Osvaldo Anacleto Junior

Education

Sep 2009 - Oct 2012: PhD in Statistics, The Open University, UK
Thesis: *Bayesian Dynamic Graphical Models for High-Dimensional Flow Forecasting in Road Traffic Networks*
Supervisors: Dr Catriona Queen and Professor Paul Garthwaite
2003 - 2005: MSc in Statistics, Federal University of São Carlos, Brazil
Dissertation: *Bootstrap Methods for Recurrent Event Data*
Supervisor: Professor Francisco Louzada
Postgraduate courses taken (60 lecture hours each): probability theory, frequentist inference, Bayesian inference, statistical asymptotics, advanced statistics I and II, regression models and survival analysis
1999 - 2002: BSc in Statistics, Federal University of São Carlos, Brazil

Academic Employment

Roslin Institute, University of Edinburgh **Jan 2013 - present**
Position: Research Fellow (permanent position). Main responsibilities and achievements:

• Undertake research on novel statistical models and Bayesian computational algorithms for genetic analysis of epidemiological data. In particular, I developed the first statistical model that can accurately estimate the genetic contribution to the ability of animals to transmit diseases (host infectivity).

• Design and analyse large-scale disease transmission experiments conducted through interdisciplinary collaborations with research groups from the United States, Norway and Spain. By analysing one of the resulting datasets I could show, first the very first time, that genetics does contribute to variation in host infectivity.

• I contributed to the development of several collaborative international research proposals funded by the Biotechnology and Biological Sciences Research Council (BBSRC), United States Department of Agriculture, Norwegian Research Council and the European Union FP7.

• Preparation and delivery of statistical inference lectures for postgraduate students.

• Provision of statistical support to PhD students, postdocs and academic visitors within Dr Andrea Doeschl-Wilson's genetic epidemiology research group.

Department of Statistics, Federal University of São Carlos, Brazil **Feb 2004 - Dec 2004**
Position: Lecturer in Statistics. Duties included provision of statistical consulting services to PhD students and research staff.

Industry Employment

Itaú Unibanco Holding, São Paulo, Brazil **Feb 2005 - Sep 2009**
Last position: Research and Development Specialist.
Itaú Unibanco is the largest financial conglomerate in the Southern Hemisphere. Summary of key tasks and achievements:

• I developed several credit risk models based on extensive statistical analyses of massive datasets of the bank customers. These models were successfully implemented in the entire Itaú Unibanco's network of branches.

• Undertake research, design and implementation of novel statistical methodologies for credit risk modelling.

• Responsible for supervising data scientists from Itaú Unibanco's Research and Development group.

Constat/Data Analysis Consulting, São Carlos, Brazil **Mar 2003 - Dec 2004**

Position: Freelance Statistical Consultant. Responsible for the development and application of statistical models in consulting projects from a variety of companies. Duties included preparing and delivering advanced statistical courses for on-site training.

Publications

Anacleto, O., Queen, C.M. (2017). Dynamic chain graph models for time series network data. *Bayesian Analysis*, **12(2)**, 491-509.

Anacleto, O., Garcia-Cortez, L., Lipschutz-Powell, D., Woolliams, J.A., Doeschl-Wilson, A.B. (2015). A novel statistical model to estimate host genetic effects affecting disease transmission. *Genetics*, **201(3)**, 871-884 (highlighted article by the journal editors).

Anacleto, O., Queen, C.M., Albers, C.J. (2013). Multivariate forecasting of road traffic flows in the presence of heteroscedasticity and measurement errors. *Journal of the Royal Statistical Society: Series C (Applied Statistics)*, **62(2)**, 251-270.

Anacleto, O., Queen, C.M., Albers, C.J. (2013). Forecasting multivariate road traffic flows using Bayesian dynamic graphical models, splines and other traffic variables. *Australian & New Zealand Journal of Statistics*, **55(2)**, 69-86.

Louzada, F. ; Faria, R. ; **Anacleto, O**. ; Benzé, B. G. ; Pacífico, A. M. L. (2013) . An introduction to nonparametric statistical methods for recurrent event data (in Portuguese). *Revista Brasileira de Estatística*, **75**, 7-41.

Anacleto, O., Louzada F. (2012). Bootstrap confidence intervals for industrial recurrent event data. *Pesquisa Operacional* **32**, 103-119.

Louzada F., **Anacleto, O.**, Candolo C., Mazucheli, J. (2011). Poly-bagging predictors for classification modelling in credit scoring. *Expert Systems with Applications* **38**, 12717-12720.

Louzada, F., Diniz, C.A.R., Rocha, R.F., **Anacleto, O.** (2011). Reject inference: using combined models to boost predictive power. *Credit Technology (A Serasa Experian publication)* **77**, 7-17.

Manuscripts under preparation:

Anacleto, O., Cabaleiro, S., Saura, M., Villanueva, B., Houston, R.D., Woolliams, J.A., Doeschl-Wilson, A.B.. *Genetic differences in host infectivity affect disease spread and survival in epidemics.*
Anacleto, O., Lillehammer, M., Gjerde, B., Doeschl-Wilson, A.B.. *A stochastic transmission model for estimating salmon genotype effects in epidemic outbreaks.*
Tsairidou, S., **Anacleto, O.**, Woolliams, J.A., Doeschl-Wilson, A.B.. *Enhancing genetic disease control by selecting for low host infectivity and susceptibility.*

Awards

• **The Savage Award**, Honourable Mention (Second Place). Awarded by the International Society for Bayesian Analysis (ISBA) to outstanding doctoral dissertations in Bayesian applied methodology, 2013

• **Best application poster award** at the UseR! 2011 conference, University of Warwick, UK

Academic Teaching and Supervision Experience

Roslin Institute, University of Edinburgh

- Responsible for preparing and delivering a four-day summer course on infectious disease modelling with Dr Andrea Doeschl-Wilson. This course was given at the Iowa State University (USA) in May 2016 and at the Swedish University of Agricultural Sciences. I also delivered a 2.5-day version of this course at the University of São Paulo (Brazil) in July 2017, focusing on statistical methods for epidemic data. All these courses had excellent class evaluations

- 2013 - present: Lecturer of the analytical methods in animal biosciences course of the Roslin Institute's MSc degree (responsible for preparing and delivering statistical inference lectures and tutorials)
- 2015 - present: Co-supervisor of post-doctoral research fellow: Smaragda Tsairidou, supervised jointly with Dr Andrea Doeschl-Wilson
- 2013 - 2014: Co-supervisor of PhD student: Debby Lipschutz-Powell, supervised jointly with Dr Andrea Doeschl-Wilson

Department of Mathematics and Statistics, Open University

- 2010 - 2012: Final examination marking for the analysing data online module

Department of Statistics, Federal University of São Carlos, Brazil

- Responsible for preparing and delivering the following undergraduate courses:
  - statistical inference for approximately 25 statistics students (90 lecture hours)
  - probability and statistics for approximately 40 engineering students (60 lecture hours)
  - biostatistics for approximately 40 physical education students (60 lecture hours)

Funding

Funded research projects and scholarships:

• 1 year Serasa Experian Applied Research Program (£7200), 2014. Project: Bayesian spatial models for insurance data using integrated nested Laplace approximations. (Principal Investigator)
• 3 year PhD competitive scholarship awarded by the Department of Mathematics and Statistics, The Open University, 2009
• 2 year MSc scholarship awarded by the Brazilian Council for Scientific and Technological Development CNPq (declined after taking up a lectureship post at the Federal University of São Carlos), 2003
• 1 year Scientific Initiation Undergraduate Scholarship by the National Council for Graduate Studies (Brazil), 2001

Teaching:

• Funded visit to teach a infectious disease modelling course with Dr Andrea Doeschl-Wilson at the Iowa State University (US) in May 2016, Swedish University of Agricultural Sciences in May 2017 and at the University of New South Wales (Australia) in January 2018
• Funded visit to teach a course on statistical methods for epidemic data at the Institute of Mathematical Sciences, University of São Paulo (Brazil), 3-7 July 2017

Funded participation in conferences and workshops:

• Invited participation at the III Study Group with Industry Workshop, University of São Paulo (Brazil), 10-14 July 2017
• ISBA 2014 conference in Mexico
• Structure and Uncertainty: Modelling, Inference and Computation in Complex Stochastic Systems, University of Bristol, 2012
• ISBA 2012 conference in Japan (ISBA travel award)
• Workshop on Statistical Modelling and Inference for Networks, University of Bristol, 2010

Service and Professional Activities

• Funding proposal reviewer for the Biotechnology and Biological Sciences Research Council (BBSRC)
• Journal reviewer: Journal of the American Statistical Association (2), Statistical Modeling, Journal of Applied Statistics, Statistical Papers, Brazilian Journal of Probability and Statistics, Journal of Animal Breeding and Genetics, British Poultry Science and Genetics, Selection, Evolution

Conference Presentations and Seminars

Invited (7 seminars, 9 invited talks):

• (seminar) Econometrics Seminar Series, Institute of Education and Research, São Paulo (Brazil), 2017: *Dynamic chain graph models for time series network data*

• (seminar) School of Mathematics, University of Edinburgh, 2017: *Bayesian hierarchical modelling of social genetic effects in livestock disease transmission*

• 13^{th} Workshop on Stochastic Models, Statistics and Their Applications, Berlin (Germany), 2017: *Dynamic graphical models for samples of network time series*

• (seminar) Department of Decision Sciences, Bocconi University (Italy), 2016: *A novel Bayesian dynamic model for time series network data*

• XIII Brazilian Meeting on Bayesian Statistics, Belo Horizonte (Brazil), 2016: *Bayesian hierarchical modelling of host genetic effects in disease transmission*

• 12^{th} World Meeting of the International Society for Bayesian Analysis, Cancún (Mexico), 2014: *Bayesian dynamic graphical models for high-dimensional time series*

• Brazilian Symposium on Probability and Statistics, Natal (Brazil), 2014: *Using dynamic chain graphs to model high-dimensional time series*

• (seminar) Department of Statistics, Technische Universität Dortmund (Germany), 2013: *Using dynamic chain graphs to model high-dimensional time series*

• 8^{th} Bayesian Inference in Stochastic Processes Workshop, Milan (Italy), 2013: *Dynamic chain graph models for multivariate time series forecasting*

• (seminar) Department of Statistics, Federal University of São Carlos (Brazil), 2012: *Statistical models for road traffic flow forecasting*

• (seminar) Department of Statistics, University of São Paulo (Brazil), 2012: *Dynamic graphical models for multivariate time series*

• (seminar) University of Leeds (UK), 2011: *Dynamic graphical models for road traffic networks*

• IV Applied Statistics Workshop, Federal University of São Carlos (Brazil), 2008: *Statistics in the banking industry*

• Brazilian Symposium on Probability and Statistics, ¡guas de São Pedro (Brazil), 2008: *Poly-bagging predictors for credit risk modelling*

• 16^{th} SAS User Group Meeting, São Paulo (Brazil), 2007: *Estimating the customer value using survival analysis techniques*

• 1^{st} Risk Modeling Workshop, Federal University of São Carlos (Brazil), 2005: *A risk modelling approach to estimating customer lifetime value*

Selected contributed talks (6/20):

• Animal Genetics and Diseases, Wellcome Genome Campus, Hinxton, 2017: *Genetic differences in host infectivity affect mortality rates in epidemic outbreaks - evidence from a transmission experiment*

• Royal Statistical Society International Conference, University of Strathclyde, Glasgow, 2017: *Bayesian hierarchical modelling of social genetic effects in livestock disease transmission*

• European Mathematical Genetics Meeting, Newcastle University (UK), 2016: *Looking for the superspreading gene: a stochastic social effects model for bivariate GWAS of epidemiological traits*

• 7^{th} meeting of the Edinburgh Alliance for Complex Trait Genetics, Royal Society of Edinburgh, 2015: *Identifying genetic superspreaders of infection*

• Network Data Analysis Workshop, Herrsching am Ammersee (Germany), 2015: *Applying dynamic chain graph models to infer networks underlying time series gene expression data*

• Statistical Systems Biology Workshop, University of Warwick, 2014: *Incorporating contemporaneous relationships among gene expression time series into the model selection of gene networks*

Additional Academic Training

Statistical analysis of network data. European Course in Advanced Statistics, 20 Sept to 2 Oct 2015, Herrsching am Ammersee, Germany.

Statistical models for genomic prediction in animals and plants 15-19 June 2015, Aarhus University, Denmark.

Quantitative traits: advanced topics in plant and animal breeding. Synbreed Summer School, 30 June to 12 July 2013, Herrsching am Ammersee, Germany.

Academy for PhD Training in Statistics (throughout 2010). Courses: statistical computing, statistical inference, statistical modelling, statistical asymptotics, applied stochastic processes, computer intensive statistics, spatial and longitudinal data analysis and nonparametric smoothing.

Professional Memberships

Royal Statistical Society (RSS), International Society for Bayesian Analysis (ISBA) and the Genetics Society

Language Skills

• English: Fluent
• Portuguese: Native speaker
• German: Intermediate

Computer Skills

• Statistical programming: R, SAS, Fortran
• Applications: LaTeX, MS/Open Office
• Operating Systems: Unix/Linux, Windows