

Tibério S. Caetano - Curriculum Vitae

CONTACT INFORMATION	Statistical Machine Learning Group , NICTA Tower A, 7 London Circuit Canberra, ACT 2601, Australia	<i>Ph:</i> +61 (2) 6267-6329, <i>Cel:</i> +61 (4) 0138-8128 <i>Fax:</i> +61 (2) 6267-6230 Tiberio.Caetano@nicta.com.au http://tiberiocaetano.com
PERSONAL INFORMATION	Born 19 October 1974, married, one child. Brazilian/Australian Citizen.	
RESEARCH INTERESTS	Machine Learning, Pattern Recognition and Computer Vision.	
SPECIFIC TECHNICAL SKILLS	Experienced in modeling and classification/regression/estimation of complex and structured data, in particular structured probabilistic graphical models (e.g. Bayesian Networks, Markov Random Fields) and Support Vector Machines and related methods (e.g. structured estimation). Experienced in Graph Matching and Point Pattern Matching.	
EDUCATION	Ph.D. Computer Science, <i>with highest distinction</i> , “Graphical Models and Point Set Matching” UFRGS - Brazil (research part at the University of Alberta, Canada). Graduated July 2004. Entire research work (from start of literature review to thesis defense) was carried out in 16 months . B.Sc. Electrical Engineering (with research in Physics) UFRGS - Brazil, 1997	
HONORS AND DISTINCTIONS	<ul style="list-style-type: none">• Highest honor, Ph.D. Thesis, UFRGS, 2004• Brazilian National Research Council (CNPq) Graduate Research Fellowship, 2000-2002, 2004• Brazilian Research Agency CAPES Graduate Research Fellowship, 2003• Brazilian National Research Council (CNPq) Undergraduate Research Fellowship, 1995-1996	
ACADEMIC PROFESSIONAL EXPERIENCE	NICTA , Canberra, Australia <i>Research Group Manager</i> (Statistical Machine Learning Group) <i>Senior Researcher</i> (Statistical Machine Learning Group) <i>Researcher</i> (Statistical Machine Learning Group) <i>Post-Doctoral Research Fellow</i> (Computer Vision Group)	August 2009 - current July 2008 - current December 2005 - June 2008 January 2005 - November 2005
	Australian National University , Canberra, Australia <i>Adjunct Research Fellow</i> (Research School of Information Sciences and Engineering)	January 2005 - current
	University of Alberta , Edmonton, Canada <i>Post-Doctoral Research Fellow</i> (Dept. Computing Science) <i>Visiting Graduate Student</i> (Dept. Computing Science)	August 2004 - December 2004 March 2003 - March 2004
	UFRGS , Porto Alegre, Brazil <i>Graduate Student</i> (Informatics Institute) <i>Research Assistant</i> (Physics Institute)	March 2000 - July 2004 December 1993 - December 1996

1. [Estimating Labels from Label Proportions](#)
N. Quadrianto, A. J. Smola, T. S. Caetano and Quoc V. Le
Journal of Machine Learning Research, 10(Oct): 2349-2374, 2009.
2. [Learning Graph Matching](#)
T. S. Caetano, J. J. McAuley, L. Cheng, Q. V. Le and A. J. Smola
IEEE Transactions on Pattern Analysis and Machine Intelligence, Vol. 31, n. 6 (2009), p. 1048-1058.
3. [Faster graphical models for point pattern matching](#)
T. S. Caetano and J. J. McAuley
Spatial Vision, v. 22, n. 5, p. 443-453(11), 2009.
4. [Graph rigidity, cyclic belief propagation and point pattern matching](#)
J. J. McAuley, T. S. Caetano and M. S. Barbosa
IEEE Transactions on Pattern Analysis and Machine Intelligence, Vol. 30, n. 11 (2008), p. 2047-2054.
5. [Rich-club phenomenon across complex network hierarchies](#)
J. J. McAuley, L. da F. Costa and T. S. Caetano
Applied Physics Letters, 91 (084103), (2007).
6. [Graphical models and point pattern matching](#)
T. S. Caetano, T. Caelli, D. Schuurmans and D. A. C. Barone
IEEE Transactions on Pattern Analysis and Machine Intelligence, Vol. 28, n. 10 (2006), p. 1646-1663.
7. [Approximating the problem, not the solution: an alternative view of point set matching](#)
T. S. Caetano and T. Caelli
Pattern Recognition, 39 (2006), p. 552-561.
8. [Graphical models for graph matching: approximate models and optimal algorithms](#)
T. Caelli and T. Caetano
Pattern Recognition Letters, Vol. 26 (2005), p. 339-346.
9. [Do mixture models in chromaticity space improve skin detection?](#)
T. S. Caetano, S. D. Olabarriaga and D. A. C. Barone
Pattern Recognition, Vol. 36, n. 12 (2003), p. 3019-3021.
10. [Nonmonotonic maps and related bifurcations in laser accelerators](#)
T. S. Caetano, F. Couto, G. Corso, R. Pakter, L. Brunnet and F. B. Rizzato
Chaos, Solitons and Fractals, Vol. 7, n. 2 (1996), p. 165-175.
11. [Chaotic dynamics induced by space-charge waves in cyclotron resonance accelerators](#)
R. Pakter, I. L. Caldas, F. Couto, T. S. Caetano and F. B. Rizzato
Physical Review E, Vol. 54, n. 4 (1996), p. 4202-4210.
12. [Bifurcations leading to stochasticity in a cyclotron-maser system](#)
R. Pakter, G. Corso, T. S. Caetano, D. Dillenburg and F. B. Rizzato
Physics of Plasmas, Vol. 1, n. 12 (1994), p. 4099-4104.
13. [Reverse Multi-Label Learning](#)
J. Petterson and T. Caetano
NIPS 2010, Advances in Neural Information Processing Systems, 2010.
14. [Word Features for Latent Dirichlet Allocation](#)
J. Petterson, A. Smola, T. Caetano, W. Buntine and S. Narayanamurthy
NIPS 2010, Advances in Neural Information Processing Systems, 2010.
15. [Multitask Learning without Label Correspondences](#)
N. Quadrianto, A. Smola, T. Caetano, S. V. N. Vishwanathan and J. Petterson
NIPS 2010, Advances in Neural Information Processing Systems, 2010.

16. [Exploiting Data-Independence for Fast Belief Propagation](#)
J. J. McAuley and T. S. Caetano
ICML 2010, International Conference on Machine Learning, 2010.
17. [Unified Graph Matching in Euclidean Spaces](#)
J. J. McAuley, T. de Campos and T. S. Caetano
CVPR 2010, International Conference on Computer Vision and Pattern Recognition, 2010.
18. [Exploiting Within-Clique Factorizations in Junction-Tree Algorithms](#)
J. J. McAuley and T. S. Caetano
AISTATS 2010, International Conference on Artificial Intelligence and Statistics, 2010.
19. [Exponential Family Graph Matching and Ranking](#)
J. Petterson, T. S. Caetano, J. J. McAuley and J. Yu
NIPS 2009. Advances in Neural Information Processing Systems 2009.
20. [Convex Relaxation of Mixture Regression with Efficient Algorithms](#)
N. Quadrianto, T. S. Caetano, J. Lim and D. Schuurmans
NIPS 2009. Advances in Neural Information Processing Systems 2009.
21. [Kernel Conditional Quantile Estimation via Reduction Revisited](#)
N. Quadrianto, K. Kersting, M. Reid, T. S. Caetano and W. Buntine
ICDM 2009. International Conference on Data Mining 2009.
22. [Shape Classification Through Structured Learning of Matching Measures](#)
L. Chen, J. J. McAuley, R. Feris, T. S. Caetano and M. Turk
CVPR 2009. International Conference on Computer Vision and Pattern Recognition, 2009.
23. [Applying Sum and Max Product Algorithms of Belief Propagation to 3D Shape Matching and Registration](#)
P. Xiao, N. Barnes, P. Lieby and T. S. Caetano
DICTA 2009. Digital Image Computing: Techniques and Applications, 2009.
24. [Robust Near-Isometric Matching via Structured Learning of Graphical Models](#)
J. J. McAuley, T. S. Caetano and A. J. Smola
NIPS 2008. Advances in Neural Information Processing Systems, 2008.
25. [Inferring Differential Leukocyte Activity from Antibody Microarrays Using a Latent Variable Model](#)
J. W. K. Ho, R. Koundinya, T. S. Caetano, C. G. Dos Remedios and M. A. Charleston
GIW 2008. 19th International Conference on Genome Informatics.
26. [Estimating Labels from Label Proportions](#)
N. Quadrianto, A. J. Smola, T. S. Caetano and Q. V. Le
ICML 2008. International Conference on Machine Learning, Helsinki, 2008.
27. [Learning graph matching](#)
T. S. Caetano, L. Cheng, Q. V. Le and A. J. Smola
ICCV 2007. International Conference on Computer Vision, Rio de Janeiro, 2007.
28. [An MRF and Gaussian curvature based shape representation for shape matching](#)
P. Xiao, N. Barnes, T. S. Caetano and P. Lieby
CVPR 2007 Workshop: Beyond Multiview Geometry, 2007.
29. [Learning high-order MRF priors of color images](#)
J. McAuley, T. S. Caetano, A. J. Smola and M. O. Franz
ICML 2006. Proceedings of the International Conference on Machine Learning, Pittsburg, 2006, p. 617-624.
30. [A unified formulation of invariant point pattern matching](#)
T. S. Caetano and T. Caelli
ICPR 2006. Proceedings of the International Conference on Pattern Recognition, Hong Kong, 2006.

31. [An Embedded Bayesian Network Hidden Markov Model for Digital Forensics](#)
O. Y. de Vel, N. Liu, T. Caelli and T. S. Caetano
ISI 2006. Proceedings of the International Conference on Intelligence and Security Informatics, San Diego, 2006, p. 459-465.
32. [Approximating the problem, not the solution: an alternative view of point set matching](#)
T. S. Caetano and T. Caelli
GbRPR 2005. Proceedings of the 5th Workshop on Graph-based Representations in Pattern Recognition, Poitiers, France, 2004, p. 233-242.
33. [Graphical models for graph matching](#)
T. S. Caetano, T. Caelli and D. A. C. Barone
CVPR 2004. Proceedings of the IEEE International Conference on Computer Vision and Pattern Recognition, Washington DC, 2004, v. 2, p. 466-473.
34. [An optimal probabilistic graphical model for point set matching](#)
T. S. Caetano, T. Caelli and D. A. C. Barone
SSPR 2004. Proceedings of the 10th International Workshop on Syntactic and Structural Pattern Recognition, Lisbon, Portugal, p. 162-170.
35. [A comparison of Junction Tree and Relaxation Algorithms for point matching using different distance metrics](#)
T. S. Caetano, T. Caelli and D. A. C. Barone
ICPR 2004. Proceedings of the IEEE International Conference on Pattern Recognition, Cambridge, UK, 2004, v. 2, p. 124-127.
36. [Performance evaluation of single and multiple-gaussian models for skin color modeling](#)
T. S. Caetano, S. D. Olabbariaga and D. A. C. Barone
SIBGRAPI 2002. Proceedings of the Brazilian Symposium on Computer Graphics and Image Processing, Fortaleza, Brazil, 2002, p. 275-282.
37. [A probabilistic model for the human skin color](#)
T. S. Caetano and D. A. C. Barone
ICIAP 2001. Proceedings of the IEEE International Conference on Image Analysis and Processing, Palermo, Italy, 2001, p. 279-283.

OTHER

38. [An Expected-Case Sub-Cubic Solution to the All-Pairs Shortest Path Problem in R](#), arxiv.org/abs/0912.0975
J. J. McAuley, T. S. Caetano
39. [Faster Algorithms for Max-Product Message-Passing](#), arxiv.org/abs/0910.3301
J. J. McAuley, T. S. Caetano
40. [Scalable Inference for Latent Dirichlet Allocation](#), arxiv.org/abs/0909.4603
J. Petterson, T. S. Caetano

PROFESSIONAL
SERVICE

Reviewer for several journals and conferences, including
 ICML (International Conference on Machine Learning)
 NIPS (Advances in Neural Information Processing Systems)
 JMLR (Journal of Machine Learning Research)
 CVPR (International Conference on Computer Vision and Pattern Recognition)
 ICCV (International Conference on Computer Vision)
 TPAMI (IEEE Trans. on Pattern Analysis and Machine Intelligence)
 IJCV (International Journal of Computer Vision)
 Pattern Recognition Journal
 Discrete Applied Mathematics

Recent Activities:

Program Committee Member, Workshop “Machine Learning for Next Generation Computer Vision Challenges”, NIPS 2010

Program Committee Member, ICML 2010
Program Committee Member, CVPR 2010
Program Committee Member, Workshop “Structured Models in Computer Vision”, CVPR 2010
Program Committee Member, S+SSPR 2010
Program Committee Member, CVPR 2009
Program Committee Member, ICCV 2009
Program Committee Member, SIBGRAPI 2009
Tutorial “Structured Prediction in Computer Vision”, presented at ICCV 2009, proponent and co-speaker.
Tutorial “Graphical Models”, presented at ECML/PKDD 2009, proponent and speaker.
Workshop “Learning with Orderings”, NIPS 2009, proponent and co-organizer.
Workshop “Parts and Attributes”, ECCV 2010, co-organizer.

TEACHING

Extensive experience in teaching courses on Probabilistic Graphical Models (e.g. Markov Random Fields, Bayesian Networks, Conditional Random Fields). Experience in teaching courses on Pattern Recognition and Machine Learning as well as Artificial Intelligence.

RESEARCH SUPERVISION

Completed:

Huei-Yee Yap, 2005, Honours Thesis
Ke Zhang, 2006, Honours Thesis
Julian McAuley, 2007, Honours Thesis
Alex Davies, 2009, Honours Thesis
Pengdong Xiao, 2010, PhD Thesis (co-advisor)
Dmitry Kamenetsky, 2010, PhD Thesis (co-advisor)
Javen Shi, 2010, PhD Thesis (primary supervisor)

Ongoing:

Julian McAuley, PhD Thesis (primary supervisor)
Novi Quadrianto, PhD Thesis (primary supervisor)
James Petterson, PhD Thesis (primary supervisor)
Roslyn Lau, PhD thesis (primary supervisor)
Shengbo Guo, PhD Thesis (co-advisor)

NON-ACADEMIC PROFESSIONAL EXPERIENCE

ADAC Laboratories (Brazilian Branch), São Paulo, Brazil
Electronics Engineer.

March, 1997 - March, 2000

REFERENCES

- [Alex Smola](mailto:alex@smola.org), alex@smola.org
Principal Research Scientist, Yahoo! Research
- [Richard Hartley](mailto:richard.hartley@anu.edu.au), richard.hartley@anu.edu.au
Professor, Australian National University
Distinguished Researcher, NICTA
- [Dale Schuurmans](mailto:dale@cs.ualberta.ca), dale@cs.ualberta.ca
Professor, University of Alberta
- [Terry Caelli](mailto:terry.caelli@nicta.com.au), terry.caelli@nicta.com.au
Distinguished Researcher, NICTA
Queensland Laboratory Director, NICTA