Dr FABIO RIGAT

Research Biostatistics Group Head,
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Research Interests

Development and application of statistical models for vaccine development,
statistical modeling inspired by realistic life sciences applications,
elicitation of informative prior distributions,
dynamic network models and game theory,
model uncertainty and model selection in dynamic settings,
construction of context-specific utility functions,
semi-parametric dynamic models and sequential learning,
survival analysis,
MCMC methods,
adaptive experimental design,
interface between Bayesian and frequentist inferential paradigms.

Education

- Sept 2000-Aug 2004: PhD in statistics (Institute of Statistics and Decision Science, Duke University, USA). Thesis: "Beta Stacy Survival Models and Bayesian Weibull Survival Trees". (`www.isds.duke.edu/people/theses/RigatF.html`)
- Sept 2000-Aug 2002: MSc in Statistics at ISDS, Duke University.
- April 1999 : BSc (4 year) degree in Economics (cum laude) at the University of Pavia, Italy.

Career Progression to Date

- May 2011- present: Research Biostatistics Group Head, Novartis Vaccines and Diagnostics, via Fiorentina 1, 53100 Siena, Italy.
- Sept 2008- May 2011: Assistant Professor, Department of Statistics and Centre for Analytical Science, University of Warwick, UK.
- Sept 2006-Sept 2008: CRiSM Research Fellow, University of Warwick.
- Sept 2004-Sept 2006: Postdoctoral Fellow, EURANDOM (Statistical Information and Modelling group), The Netherlands.
- Sept 2000-Aug 2004 : teaching/research assistant at ISDS, Duke University.
- Nov 1999-Sept 2000 : mandatory military service in Italy.
- Sept-Nov 1999 : internship at IBM (Milan, Italy), quantitative marketing division.
- May 1996-Feb 1997 : teaching assistant in Finance, department of Economics, Universita'di Pavia.

Refereed Research Publications

1. "Gene Expression Phenotypes of Atherosclerosis" by David Seo, Tao Wang, Holly Dressman, Edward E. Herderick, Edwin S. Iversen, Chunming Dong, Korkut Vata, Carmelo A. Milano, **Fabio Rigat**, Jennifer Pittman, Joseph R. Nevins, Mike West, Pascal J. Goldschmidt-Clermont in *Arteriosclerosis, Thrombosis, and Vascular Biology.* 2004;24:1922
2. "Bayesian modelling and analysis of spatio-temporal neuronal networks" by **Fabio Rigat**, Mathisca de Gunst and Jaap van Pelt. Bayesian Analysis, 2006, Vol 1 Number 4, pp.733 − 764.
3. "Semi-parametric dynamic time series modelling with applications to detecting neural dynamics", by **Fabio Rigat** and Jim Q. Smith. Annals of Applied Statistics, 2009, vol.3. No.4, pp.1776-1804.
4. "Isoseparation and Robustness in Finite Parameter Bayesian Inference" by **Fabio Rigat** and Jim Q. Smith. Accepted for publication in 2010 in the Annals of the Institute of Statistical Mathematics.

5. "Design and conduct of Caudwell Xtreme Everest: an observational cohort study of variation in human adaptation to progressive environmental hypoxia", by Denny ZH Levett, D.Z.H., Martin D.S., Wilson M.H., Mitchell K., Dhillon S., **Rigat, F.**, Montgomery H.E., Mythen M.G., Grocott M.P.W.; BMC Medical Research Methodology, 2010; 10:98.
6. "Parallel hierarchical sampling: a practical multiple-chains sampler" by **F. Rigat** and Antonietta Mira. Computational Statistics and Data Analysis 56 (2012) pp. 1450-1467.
7. "A hybrid procedure for detecting global treatment effects in multivariate clinical trials. Theory and applications for fMRI studies", by G.Minas, **F. Rigat**, T. Nichols, J.A.D. Aston and N.Stallard. Statistics in Medicine, in press.
8. "Nonparametric survival regression using the beta-Stacy process" by **F. Rigat** and P. Muliere. Journal of Statistical Planning and Inference, in press.
9. "Bayesian Learning of Material Density and the Blurring Function, given 2-D images taken with bulk Microscopy Techniques", by Chakrabarty D, Gabrielyan N, Paul S, **Rigat F**, and Beanland R; submitted; available as CRiSM discussion paper 11-29

Other Research Publications

1. "Bulletproof Math" by M.C. Bramati, L. Mohammadi, **F. Rigat**, P. van de Ven, R. Braekers, T. Kadankova, S. Anisov, A. Schaap, Proceedings of the 55th European Study Group with Industry 25-49, 2006.
2. Invited Discussion of the paper "Selection Sampling from Large Data Sets for targeted Inference in Mixture Modeling", by Manolopoulou, I. and Chan, C. and West, M., Bayesian Analysis, vol.5, pp.451-456, 2010.
3. "Predicting default probabilities using balance sheet indicators" by **F. Rigat** and Elena Stanghellini. SCo 2009 (`http://mox.polimi.it/sco2009/`) short paper.

Recent Conference Talks

1. June 2012: speaker and organiser of the ISBA 2012 special session "Bayesian Inference in Science: the Pursuit of a Synergy" (`http://www2.e.u-tokyo.ac.jp/ isba2012/stsessions.html`).
2. September 2011: speaker and co-organiser of Statistical Modelling for Biological and Environmental Systems (SMBES2011) summer school, Venice, Italy (`http://www2.warwick.ac.uk/fac/sci/statistics/crism/workshops/venice2011`).
3. June 2011: Invited speaker at the 14th conference of the Applied Stochastic Models and Data Analysis International society, Rome, Italy (`www.asmda.eu`).
4. September 2010: *New perspectives on Bayesian dynamic models: foundations and applications.* Invited talk at the second meeting on "Bayesianity: Foundations and Applications". São Paulo, Brazil.
5. August 2010: *Semi-parametric dynamic modeling of multivariate financial time series.* Contributed talk at the 28th European Meeting of Statisticians, University of Piraeus, Greece.
6. September 2009: *Predicting default probabilities using balance sheet indicators.* Invited talk at the S.Co. 2009 workshop in Milan, Italy.
7. July 2008: *Non-parametric dynamic modelling of biological time series.* Invited talk at the 9th meeting of the International Society for Bayesian Analysis (ISBA) conference in Hamilton Island, Australia (`www.isba2008.sci.qut.edu.au`).

Recent awards

- 2009: Visiting Research Fellowship, University of Insubria, Varese, Italy (2000 Euros).
- 2010: Visiting Professor bursary, University of Insubria, Varese, Italy (3000 Euros).

Teaching and UG Student Supervision

- Teaching (up to 2011)
    1. ST329: Bayesian Methods in Practice; third year undergraduate (Morse) module.
    2. ST416: Modeling of Biological Processes; fourth year undergraduate (MMorse) and MSc module.
    3. Econopharma: special topics in statistics at the university of Insubria, Varese, Italy.
- UG Student Supervision at Warwick (up to 2011)

1. Anna Gierusz (MMathStat, Warwick, 2009): "Operational aspects of utility and cost functions for optimal pricing of immediate annuity contracts".
2. George Minas (MSc statistics, Warwick, 2009): "Analysis of EEG data".
3. Yuliang Shen (MMorse, Warwick, 2010) "Exploring dependent jump-diffusion models of financial time series".
4. Mei Chan (MMorse, Warwick, 2010) "Assessing the predictability of focal epileptic seizure using intracranial EEG recordings".
5. Sui Kai Wong (Morse, Warwick, 2010): "Multivariate jump-diffusion models for the foreign exchange market".
6. Christopher Bentley (MMORSE Warwick, 2011).
7. Sum Chang (MMORSE Warwick, 2011).
8. Andrew Martin (MMORSE Warwick, 2011).
9. Patel Amar (MMORSE Warwick, 2011).

Programming Skills
Unix (FreeBSD, Linux, MAC), S-PLUS, R, MATLAB, Latex, HTML, Python, BUGS, C. I do most of my computational work from scratch using MATLAB, with occasional excursions in C, R and Python.

Foreign languages
- Italian : mother language.
- English: fluently written and spoken.
- Portuguese : fluently written and spoken.
- Spanish: intermediate level.
- Dutch: beginner level.