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Education

- 2003 **Ph.D.** in [Computer Science](#) (Machine Learning)
[Indian Institute of Science](#), Bangalore, India
Thesis: [Kernel Methods: Fast Algorithms and Real Life Applications](#)
Advisor: Prof. M Narasimha Murty
- 2000 **M.E.** in [Computer Science](#)
[Indian Institute of Science](#), Bangalore, India
First class with distinction
- 1998 **B.E.** in [Electronics Engineering](#)
[Maharaja Sayajirao University of Baroda](#), Vadodara, India
First class with distinction

Employment

Present Position

- 2014– Professor
Department of [Computer Science](#)
[University of California](#), Santa Cruz, USA
- 2014– Principal Research Scientist (20% appointment)
[Amazon Inc.](#)

Previous Positions

- 2011–2014 Associate Professor
- 2008–2011 Assistant Professor
Departments of [Statistics](#) (75%) and [Computer Science](#) (25%)
[Purdue University](#), West Lafayette, USA
- 2007–2008 Principal Researcher
- 2005–2007 Senior Researcher
- 2003–2005 Researcher
[Statistical Machine Learning Program](#)
[National ICT Australia](#), Canberra, Australia
- 2003–2008 Adjunct research fellow, [College of Engineering and Computer Science](#)
[Australian National University \(ANU\)](#), Canberra, Australia

Visiting Positions

- Summer 2013,2014 Visiting Researcher
[Amazon Inc.](#), Seattle, WA, USA
- Summer and Fall 2012 Visiting Researcher
[Microsoft](#), Bangalore, India
- Summer 2011 Visiting Researcher
[Yahoo! Research](#), Santa Clara, CA, USA
- Summer 2009 Visiting Researcher
[Microsoft Research India](#), Bangalore, India

Industry and Consulting Experience

- 2012 Consultant
[Skytree Inc.](#), San Jose, USA
- 2000–2002 Software engineer (part time)
[Trivum Systems Inc.](#), Bangalore, India
- Feb - August 2000 Software design engineer
[Microsoft](#), Hyderabad, India

Awards and Honors

- 2012, 2015 J T Oden Faculty Fellowship, University of Texas, Austin
- 2011 Purdue University, College of Science, Interdisciplinary award
- 2009 Google research award
- 2007 Best student paper award, International Conference on Machine Learning 2007
- 2005 Second position at TREC video retrieval contest, shot boundary detection task 2005
- 2000 Infosys fellowship, Indian Institute of Science

Teaching

Selected Graduate Courses

2015	Advanced Machine Learning
2014 – 2015	Analysis of Algorithms
2011 – 2014	Introduction to Computing for Statisticians
2010 – 2011	Introduction to Machine Learning
2009 – 2010, 2013	Introduction to Statistical Computing
2009	Convex Analysis
2006	Topics in convex analysis
2005	Convex analysis (with Jochen Trumpf)
2004	Advanced Statistical Machine Learning (with Stephané Canu and Alex Smola)
2003	Introduction to Statistical Machine Learning (with Doug Aberdeen)

Reading Courses

2006	Topics in optimization (with Nic Schraudolph)
2003	Randomized algorithms (with Alex Smola)

Short Courses

2015	Non-Convex Optimization in Machine Learning, IIT Bombay (short course)
2012	Machine Learning Summer School, UCSC (short course)
2011	Machine Learning Summer School, Purdue University (short course)
2011	Lund Center for Control of Complex Engg. Systems (short course)
2006	Machine Learning Summer School, ANU (guest lecture)
2005	Machine Learning Summer School, ANU (short course)
2005	AMSI summer school (two-week course with Alex Smola)

Graduated Ph.D. Students

At Purdue

- [Hyokun Yun](#) (2014) *Doubly Separable Models and Distributed Parameter Estimation*. Currently Employed: Amazon.
- [Vasil Denchev](#) (2013) *Readying Machine Learning for Quantum Computing*. Currently Employed: Google.
- [Nan Ding](#) (2013) *Statistical Machine Learning using the t -Exponential Family of Distributions*. Currently employed: Google.

At Australian National University

- [Xinhua Zhang](#) (2010) *Graphical Models: Modeling, Optimization, and Hilbert Space*. Currently employed: NICTA Australia.
- [Choon-Hui Teo](#) (2010) *Bundle Methods for Regularized Risk Minimization with Applications to Robust Learning*. Currently employed: Yahoo!.

- [Jin Yu](#) (2009) *New Quasi-Newton Optimization Methods for Machine Learning*. Currently employed: Green Plum Analytics.
- [Tim Sears](#) (2007) *Generalized Maximum Entropy, Convexity and Machine Learning*.
- [Omri Guttman](#) (2006) *Probabilistic Automata and Distributions over Sequences*. Co-supervised with Prof. Bob Williamson. Currently employed: Technion Machine Learning Center.

De facto Advisor:

- [Karsten Borgwardt](#) (2007) *Graph Kernels*. Degree awarded by Ludwig-Maximilians-University in Munich. Co-supervised with Prof. Hans-Peter Kriegel and Prof. Alex Smola. Currently employed: ETH, Zürich.
- [Ankan Saha](#) (2013) *Optimization Methods in Machine Learning: Theory and Applications*. Degree awarded by University of Chicago. Currently employed: LinkedIn.

Current Ph.D. students

- [Pinar Yanardag](#) *Machine Learning for Social Media*. Projected graduation date: 2015.
- [Parameswaran Raman](#) *Recommendations via Ranking*. Projected graduation date: 2017.
- [Sriram Srinivasan](#) *Robust algorithms for machine learning*. Projected graduation date: 2018.

Postdocs

- [Li Cheng](#) (2006–2008) Video analysis and understanding. Currently employed: A*star, Singapore.
- [Peter Sunehag](#) (2006–2008) Document Analysis and Understanding. Currently employed: Australian National University.
- [Conrad Sanderson](#) (2004–2006) Authorship attribution. Currently employed: University of Queensland.

Grants

- 2015 Nomadic Algorithms for Scalable Asynchronous Machine Learning. NSF, CISE, 596,327 USD. Co-PI [Inderjit Dhillon](#).
- 2013 AWS in Education Machine Learning Research Grant award Amazon Inc., 20,000 USD.
- 2012 Parametric Statistical Models to Support Statistical Hypothesis Testing over Graphs. NSF, CISE, 491,841 USD. Co-PI [Jeniffer Neville](#).
- 2011 [Probabilistic Models using Generalized Exponential Families](#) NSF, CISE, 248,221 USD. Co-PI [Manfred Warmuth](#).
- 2011 [The 2011 Machine Learning Summer School at Purdue University](#) NSF, CISE, 33,600 USD. Co-PIs [Sergey Kirshner](#), [Jeniffer Neville](#), [Luo Si](#), and [Tao Wang](#).
- 2009 [Algorithms for Generation of Similar Graphs Using Subgraph Signatures](#) NSF, CISE, 494,538 USD. Co-PIs [Sergey Kirshner](#) and [Jeniffer Neville](#).
- 2009 Training Binary Classifiers using the Quantum Adiabatic Algorithm. Google research award, 40,000 USD.
- 2006 Predicting Immunological Cross-Reactivity of Pathogen Strains: From Genotype to Antigenic Phenotype. Co-investigator on [BBSRC](#) grant (331,705 GBP)
- 2005 Document Analysis and Understanding RMCC project grant of [NICTA](#) (77,500 AUD)

Professional Activities

- Action Editor: [Journal of Machine Learning Research](#).
- Associate Editor: [Machine Learning Journal](#).
- Guest Editor: [Special issue on Mining and Learning with Graphs](#), Machine Learning Journal.
- Program co-chair: [AISTATS 2015](#).
- Tutorials co-chair: [KDD 2016](#).
- Area chair: ICML 2012–2016, NIPS 2013–2015, UAI 2012, 2013, KDD 2013–2015, ACML 2011, ECML/PAKDD 2006.
- Fund-Raising Chair (2012-2014): [The International Machine Learning Society](#).
- Reviewing for conferences: [NIPS](#), [ICML](#), UAI, COLT, KDD, IJCAI, ICPR, SOCG, ECML, WWW and numerous other machine learning conferences.
- Reviewing for journals: [Journal of Machine Learning Research](#), [Machine Learning Journal](#), Neurocomputing, IEEE Transactions on Neural Networks, IEEE Transactions on Information Theory, IEEE Transactions on Pattern Analysis and Machine Intelligence, and Mathematical Programming A.

- NSF review panel 2011, 2012, 2013, 2015.
- Proposal reviewer for [The Austrian Science Fund](#) (2009), [Netherlands Organisation for Scientific Research](#) (2011).
- ACM India Doctoral Dissertation Award committee.
- Ph.D thesis examiner, [Clayton School of Information Technology, Monash University](#), Australia.

Workshops and Summer Schools

- Lead Organizer - [The 2011 Machine Learning Summer School at Purdue University](#), West Lafayette and [The 2005 Machine Learning Summer School at Australian National University](#), Canberra. Co-organizer - [The 2012 Machine Learning Summer School at UCSC](#), Santa Cruz.
- Co-chair: Machine Learning and Graphs ([MLG 2008](#)) workshop, Helsinki, July 4th and 5th 2008.
- NIPS workshops (co-organizer)
 - [Optimization for Machine Learning](#), NIPS 2009.
 - [Structured Inputs and Structured Outputs](#), NIPS 2008.
 - [Optimization for Machine Learning](#), NIPS 2008.
 - [Open Source Tools in Machine Learning](#), NIPS 2006.
 - [Open Source Tools in Machine Learning](#), NIPS 2005.
 - [Kernels and Graphical Models](#), NIPS 2004.

Recent Invited Talks

- 1. Recommender Systems: Challenges and Opportunities**
 - RecSys 2015, Banquet talk. Vienna, Austria, September 17 2015.
- 2. Optimization for Machine Learning: Scaling by Exploiting Structure**
 - University of California, Santa Cruz, CA, March 12, 2014.
 - Indiana University, Bloomington, IN, September 20, 2013.
 - Amazon, Seattle, WA, 31 May, 2013.
- 3. NOMAD: Non-locking, stochastic Multi-machine algorithm for Asynchronous and Decentralized matrix factorization**
 - Mysore Park Distributed Optimization for Machine Learning Workshop, Mysore, December 18, 2013.
 - Graphlab Workshop, San Francisco, CA, 1 July, 2013.

- Big Data Exploration with Amazon, Contributed session at the Joint Statistical Meeting, Montreal, Canada.
4. **StreamSVM: Training Linear SVMs When Data Does Not Fit In Memory**
 - Mysore Park Learning Workshop, Mysore, August 3, 2012.
 - Google Inc., Mountain View CA, July 11, 2012.
 - University of California, Santa Cruz, May 11, 2012.
 - University of California, Berkeley, May 10, 2012.
 - Ohio State University, Columbus OH, April 12, 2012.
 - Max Planck Institute for Biological Cybernetics, Tübingen, Germany, March 8, 2012.
 5. **Optimization for Machine Learning (mini course)**
 - The 2012 Machine Learning Summer School at University of California Santa Cruz, July 12-13, 2012.
 - The 2011 Machine Learning Summer School at Purdue University, June 13-24, 2011.
 6. **Efficiently Sampling Multiplicative Attribute Graphs Using a Ball-Dropping Process**
 - University of Texas, Austin, April 20, 2012.
 - University of Chicago, Illinois, March 12, 2012.
 7. **Sequential Minimal Optimization for Multiple Kernel Learning**
 - University of California, Santa Cruz, July 12, 2011.
 - Georgia Tech, Atlanta, April 15, 2011.
 8. **Bundle Methods for Regularized Risk Minimization: Upper and Lower Bounds**
 - Lund University, Sweden, April 29, 2010.
 - Georgia Tech, Atlanta, April 5, 2010.
 - Microsoft Research, Cambridge, UK, March 29, 2010.
 9. **Introduction to Machine Learning (invited mini course)**
 - Lund University, Lund, Sweden, April 26-27, 2010.
 10. **A Quasi-Newton Approach to Regularized Risk Minimization**
 - Yahoo! Research, Bangalore, India, December 23, 2009.
 - Toyota Technological Institute, Chicago, November 2, 2009.
 11. **Optimization View of Boosting (invited tutorial)**

- Microsoft Research and Yahoo! joint colloquium, Bangalore, India, August 12, 2009.
- International Conference on Machine Learning, Montreal, Canada, June 14, 2009.

12. New Quasi-Newton Methods for Efficient Large-Scale Machine Learning (keynote)

- Neural Information Processing Systems (NIPS) Workshop on Efficient Machine Learning, Whistler, Canada, December 7, 2007.

Publications

Available for download from http://www.stat.purdue.edu/~vishy/bib2html/class_type.html.

Edited Volumes

- [1] Gökhan Bakir, Thomas Hofmann, Bernhard Schölkopf, Alexander J. Smola, Ben Taskar, and S. V. N. Vishwanathan, editors. *Predicting Structured Data*. MIT Press, Cambridge, Massachusetts, 2007.

Invited Book Chapters

- [1] S.V.N. Vishwanathan. Machine learning. In A.-H. El-Shaarawi and W. Piegorsch, editors, *Encyclopedia of Environmetrics*, pages 1521–1524. John Wiley and Sons, second edition, 2012.
- [2] S. V. N. Vishwanathan and Alexander J. Smola. Fast kernels for string and tree matching. In B. Schölkopf, K. Tsuda, and J.P. Vert, editors, *Kernel Methods in Computational Biology*, Cambridge, MA, 2004. MIT Press. [\[PDF\]](#).
- [3] S. V. N. Vishwanathan and M. N. Murty. Use of MPSVM for data set reduction. In A. Abraham, L. Jain, and J. Kacprzyk, editors, *Recent Advances in Intelligent Paradigms and Applications*, volume 113 of *Studies in Fuzziness and Soft Computing*, chapter 16. Springer Verlag, Berlin, November 2002. [\[PDF\]](#).

Journal Articles

- [1] Xinhua Zhang, Ankan Saha, and S.V.N. Vishwanathan. Accelerated training of Max-Margin Markov Networks with kernels. *Theoretical Computer Science*, 2013. [\[PDF\]](#).

- [2] Feng Yan, Shreyas Sundaram, S.V.N. Vishwanathan, and Yuan Qi. Distributed autonomous online learning: Regrets and intrinsic privacy-preserving properties. *IEEE Transactions on Knowledge and Data Engineering*, 25(11):2483–2493, November 2013. [\[PDF\]](#).
- [3] Xinhua Zhang, Ankan Saha, and S.V.N. Vishwanathan. Smoothing multivariate performance measures. *Journal of Machine Learning Research*, 13:3589–3646, December 2012. [\[PDF\]](#).
- [4] Bharath Hariharan, S.V.N. Vishwanathan, and Manik Varma. Efficient max-margin multi-label classification with applications to zero-shot learning. *Machine Learning*, 88:127–155, July 2012. [\[PDF\]](#).
- [5] S. V. N. Vishwanathan, Nicol N. Schraudolph, Imre Risi Kondor, and Karsten M. Borgwardt. Graph kernels. *Journal of Machine Learning Research*, 11:1201 – 1242, April 2010. [\[PDF\]](#).
- [6] Jin Yu, S. V. N. Vishwanathan, Simon Günter, and Nicol N. Schraudolph. A quasi-Newton approach to nonsmooth convex optimization. *Journal of Machine Learning Research*, 11:1145–1200, March 2010. [\[PDF\]](#).
- [7] Choon Hui Teo, S. V. N. Vishwanathan, Alex J. Smola, and Quoc V. Le. Bundle methods for regularized risk minimization. *Journal of Machine Learning Research*, 11:311–365, January 2010. [\[PDF\]](#).
- [8] Qinfeng Shi, James Petterson, Gideon Dror, John Langford, Alex Smola, Alex Strehl, and S. V. N. Vishwanathan. Hash kernels for structured data. *Journal of Machine Learning Research*, 10:2615–2637, November 2009. [\[PDF\]](#).
- [9] Simon Günter, Nicol N. Schraudolph, and S. V. N. Vishwanathan. Fast iterative kernel principal component analysis. *Journal of Machine Learning Research*, 8:1893–1918, August 2007. [\[PDF\]](#).
- [10] S. V. N. Vishwanathan, Alexander J. Smola, and René Vidal. Binet-Cauchy kernels on dynamical systems and its application to the analysis of dynamic scenes. *International Journal of Computer Vision*, 73(1):95–119, June 2007. [\[PDF\]](#).
- [11] S. V. N. Vishwanathan, Nicol N. Schraudolph, and Alexander J. Smola. Step size adaptation in reproducing kernel Hilbert space. *Journal of Machine Learning Research*, 7:1107–1133, June 2006. [\[PDF\]](#).
- [12] S. V. N. Vishwanathan, Karsten M. Borgwardt, Omri Guttman, and Alexander J. Smola. Kernel extrapolation. *Neurocomputing*, 69(7-9):721–729, 2006. [\[PDF\]](#).
- [13] Gaëlle Loosli, Stephané Canu, S. V. N. Vishwanathan, Alexander J. Smola, and Manojit Chattopadhyay. Boîte à outils SVM simple et rapide. *RIA - Revue d'intelligence artificielle*, 2005.
- [14] S. V. N. Vishwanathan and M. N. Murty. Kohonen’s SOM with cache. *Pattern Recognition*, 33(11):1927–1929, November 2000. [\[PDF\]](#).

Peer-Reviewed Conference Papers

- [1] Pinar Yanardag Delul and S.V.N. Vishwanathan. A structural smoothing framework for robust graph comparison. In C. Cortes, N.D. Lawrence, Daniel D Lee, Masashi Sugiyama, and Roman Garnett, editors, *Advances in Neural Information Processing Systems 27*, 2015. (403 out of 1838, 21% acceptance rate).
- [2] Pinar Yanardag Delul and S.V.N. Vishwanathan. Deep graph kernels. In *ACM SIGKDD International Conference on Knowledge Discovery and Data Mining*, 2015. (159 out of 819, 19% acceptance rate).
- [3] Hsiang-Fu Yu, Cho-Jui Hsieh, Hyokyun Yun, S.V.N. Vishwanathan, and Inderjit Dhillon. A scalable asynchronous distributed algorithm for topic modeling. In *Proceedings of WWW*, 2015. (131 out of 929, 14.1% acceptance rate).
- [4] Joon-Hee Choi and S.V.N. Vishwanathan. DFacTo: Distributed factorization of tensors. In Z. Ghahramani, M. Welling, C. Cortes, N.D. Lawrence, and K.Q. Weinberger, editors, *Neural Information Processing Systems*, pages 1296–1304, 2014. (414 out of 1678, 24.67% acceptance rate).
- [5] Hyokyun Yun, Parameshwaran Raman, and S.V.N. Vishwanathan. Ranking via robust binary classification and parallel parameter estimation in large-scale data. In Z. Ghahramani, M. Welling, C. Cortes, N.D. Lawrence, and K.Q. Weinberger, editors, *Advances in Neural Information Processing Systems 27*, pages 2582–2590, 2014. (414 out of 1678, 24.67% acceptance rate).
- [6] Hyokyun Yun, Hsiang-Fu Yu, Cho-Jui Hsieh, S.V.N. Vishwanathan, and Inderjit Dhillon. NOMAD: Non-locking, stochastic multi-machine algorithm for asynchronous and decentralized matrix completion. In *Proceedings of the Very Large Databases (VLDB) Conference*, 2014.
- [7] William Benjamin, Senthil Chandrasegaran, Devarajan Ramanujan, Niklas Elmqvist, S. V. N. Vishwanathan, and Karthik Ramani. Juxtapoze: Supporting serendipity and creative expression in clipart compositions. In *ACM CHI Conference on Human Factors in Computing Systems*. ACM, 2014. To Appear. (471 out of 2064, 22.8% acceptance rate).
- [8] Jiazhong Nie, Manfred Warmuth, S.V.N. Vishwanathan, and Xinhua Zhang. Lower bounds for boosting with hadamard matrices. In Elad Hazan, editor, *Conference on Learning Theory*, 2013. Open Problem.
- [9] Shin Matsushima, S.V.N. Vishwanathan, and Alex Smola. Linear support vector machines via dual cached loops. In *Eighteenth ACM SIGKDD International Conference on Knowledge Discovery and Data Mining*, pages 177–185, 2012. (163 out of 755, 21.5% acceptance rate). [\[PDF\]](#).
- [10] Asheesh Jain, S.V.N. Vishwanathan, and Manik Varma. Spectral projected gradient descent for efficient and large scale generalized multiple kernel learning. In *Eighteenth ACM SIGKDD International Conference on Knowledge Discovery and Data Mining*, pages 750–758, 2012. (163 out of

- 755, 21.5% acceptance rate). [\[PDF\]](#).
- [11] Vasil Denchev, Nan Ding, S.V.N. Vishwanathan, and Hartmut Neven. Robust classification with adiabatic quantum optimization. In Andrew McCallum, John Langford, Joelle Pineau, Kilian Weinberger, and Amir Globerson, editors, *Proceedings of the International Conference on Machine Learning*, Edinburgh, Scotland, June 2012. (242 out of 890, 27.1% acceptance rate). [\[PDF\]](#).
- [12] Hyokun Yun and S.V.N. Vishwanathan. Quilting stochastic Kronecker product graphs to generate multiplicative attribute graphs. In *Proceedings of International Workshop on Artificial Intelligence and Statistics*, pages 1389–1397, April 2012. (134 out of 400, 33.5% acceptance rate.) [\[PDF\]](#).
- [13] Amr Ahmed, Choon Hui Teo, S.V.N. Vishwanathan, and Alex Smola. Fair and balanced: Learning to present news stories. In Eugene Agichtein and Yoelle Maarek, editors, *Proceedings of the Fifth ACM International Conference on Web Search and Data Mining*, pages 333–342, Seattle, Washington, February 2012. (75 out of 362, 20.7% acceptance rate.) [\[PDF\]](#).
- [14] Nan Ding, S.V.N. Vishwanathan, and Alan Qi. t -divergence based approximate inference. In Peter Bartlett, Fernando Pereira, Richard Zemel, John Shawe-Taylor, and Kilian Weinberger, editors, *Advances in Neural Information Processing Systems 24*, pages 1494–1502, 2011. (305 out of 1400, 21.8% acceptance rate) [\[PDF\]](#).
- [15] William Benjamin, Andrew Wood Polk, S.V.N. Vishwanathan, and Karthik Ramani. Heat walk: Robust salient segmentation of non-rigid shapes. In Yung-Nien Sun, Eugene Fiume, and Ming Ouhyoung, editors, *Proceedings of the 19th Pacific Conference on Computer Graphics and Applications*, Taiwan, September 2011. Eurographics Association. (27 out of 167, 16% acceptance rate). [\[PDF\]](#).
- [16] Xinhua Zhang, Ankan Saha, and S.V.N. Vishwanathan. Accelerated training of Max-Margin Markov Networks with kernels. In Jyrki Kivinen and Csaba Szepesvári, editors, *Proceedings of the International Conference on Algorithmic Learning Theory*, Lecture Notes in Artificial Intelligence, pages 292–307, Espoo, Finland, October 2011. Springer-Verlag. [\[PDF\]](#).
- [17] Xinhua Zhang, Ankan Saha, and S.V.N. Vishwanathan. Smoothing multivariate performance measures. In Peter Grünwald, Avi Pfeffer, and Fabio G. Cozman, editors, *Proceedings of the Conference on Uncertainty in Artificial Intelligence*, pages 814–821, Barcelona, Spain, July 2011. (96 out of 285 34% acceptance rate). [\[PDF\]](#).
- [18] Yi Fang, S.V.N. Vishwanathan, Mengtian Sun, and Karthik Ramani. sLLE: Spherical locally linear embedding with applications to tomography. In *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition*, pages 1129–1136, Colorado Springs (USA), June 2011. (438 out of 1677, 26.4% acceptance rate), [\[PDF\]](#).
- [19] Ankan Saha, S. V. N. Vishwanathan, and Xinhua Zhang. New approximation algorithms for minimum enclosing convex shapes. In Dana Randall,

- editor, *ACM-SIAM Symposium on Discrete Algorithms (SODA)*, pages 1146–1160, January 2011. (136 out of 454, 30% acceptance rate) [\[PDF\]](#).
- [20] S. V. N. Vishwanathan, Zhaonan Sun, Nawanol Theera-Ampornpunt, and Manik Varma. Multiple kernel learning and the SMO algorithm. In Richard Zemel, John Shawe-Taylor, John Lafferty, Chris Williams, and Alan Culota, editors, *Advances in Neural Information Processing Systems 23*, pages 2361–2369, 2010. Poster spotlight. (73 out of 1219, 6% acceptance rate) [\[PDF\]](#).
- [21] Nan Ding and S. V. N. Vishwanathan. t -logistic regression. In Richard Zemel, John Shawe-Taylor, John Lafferty, Chris Williams, and Alan Culota, editors, *Advances in Neural Information Processing Systems 23*, pages 514–522, 2010. (293 out of 1219, 24% acceptance rate) [\[PDF\]](#).
- [22] Xinhua Zhang, Ankan Saha, and S. V. N. Vishwanathan. Lower bounds on rate of convergence of cutting plane methods. In Richard Zemel, John Shawe-Taylor, John Lafferty, Chris Williams, and Alan Culota, editors, *Advances in Neural Information Processing Systems 23*, pages 2541–2549, 2010. (293 out of 1219, 24% acceptance rate) [\[PDF\]](#).
- [23] Novi Quadrianto, Alex Smola, Tiberio Caetano, S. V. N. Vishwanathan, and James Petterson. Multitask learning without label correspondences. In Richard Zemel, John Shawe-Taylor, John Lafferty, Chris Williams, and Alan Culota, editors, *Advances in Neural Information Processing Systems 23*, pages 1957–1965, 2010. (293 out of 1219, 24% acceptance rate) [\[PDF\]](#).
- [24] Bharath Hariharan, Lihi Zelnik-Manor, S. V. N. Vishwanathan, and Manik Varma. Large scale max-margin multi-label classification with priors. In *Proceedings of the International Conference on Machine Learning*, 2010. (152 out of 594, 25.6% acceptance rate) [\[PDF\]](#).
- [25] Jin Yu, S. V. N. Vishwanathan, and Jian Zhang. The entire quantile path of a risk-agnostic SVM classifier. In David McAllester, Jeff Blimes, and Andrew Ng, editors, *Proceedings of the 25th Conference on Uncertainty in Artificial Intelligence (UAI 2009)*, Montreal, Canada, June 2009. (76 out of 243, 31% acceptance rate) [\[PDF\]](#).
- [26] Nino Shervashidze, S. V. N. Vishwanathan, Tobias Petri, Kurt Mehlhorn, and Karsten Borgwardt. Efficient graphlet kernels for large graph comparison. In Max Welling and David van Dyk, editors, *Proceedings of International Workshop on Artificial Intelligence and Statistics*. Society for Artificial Intelligence and Statistics, 2009. (84 out of 210, 40% acceptance rate) [\[PDF\]](#).
- [27] Qinfeng Shi, James Petterson, Gideon Dror, John Langford, Alex Smola, Alex Strehl, and S. V. N. Vishwanathan. Hash kernels. In Max Welling and David van Dyk, editors, *Proceedings of International Workshop on Artificial Intelligence and Statistics*. Society for Artificial Intelligence and Statistics, 2009. (84 out of 210, 40% acceptance rate) [\[PDF\]](#).
- [28] Peter Sunehag, Jochen Trumpf, S. V. N. Vishwanathan, and Nicol N. Schraudolph. Variable metric stochastic approximation theory. In Max

- Welling and David van Dyk, editors, *Proceedings of International Workshop on Artificial Intelligence and Statistics*. Society for Artificial Intelligence and Statistics, 2009. (84 out of 210, 40% acceptance rate) [\[PDF\]](#).
- [29] Manfred K. Warmuth, Karen A. Glocer, and S. V. N. Vishwanathan. Entropy regularized LPBoost. In Yoav Freund, Yoav László Györfi, and György Turán, editors, *Proceedings of the International Conference on Algorithmic Learning Theory*, number 5254 in Lecture Notes in Artificial Intelligence, pages 256 – 271, Budapest, October 2008. Springer-Verlag. [\[PDF\]](#).
- [30] Jin Yu, S. V. N. Vishwanathan, Simon Günter, and Nicol N. Schraudolph. A quasi-Newton approach to nonsmooth convex optimization. In Andrew McCallum and Sam Roweis, editors, *Proceedings of the International Conference on Machine Learning*, Helsinki, Finland, July 2008. (155 out of 583, 26.5% acceptance rate) [\[PDF\]](#).
- [31] Li Cheng, S. V. N. Vishwanathan, and Xinhua Zhang. Consistent image analogies using semi-supervised learning. In *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition*, Anchorage, Alaska (USA), June 2008. IEEE Computer Society. (508 out of 1593, 32% acceptance rate) [\[PDF\]](#).
- [32] Alexander J. Smola, S. V. N. Vishwanathan, and Quoc V. Le. Bundle methods for machine learning. In John Platt, Daphne Koller, Yoram Singer, and Sam Roweis, editors, *Advances in Neural Information Processing Systems 20*, Cambridge MA, 2007. MIT Press. (217 out of 975, 22% acceptance rate) [\[PDF\]](#).
- [33] Choon Hui Teo, Quoc V. Le, Alexander J. Smola, and S. V. N. Vishwanathan. A scalable modular convex solver for regularized risk minimization. In *Thirteenth ACM SIGKDD International Conference on Knowledge Discovery and Data Mining*, August 2007. (100 out of 500, 20% acceptance rate) [\[PDF\]](#).
- [34] Qinfeng Shi, Yasemin Altun, Alexander J. Smola, and S. V. N. Vishwanathan. Semi-Markov models for sequence segmentation. In *Proceedings of the 2007 Conference on Empirical Methods in Natural Language Processing (EMNLP)*, pages 640–648, 2007. (66 out of 398, 16.5% acceptance rate) [\[PDF\]](#).
- [35] Xinhua Zhang, Douglas Aberdeen, and S. V. N. Vishwanathan. Conditional random fields for multi-agent reinforcement learning. In *Proceedings of the International Conference on Machine Learning*, pages 1143–1150, June 2007. best student paper award, (152 out of 522, 29% acceptance rate) [\[PDF\]](#).
- [36] Li Cheng and S. V. N. Vishwanathan. Learning to compress images and video. In *Proceedings of the International Conference on Machine Learning*, pages 161–168, June 2007. (152 out of 522, 29% acceptance rate) [\[PDF\]](#).
- [37] Karsten M. Borgwardt, Hans-Peter Kriegel, S. V. N. Vishwanathan, and Nicol N. Schraudolph. Graph kernels for disease outcome prediction from

- protein-protein interaction networks. In Russ B. Altman, A. Keith Dunker, Lawrence Hunter, Tiffany Murray, and Teri E Klein, editors, *Proceedings of the Pacific Symposium of Biocomputing 2007*, Maui Hawaii, January 2007. World Scientific. [\[PDF\]](#).
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