CV: Panagiotis Papastamoulis

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4 May 2020

Education

2005–2010	**Ph.D in Statistics**
University	Department of Statistics and Insurance Science
	University of Piraeus, Greece
Thesis	Solution to the label switching problem in Bayesian analysis of mixtures of distributions
Supervisor	George Iliopoulos
2003–2005	**M.Sc. in Applied Statistics**
University	Department of Statistics and Insurance Science
	University of Piraeus, Greece
Thesis	Bayesian inference on mixtures of distributions
Supervisor	George Iliopoulos
1999–2003	**B.Sc in Mathematics**
University	Department of Mathematics
	University of Patras, Greece
Thesis	Improving estimators in the Exponential distribution
Supervisor	Stavros Kourouklis

Military Service

2010–2011	Fulfilled

Academic positions

2020–	**Assistant Professor**
University	Athens University of Economics and Business
	Department of Statistics
2018–2019	**Adjunct Lecturer**
University	Athens University of Economics and Business
	Department of Statistics

2015–2018	**Research associate**
University	Division of Informatics, Imaging and Data Science
	Faculty of Biology, Medicine and Health
	University of Manchester, UK
Project	Bayesian Inference and Statistical Bioinformatics II
PI	Prof. Magnus Rattray
Project	Develop Bayesian methods of inference in mixture and latent class models with applications including large-scale RNA-Sequencing data, clinical data of patients with asthma and growth-data time series.
2012–2015	**Research associate**
University	Faculty of Life Sciences
	University of Manchester, UK
Project	Bayesian Inference and Statistical Bioinformatics I
PI	Prof. Magnus Rattray
Project	Develop Bayesian methods of inference for estimating gene expression with RNA-Sequencing data.
2011–2012	**Research associate**
University	Unité de Recherche en Genomique Végétale, Évry, Île-de-France
	Institut National de la Recherche Agronomique (INRA), France
Project	Unsupervised clustering of RNA-Sequencing data
PI	Marie-Laure Martin Magniette (INRA)
Project	Efficient Maximum Likelihood estimation of high-dimensional mixture models with applications in clustering gene expression data.

Fellowships – Prizes – Awards

2010	Honored with the "Young Statistician's Prize" for the paper "On the convergence of ECR algorithm for the solution of the label switching problem" presented in the 23rd Conference of the Gree k Statistical Institute (Veroia - Greece, 7–11 April 2010).
2006–2009	PhD funding from the *State Scholarship Foundation of Greece*.
2006	Ranked first in national-level exams of the *State Scholarship Foundation of Greece* for the funding of one PhD student in the field of *Probability and Statistics*.
2006	First class honour for the MSc degree in "Applied Statistics", University of Piraeus.

Teaching

Stand-alone teaching

2019–2020	*Non Parametric Statistics*, Department of Statistics, Athens University of Economics and Business
2019–2020	*Categorical Data Analysis*, Department of Statistics, Athens University of Economics and Business
2018–2019	*Bayesian Inference Methods*, Department of Statistics, Athens University of Economics and Business
2018–2019	*Decision Theory*, Department of Statistics, Athens University of Economics and Business

Co-teaching

2018–2019	*Bayesian Statistics and Simulation*, M.Sc in Data Science, Athens University of Economics and Business (with I. Ntzoufras)
2018–2019	*Statistics for Business Analytics II*, M.Sc in Business Analytics, Athens University of Economics and Business (with D. Karlis)
2005–2010	*Simulation and Computational Statistical Methods*, M.Sc in Applied Statistics, University of Piraeus (with M. Boutsikas)
2005–2010	*Statistics 1: Point and Interval Estimation*, Department of Statistics and Insurance Science, University of Piraeus (with G. Iliopoulos).
2005–2010	*Statistics 2: Hypothesis Testing*, Department of Statistics and Insurance Science, University of Piraeus (with M. Kateri).
2005–2010	*Statistical Software*, Department of Statistics and Insurance Science, University of Piraeus (with M. Boutsikas).

Teaching Material

2019	*Bayesian Inference Methods*, lecture notes, epartment of Statistics, Athens University of Economics and Business
2019	*Decision Theory*, lecture notes, epartment of Statistics, Athens University of Economics and Business

Publications in refereed international journals

[A1] **Panagiotis Papastamoulis** and George Iliopoulos. Reversible jump MCMC in mixtures of normal distributions with the same component means. *Computational Statistics & Data Analysis*, 53(4):900–911, 2009

[A2] **Panagiotis Papastamoulis** and George Iliopoulos. An artificial allocations based solution to the label switching problem in Bayesian analysis of mixtures of distributions. *Journal of Computational and Graphical Statistics*, 19(2):313–331, 2010

[A3] **Panagiotis Papastamoulis** and George Iliopoulos. On the convergence rate of random permutation sampler and ECR algorithm in missing data models. *Methodology and Computing in Applied Probability*, 15(2):293–304, 2013

[A4] **Panagiotis Papastamoulis**. Handling the label switching problem in latent class models via the ECR algorithm. *Communications in Statistics - Simulation and Computation*, 43(4):913–927, 2014

[A5] **Panagiotis Papastamoulis**, James Hensman, Peter Glaus, and Magnus Rattray. Improved variational Bayes inference for transcript expression estimation. *Statistical Applications in Genetics and Molecular Biology*, 13(2):213–216, 2014

[A6] James Hensman*, **Panagiotis Papastamoulis***, Peter Glaus, Antti Honkela, and Magnus Rattray. Fast and accurate approximate inference of transcript expression from rna-seq data. *Bioinformatics*, 31(24):3881, 2015. * Joint first authors

[A7] **Panagiotis Papastamoulis**, Marrie-Laure Martin-Magniette, and Cathy Maugis-Rabusseau. On the estimation of mixtures of Poisson regression models with large number of components. *Computational Statistics & Data Analysis*, 93 (3rd special issue on Advances in Mixture Models):39–106, 2016

[A8] **Panagiotis Papastamoulis**. label.switching: An R package for dealing with the label switching problem in MCMC outputs. *Journal of Statistical Software*, 69(1):1–24, 2016

[A9] **Panagiotis Papastamoulis** and Magnus Rattray. A Bayesian model selection approach for identifying differentially expressed transcripts from RNA sequencing data. *Journal of the Royal Statistical Society, Series C (Applied Statistics)*, 67(1):3–23, 2018

[A10] **Panagiotis Papastamoulis** and Magnus Rattray. BayesBinMix: an R package for model based clustering of multivariate binary data. *The R Journal*, 9(1):403–420, 2017

[A11] **Panagiotis Papastamoulis** and Magnus Rattray. Bayesian estimation of differential transcript usage from RNA-seq data. *Statistical Applications in Genetics and Molecular Biology*, 16(5-6), 2017

[A12] Rebecca Howard, Danielle Belgrave, **Panagiotis Papastamoulis**, Angela Simpson, Adnan Custovic, and Magnus Rattray. Evolution of IgE responses to multiple allergen components throughout childhood. *Journal of Allergy and Clinical Immunology*, 142(4):1322–1330, 2018

[A13] **Panagiotis Papastamoulis**. Overfitting Bayesian mixtures of factor analyzers with an unknown number of components. *Computational Statistics and Data Analysis*, 124(DOI:10.1016/j.csda.2018.03.007):220–234, 2018

[A14] **Panagiotis Papastamoulis**, Takanori Furukawa, Norman van Rhijn, Michael Bromley, Elaine Bignell, and Magnus Rattray. Bayesian detection of piecewise linear trends in replicated time-series with application to growth data modelling. *The International Journal of Biostatistics*, (DOI: 10.1515/ijb-2018-0052), 2019

[A15] **Panagiotis Papastamoulis**. Clustering Multivariate Data using Factor Analytic Bayesian Mixtures with an Unknown Number of Components. *Statistics and Computing*, 30:485–506, 2020

Under review

[A16] **Panagiotis Papastamoulis** and Ioannis Ntzoufras. On the identifiability of Bayesian factor analytic models. *arXiv preprint arXiv:2004.05105*, 2020

Invited talks

2011 *Solution to the label switching problem in Bayesian analysis of mixture models.* Mathématiques et Informatique Appliquées - AgroparisTech seminar, Paris, France

2012 *Clustering high-throughput sequencing data using Poisson mixture models.* Statistics for Systems Biology (SSB) seminar, Jouy en Josas, France

2013 *Approximating the posterior distribution of mixture weights with application to transcript expression estimation.* Representing Greece in the *18th European Young Statisticians Meeting*, Bernoulli Society for Mathematical Statistics and Probability. Osijek, Croatia.

2014 *Bayesian inference for high throughput sequencing data.* NextGenBug Bioinformatics User Group meeting, University of Aberdeen, Scotland

2016 *Bayesian methods for inference in high-throughput biomedical data.* Department of Humanities, University of Manchester, UK.

Conference announcements

(C1)   RJMCMC in mixtures of normal distributions with same component means. *20th Conference of the Greek Statistical Institute*. Nicosia - Cyprus, 11–15 April 2007

(C2)   The label switching phenomenon in mixtures of distributions and multivariate regressions. *21st Conference of the Greek Statistical Institute*. Samos - Greece, 30 April–4 May 2008

(C3)   A new solution to the label switching problem of MCMC outputs. *Greek Stochastics α'*. Lefkada - Greece, 28–31 August 2009

(C4)   On the convergence of ECR algorithm for the solution of the label switching problem. *23rd Conference of the Greek Statistical Institute*. Veroia - Greece, 7–11 April 2010

(C5)   Model-based clustering for high-throughput sequencing data to determine similar expression profiles across genes. *4th StatSeq workshop*, University of Verona - Italy, 18–19 April 2012

(C6)   Approximate Inference for Transcript Quantification in RNA-Seq. *23rd workshop: Mathematical and Statistical Aspects of Molecular Biology*, Imperial College, London - UK, 11–12 April 2013

(C7)   Approximating the posterior distribution of mixture weights with application to transcript expression estimation. *18th European Young Statisticians Meeting*. Osijek - Croatia, 26–30 August 2013

(C8)   Identifying differentially expressed transcripts via a Reversible Jump MCMC sampler. *13th European Conference on Computational Biology*, Strasbourg - France, 7–10 September 2014

(C9)   Bayesian methods for inferring Differential Transcript Usage from RNA-seq data. *26th workshop: Mathematical and Statistical Aspects of Molecular Biology*, Cambridge - UK, 3–4 October 2016

(C10)   Bayesian clustering identifies allergic response patterns that are predictive of clinical outcomes. *NIPS 2016 Workshop on Machine Learning for Health NIPS 2016 Workshop on Machine Learning for Health*, Barcelona - Spain, 9–10 December 2016

(C11)   Dimension reduction and parallel tempering schemes in Bayesian analysis of mixture models. *Greek Stochastics ι'*. Milos - Greece, 14–17 July 2017

(C12)   A Bayesian model selection approach for identifying differential expressed transcripts from RNA sequencing data. *Royal Statistical Society Annual Conference*, Glasgow - UK, 4–7 September 2017

(C13)   Parallel tempering and dimension reduction schemes for Bayesian estimation of multivariate mixture models with unknown number of components. *Greek Stochastics κ'*. Athens - Greece, 19–22 December 2018

(C14)   Bayesian detection of piecewise linear trends in replicated time-series with application to growth data modelling. *Statistics 5*. Aegina - Greece, 6–9 September 2019

Programming – Software

Programming	C++, Fortran, Mathematica, R
R packages	`https://CRAN.R-project.org/package=factor.switching`
	`https://CRAN.R-project.org/package=fabMix`
	`https://CRAN.R-project.org/package=BayesBinMix`
	`https://CRAN.R-project.org/package=beast`
	`https://CRAN.R-project.org/package=label.switching`
	`https://CRAN.R-project.org/package=poisson.glm.mix`
C++ software	`https://github.com/BitSeq`
	`https://github.com/mqbssppe/cjBitSeq`
	`https://github.com/mqbssppe/gen_dir_vb`
Reproducibility	R-weave code for reproducing results of article [A2]:
	`http://www.tandfonline.com/doi/suppl/10.1198/jcgs.2010.09008`
	R/C++ code for reproducing the results of article [A6]:
	`https://github.com/BitSeq/BitSeqVB_benchmarking`
	R/C++ code for reproducing the results of article [A8]:
	`https://www.jstatsoft.org/article/view/v069c01`
	R/C++ code for reproducing the results of article [A9]:
	`https://github.com/ManchesterBioinference/cjBitSeq_benchmarking`
	R code for reproducing the results of article [A10]:
	`http://personalpages.manchester.ac.uk/staff/panagiotis.papastamoulis/BayesBinMix_reproducible_script.R`

Reviews for international journals

Statistics	Communications in Statistics
	Computational Statistics and Data Analysis
	Journal of Computational and Graphical Statistics
	Journal of Educational and Behavioral Statistics
	Journal of the Royal Statistical Society
	Statistical Applications in Genetics and Molecular Biology
	Statistics and Its Interface
	The American Statistician
Multidiscip.	BMC Bioinformatics
	BMC Genomics
	BMC Systems Biology
	Educational and Psychological Measurement
	Genome Biology
	IEEE/ACM Transactions on Computational Biology and Bioinformatics
	PLoS ONE
	Software X