

Ricardo Silva

CONTACT INFORMATION	Statistical Laboratory Centre for Mathematical Sciences University of Cambridge Wilberforce Road, Cambridge CB3 0WB, UK	<i>Phone:</i> +44 (0)1223 337951 <i>E-mail:</i> silva@statslab.cam.ac.uk <i>WWW:</i> http://www.statslab.cam.ac.uk/~silva
RESEARCH INTERESTS	machine learning, computational statistics, graphical models, Bayesian inference, relational inference, data mining and causality	
EDUCATION	Carnegie Mellon University , Pittsburgh, Pennsylvania USA Ph.D., Machine Learning Department, August 2005 <ul style="list-style-type: none">• Dissertation Topic: “Automatic Discovery of Latent Variable Models”• Committee: Richard Scheines, Clark Glymour, Tom Mitchell, Greg Cooper M.Sc., Knowledge Discovery and Data Mining, May 2002 Universidade Federal de Pernambuco , Brazil M.Sc., Computer Science, January 2000 Universidade Federal do Ceará , Brazil B.Sc., Computer Science, December 1997	
GRANTS, HONORS AND AWARDS	EPSCR Grant [UK Government’s leading funding agency for research and training in engineering and the physical sciences], “Graphical models for Relational Data: New Challenges and Solutions” (jointly with Prof. Zoubin Ghahramani, Department of Engineering, University of Cambridge), 2007. Total amount £190,576.00 Siebel Scholar, 2005 Microsoft Fellowship for M.Sc. research in knowledge discovery and data mining, 2000 CNPq scholarship for graduate (M.Sc.) research, Brazil, 1998-2000 Best work of undergraduate research in Mathematics/Computer Science/Statistics. Universidade Federal do Ceará, Brazil, 1996 & 1997 [two consecutive years] CAPES (Programa Especial de Treinamento/Special Training Program) scholarship for undergraduate research, Brazil, 1995-1997 full tuition support for high school for being best student in class during all terms from 1987 to 1990. Colégio 7 de Setembro, Fortaleza-CE, Brazil, 1991-1993	
ACADEMIC EXPERIENCE	Statistical Laboratory , University of Cambridge, UK <i>Postdoctoral research associate</i> 2007- Research on Markov Chain Monte Carlo methods for new classes of multivariate models. Supervisor for the 2007 Lent Part IIC Statistical Modelling course. Gatsby Computational Neuroscience Unit , University College London, UK <i>Postdoctoral research fellow</i> 2005-2007 Research on graphical models and Bayesian inference. Participating on journal clubs and presenting series of talks on relevant research topics of interest. Organizer of the Machine Learning Journal Club.	

Carnegie Mellon University, Pittsburgh, Pennsylvania USA

Teaching assistant

2003, 2004

Duties at various times have included office hours, recitation sessions, and guest lectures (Machine Learning M.Sc. course with Roni Rosenfeld, and Statistical Approaches for Learning and Discovery Ph.D. course, with John Lafferty, Larry Wasserman and Teddy Seidenfeld).

Universidade Federal do Ceará, Fortaleza, Brazil

Teaching faculty

Feb.-July 2000

Taught computer science fundamentals and programming languages.

REFEREED
PUBLICATIONS

Silva, R.; Chu, W. and Ghahramani, Z. (2007). "Hidden common cause relations in relational learning". Proceedings of Neural Information Processing Systems, NIPS '07.

Silva, R.; Heller, K. and Ghahramani, Z. (2007). "Analogical reasoning with relational Bayesian sets". Proceedings of the Artificial Intelligence & Statistics Conference, AISTATS '07.

Silva, R. and Scheines, R. (2006). "Towards association rules with hidden variables". Proceedings of the 10th European Conference on Principles and Practice of Knowledge Discovery in Databases, PKDD '06

Silva, R. and Ghahramani, Z. (2006). "Bayesian inference for Gaussian mixed graph models". Proceedings of the 22nd Conference on Uncertainty in Artificial Intelligence, UAI '06

Silva, R. and Scheines, R. (2006). "Bayesian learning of measurement and structural models". Proceedings of the International Conference on Machine Learning, ICML '06

Silva, R.; Scheines, R.; Glymour, C and Spirtes, P. (2006). "Learning the structure of linear latent variable models". Journal of Machine Learning Research 7, 191-246.

Silva, R. and Scheines, R. (2005). "New d-separation identification results for learning continuous latent variable models". Proceedings of the Int. Conference on Machine Learning, ICML '05

Silva, R.; Zhang, J. and Shanahan, J. G. (2005). "Probabilistic workflow mining". Proceedings of Knowledge Discovery and Data Mining, KDD '05

Silva, R.; Scheines, R.; Glymour, C. and Spirtes P. (2003) "Learning measurement models for unobserved variables". Proceedings of the Uncertainty in Artificial Intelligence Conference, UAI '03

Moody, J.; Silva, R.; Vanderwaart, J; Ramsey, J.. and Glymour, C. (2002). "Classification and filtering of spectra: a case study in mineralogy". Intelligent Data Analysis 6, 517-530

Moody, J.; Silva, R.; Vanderwaart, J. and Glymour, C. (2001). "Data filtering for automatic classification of rocks from reflectance spectra". Proceedings of the 7th ACM SIGKDD Conference on Knowledge Discovery and Data Mining, KDD '01

Silva, R. B. A. and Ludermir, T. B. (2001). "Hybrid systems of local basis functions". Intelligent Data Analysis 5, 227-244

Silva, R. B. A. and Ludermir, T. B. (2000). "Obtaining simplified rules by hybrid learning". Proceedings of the 17th International Conference on Machine Learning, ICML '00

Silva, R. B.A and Ludermir, T. B. (1999). "Neural network methods for rule induction". Proceedings

of the 1999 International Joint Conference on Neural Networks, Washington, DC

- BOOK CHAPTERS Silva, R. (2007). “Causality”. Encyclopedia of Machine Learning, Claude Sammut, ed. Springer.
- PATENTS Shanahan, J. G; Silva, R. and Zhang, J. “Method and apparatus for probabilistic workflow mining”. United States Patent 20070055558.
- RECENT
MANUSCRIPTS Silva, R. and Ghahramani, Z. (2008). “The hidden life of latent variables: Bayesian learning with mixed graph models.” To be submitted to the Journal of Machine Learning Research.
<http://www.statslab.cam.ac.uk/~silva>
- Silva, R.; Airoldi, A. and Heller, K. (2007). “Small sets of interacting proteins suggest latent linkage mechanisms through analogical reasoning.” Gatsby Computational Neuroscience Unit, Technical Report GCNU TR 2007-001. <http://www.statslab.cam.ac.uk/~silva>
- Silva, R. (2006). “Principled selection of impure measures for consistent learning of linear latent variable models”. NIPS Workshop on Causality and Feature Selection.
- INVITED TALKS “Causality”. Advanced Tutorial Lecture Series on Machine Learning. Department of Engineering, University of Cambridge, November 2006.
- “Model Search in Structural Equation Models with Latent Variables”. 25th Biennial Conference of the Society for Multivariate Analysis in the Behavioral Sciences (SMABS). Budapest, Hungary, July 2006.
- “Tutorial on Graphical Models for Probabilistic and Causal Modeling”. ACM Fourteenth Conference on Information and Knowledge Management (CIKM), Bremen, Germany, October 2005.
- “Latent Variables and Graphical Causal Models.” Department of Statistics, University of Pittsburgh. Pittsburgh, PA, May 2005.
- “Automatic Discovery of Latent Variable Models”. Gatsby Computational Neuroscience Unit. London, UK, February 2005.
- OTHER ACTIVITIES Publication Chair, International Conference on Machine Learning (ICML), 2007 & 2008.
- Reviewer for the Journal of Machine Learning Research, Cognitive Science Journal, Machine Learning Journal, Uncertainty in Artificial Intelligence Conference (UAI 2006, 2007), Neural Information Processing Systems (NIPS 2007), and Journal of Artificial Intelligence Research.
- Gatsby Machine Learning Journal Club, main organizer.
- Carnegie Mellon University, Machine Learning Department**, Pittsburgh, Pennsylvania USA
Summer researcher **2001-2003, 2005**
Developed and implemented algorithms for processing and classification of spectrometer data. Designed, implemented and evaluated algorithms for structural equation models with latent variables.
- Clairvoyance Corpotation**, Pittsburgh, Pennsylvania USA
Summer researcher **2004**
Presented literature reviews on graphical models and text mining. Developed new algorithms and software on graphical models for workflow applications. Co-authored patent application.