Address: Department of Mathematics and Statistics, University of Cyprus
1 University Avenue, 2109 Nicosia, Cyprus

Email: sergiosagapiou@gmail.com

Homepage: <http://www.sergiosagapiou.com>

Phone: +357 22893919

Research Interests: Problems in Applied Mathematics at the interface of Differential Equations and Probability/Statistics. Bayesian regularization of inverse problems in infinite dimensions: theoretical foundation, asymptotic performance of posterior distributions in the small noise limit, design and analysis of sampling algorithms in high dimensions, unbiased estimation of posterior expectations.

Employment

- 09/2015 - present, Lecturer (Tenure Track)
Department of Mathematics and Statistics, University of Cyprus
 - 12/2014 - 08/2015, Postdoctoral Research Fellow
Department of Statistics, University of Warwick
 - Position under the EPSRC funded project
Enabling Quantification of Uncertainty in Inverse Problems (EQUIP)
 - Supervisor: Prof. Gareth Roberts.
 - 10/2013 - 11/2014, Postdoctoral Research Fellow
Mathematics Institute, University of Warwick
 - Position under the ERC funded project
Problems at the Applied Mathematics-Statistics interface (AMSTAT)
 - Supervisor: Prof. Andrew Stuart.
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University Education

- 2013, PhD in Mathematics
University of Warwick
 - Thesis: *Aspects of Bayesian inverse problems*
 - Supervisor: Prof. Andrew Stuart.
- 2010, MSc in Mathematics (Distinction)
University of Warwick
 - Dissertation: *A classical and a Bayesian approach to linear ill-posed inverse problems*
 - Dissertation supervisor: Prof. Andrew Stuart.
- 2009, BSc in Applied Mathematics and Physical Sciences (First Class)
National Technical University of Athens
 - University Medal for graduating top in School's class of 2009
 - Diploma dissertation: *Stable and Infinitely Divisible distributions*
 - Dissertation supervisor: Prof. Spyros Argyros.

Journal Publications

- S. Agapiou, O. Papaspiliopoulos, D. Sanz-Alonso and A. M. Stuart, *Importance Sampling: intrinsic dimension and computational cost*, Statistical Science, vol 32, no 3 (2017), 405-431.
 - S. Agapiou, J. M. Bardsley, O. Papaspiliopoulos and A. M. Stuart, *Analysis of the Gibbs sampler for hierarchical inverse problems*, SIAM/ASA Journal on Uncertainty Quantification, vol 2, no 1 (2014), 511-544.
 - S. Agapiou, A. M. Stuart and Yuan-Xiang Zhang, *Bayesian posterior contraction rates for linear severely ill-posed inverse problems*, Journal of Inverse and Ill-Posed Problems, vol 22, no 3 (2014), 297-321.
 - S. Agapiou, S. Larsson and A. M. Stuart, *Posterior contraction rates for the Bayesian approach to linear ill-posed inverse problems*, Stochastic Processes and their Applications, vol 123, no 10 (2013), 3828-3860.
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Preprints / in preparation

- S. Agapiou, M. Burger, M. Dashti and T. Helin, *Sparsity-promoting and edge-preserving maximum a posteriori estimators in non-parametric Bayesian inverse problems*, to appear in Inverse Problems (arXiv:1705.03286).
 - S. Agapiou, G. O. Roberts and S. J. Vollmer, *Unbiased Monte Carlo: posterior estimation for intractable/infinite-dimensional models*, to appear in Bernoulli (arXiv:1411.7713).
 - S. Agapiou and P. Mathé, *Preconditioning the prior to overcome saturation in Bayesian inverse problems*, to appear in conference proceedings of Chemnitz Symposium on Inverse Problems - Springer series Trends in Mathematics (arXiv:1409.6496).
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Talks (invited talks in bold, titles and slides available on homepage)

- 2017: Applied Inverse Problems conference (Hangzhou), Algorithms and Computationally Intensive Inference seminar (Warwick), Greek Stochastics ι' (Milos), **Bayesian and Nonlinear Inverse Problems workshop (Lorentz center, Leiden)**
- 2016: **EQUIP/AIB Meeting: Data Assimilation and Inverse Problems (Warwick)**, **Joint Scientific Computation and Statistics seminar (Nottingham)**, **Retrospective Monte Carlo Workshop (Warwick)**
- 2015: Algorithms and Computationally Intensive Inference seminar (Warwick), **Computational Statistics seminar (University College London)**, MiR@W day Uncertainty in Complex Computer Models (Warwick), **Statistics Seminar (Imperial College London)**, Applied Inverse Problems conference (Helsinki), Reading-Warwick Data Assimilation day (Reading)
- 2014: Greek Stochastics ζ' (Athens), EQUIP lunch seminar (Warwick), Reading-Warwick Data Assimilation meeting (Warwick), Monte Carlo and Quasi Monte Carlo conference (Leuven), SIAM conference on Uncertainty Quantification (Savannah)
- 2013: CSC@lunchtime seminar (Warwick), **Bayesian Nonparametrics conference (Amsterdam)**, Inverse Problems and Applications conference (Linköping), **Stochastic Analysis seminar (Oxford)**
- 2012: **Canberra Symposium on Regularization (Australian National University)**, NSF/CBMS conference on Small Deviation Probabilities (Huntsville), Bayesian Inverse Problems workshop (Warwick), Numerical Analysis postgraduate workshop (Reading)

- 2011: **Computational and Applied Mathematics seminar (Chalmers University of Technology)**, Young Researchers in Mathematics conference (Warwick)
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Teaching Experience

- Lecturer of Topics in Statistics, Winter terms 2015/16, 2016/17
University of Cyprus (MSc course on topics from the area of Statistical Learning)
 - Lecturer of Generalized Linear Models, Summer terms 2015/16, 2017/18
University of Cyprus (MSc course on topics from Statistical Regression)
 - Lecturer of Linear Models II, Summer terms 2015/16-2017/18
University of Cyprus (4th-year course on statistical regression, model selection, classification)
 - Lecturer of Computational Statistics, Winter terms 2016/17, 2017/18
University of Cyprus (MSc course on introduction to Statistical simulation using R)
 - Lecturer of Control Theory, Winter terms 2013/14, 2014/15
University of Warwick (3rd-year course, introducing controllability, observability, stabilizability, Gaussian probability, filtering/smoothing and optimal control)
 - Assistant for lecture series on Bayesian inverse problems by Prof. Andrew Stuart, 05/2012 & 07/2012
Göttingen University and Peking University
 - Taught supplementary lectures and helped with preparation of lecture notes
 - Research level week-long course introducing prior modelling in function space, Bayes theorem for PDE inverse problems, well-posedness and approximation of posterior distributions, and algorithms for probing the posterior.
 - Assistant for lecture series on Data Assimilation by Prof. Andrew Stuart, 07/2012
Peking University
 - Taught supplementary lectures and helped with preparation of lecture notes
 - Research level week-long course introducing the discrete-time filtering and smoothing problems, the most important relevant algorithms, and briefly discussing the continuous-time case.
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Scholarships - Awards

- MSc and PhD funding through Prof. Andrew Stuart's ERC grant AMSTAT, 2008/09-2012/13
- Scholarship for undergraduate studies by Greek Scholarships Foundation, 2004/05-2008/09
- Awards for performance as an undergraduate student at the School of Applied Mathematical and Physical Sciences, NTUA
 - Charalambos Chrysovergis award and University Medal for graduating top in School's class of 2009 (average grade 9.69/10)
 - Greek Scholarships Foundation annual awards and honorary scholarships for excellent performance, 2004/05-2008/09
 - Demetres Thomaidis Foundation awards for School's highest year-average grade, 2004/05, 2007/08, 2008/09
 - Christos Papakyriakopoulos awards for School's highest average grades in first and second year mathematics, 2004/05, 2005/06

- Nikolaos Kritikos scholarship for highest average grade in first year Mathematics, 2004/05
 - Evangelos-Manthos Anastasakis award for highest average grade in first and second year Physics, 2004/05-2005/06
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Other Academic Activities

- Co-organizer of mini-symposia *Bayesian inverse problems with non-Gaussian priors* and *Communications in uncertainty quantification and inverse problems*, in AIP2017 conference at Hangzhou
- Co-organizer of mini-symposium *Markov chain Monte Carlo in high dimensions*, in MCQMC2014 conference at KU Leuven
- Organizer of the Mathematics and Statistics colloquium, University of Cyprus, 2015-2017
- Co-organizer of the EQUIP lunch seminar and organizer of postdoc reading group on the Bayesian approach to inverse problems, 2014/15
- Referee for *Electronic Journal of Statistics*, *Scandinavian Journal of Statistics*, *Bernoulli*, *SIAM Journal on Uncertainty Quantification*, *Inverse Problems*, *Inverse Problems and Imaging*, *Journal of Complexity* and *Statistics and Computing*
- Internal examiner of Andreas Makrides' PhD thesis, *Statistical inference for multi-state reliability systems*, University of Cyprus 2016.
- Junior member of the Isaac Newton Institute
- Mentoring of MASDOC PhD students Daniel Sanz-Alonso and Matthew Thorpe, University of Warwick 2013-2015