

## Daniel Hernández-Lobato

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Date of birth: September 16, 1982.  
Citizenship: Spanish.

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### Professional Experience

**Lecturer**, Computer Science Department, Universidad Autónoma de Madrid, Spain.  
January 2014 - Present.

**Assistant Professor**, Computer Science Department, Universidad Autónoma de Madrid, Spain.  
September 2011 - January 2014.

**Postdoctoral Researcher**, under the supervision of Professor Pierre Dupont, Machine Learning Group, Computer Science Department, Université catholique de Louvain, Louvain-la-Neuve, Belgium.  
November 2009 - September 2011.

**Assistant Researcher**, under the supervision of Professor Alberto Suárez, Computer Science Department, Universidad Autónoma de Madrid.  
October 2007 - October 2009.

### Education

**Ph.D. in Computer Science.** Thesis title: *Prediction Based on Averages over Automatically Induced Learners: Ensemble Methods and Bayesian Techniques*. Thesis committee: José Dorronsoro, Anibal Figueiras, Bert Kappen, Vicente López and Grigorios Tsoumakas. Supervisor: Alberto Suárez.  
Universidad Autónoma de Madrid.  
January 2010.  
(prize to the best thesis defended in the Computer Science Department during the academic year 2009 / 2010)

**M.Sc. in Computer Science.** Project Title: *Pruning in ordered regression bagging ensembles*.  
Universidad Autónoma de Madrid.  
June 2007.

**B.Sc. in Computer Science.** Universidad Autónoma de Madrid.  
June 2004.

## Participation in Research Projects

### *Universidad Autónoma de Madrid, Computer Science Department*

- Advanced Learning on a Large Scale (ALLS). Project: TIN2010-21575-C02-02. Principal investigators: Alberto Suárez and José Dorronsoro, 2010 - 2013.
- Machine Learning and Applications (A3). Project: TIN2007-66862-C02-02. Principal investigators: Alberto Suárez and José Dorronsoro, 2008 - 2010.
- Learning, Evolution and Extreme statistics (AE3). Project: TIN2004-07676-C02-02. Principal investigators: Alberto Suárez and José Dorronsoro, 2005 - 2007.

### *Université catholique de Louvain, Computer Science Department*

- Rheumagene: Validation of the diagnostic value of transcriptomic and/or proteomic profiles of synovial material in early arthritis. Principal investigator: Pierre Dupont. 2009 - 2011.

### *Radboud University Nijmegen, Biophysics Department*

- Bayesian reservoir composition estimation using approximate inference. Principal investigators: Bert Kappen and Wim Wiegerinck, Autumn 2006.

## Teaching

### *Universidad Autónoma de Madrid, Computer Science Department*

- Applied Bayesian Methods (Master Course) 2 hours a week, 16 students, 2014.
- Distributed Systems (Practicals) 2 hours a week, 20-30 students, 2014.
- Distributed Systems (Lectures) 3 hours a week, 60-70 students, 2014.
- Computer Networks (Practicals) 2 hours a week, 20-30 students, 2014.
- Applied Bayesian Methods (Master Course) 2 hours a week, 5 students, 2013.
- Distributed Systems (Practicals) 2 hours a week, 20-30 students, 2013.
- Distributed Systems (Lectures) 3 hours a week, 60-70 students, 2012 - 2013.
- Programming Project (Lectures) 3 hours a week, 20-30 students, 2012.
- Computer Networks (Lectures) 3 hours a week, 50-60 students, 2012.
- Neurocomputing (Practicals) 2 hours a week, 20-30 students, 2011.
- Introduction to Computer Science (Practicals) 2 hours a week, 20-30 students, 2008 - 2009.
- Knowledge Engineering (Practicals) 2 hours a week, 20-30 students, 2006.

### *Université catholique de Louvain, Computer Science Department*

- Solving Problems using Computer Science (Practicals) 2 hours a week, 12 students, 2011.
- Data Structures and Algorithms (Practicals) 2 hours a week, 6 students, 2010.

## Research Contracts and Scholarships

- Full-time postdoctoral researcher at Université catholique de Louvain. Project Rheumagene. November 2009 - September 2011.
- FPI doctoral scholarship from the *Consejería de Educación de la Comunidad de Madrid* to complete Ph.D. studies at Universidad Autónoma de Madrid. October 2005 - October 2009.
- Three-month scholarship from *Consejería de Educación de la Comunidad de Madrid* for visiting the research group of professor Bert Kappen, Biophysics Department, Radboud University, Nijmegen. Autumn 2006.
- One week scholarship to participate in the summer school Linux: an Open Environment, Universidad Autónoma de Madrid. June 2002.

## Organized Workshops and Tutorials

- Solving Complex Machine Learning Problems Using Ensemble Methods (COPEM) - ECML / PKDD workshop, Prague, Czech Republic, 2013.
- Advanced Learning in Ensemble Methods - ECML / PKDD tutorial, Bristol, United Kingdom, 2012.

## Peer Reviewing Activities

### *Journals*

Information Sciences, IEEE Transactions on Neural Networks, Pattern Recognition, Pattern Recognition Letters, Neurocomputing, Knowledge-Based Systems.

### *Conferences*

ICML, ECML, IJCNN, NIPS.

## Summer Schools

International Summer School on Pattern Recognition, Plymouth, United Kingdom, July 2006.

Linux: an Open Environment, Madrid, 2002.

## Languages

**Spanish:** Mother tongue.

**English:** Good reading, writing and communicating. Certificate of Advanced English from the Spanish *Escuela Oficial de Idiomas*.

**French:** Certificate of level B2 by the Université catholique de Louvain.

## Publications

### *Journals*

- A Double Pruning Scheme for Boosting Ensembles  
Soto V., Moratilla-García S., Martínez-Muñoz G., Hernández-Lobato D., Suárez A.  
IEEE Transactions on Cybernetics, Issue 99, 2014.
- Generalized Spike and Slab Priors for Bayesian Group Feature Selection Using Expectation Propagation.  
Hernández-Lobato D., Hernández-Lobato J. M., and Dupont P.  
Journal of Machine Learning Research (In press).
- How Large Should Ensembles of Classifiers Be?  
Hernández-Lobato D., Martínez-Muñoz G. and Suárez A.  
Pattern Recognition, volume 46, pages 1323-1336, 2013.
- Empirical Analysis and Evaluation of Approximate Techniques for Pruning Regression Bagging Ensembles.  
Hernández-Lobato D., Martínez-Muñoz G. and Suárez A.  
Neurocomputing. volume 75, pages 2250-2264, 2011.
- Inference on the Prediction of Ensembles of Infinite Size.  
Hernández-Lobato D., Martínez-Muñoz G. and Suárez A.  
Pattern Recognition. volume 44, Issue 7, pages 1426-1434, 2011.
- Network-based Sparse Bayesian Classification.  
Hernández-Lobato J. M., Hernández-Lobato D. and Suárez A.  
Pattern Recognition, volume 44, Issue 4, pages 886-900, 2011.
- Expectation Propagation for Microarray data Classification.  
Hernández-Lobato D., Hernández-Lobato J. M. and Suárez A.  
Pattern Recognition Letters, Vol. 31, Issue 12, pp. 1618-1626, 2010.
- Statistical Instance-Based Pruning in Ensembles of Independent Classifiers.  
Hernández-Lobato D., Martínez-Muñoz G. and Suárez A.  
IEEE Trans. on Pattern Analysis and Machine Intelligence, vol. 31, no. 2, pp. 364-369, 2009.
- An Analysis of Ensemble Pruning Techniques Based on Ordered Aggregation.  
Martínez-Muñoz G., Hernández-Lobato D. and Suárez A.  
IEEE Trans. on Pattern Analysis and Machine Intelligence, vol. 31, no. 2, pp. 245-259, 2009.
- Bayes Machines for Binary Classification.  
Hernández-Lobato D. and Hernández-Lobato J. M.  
Pattern Recognition Letters, vol. 29, Issue 10, pages 1466-1473, ISSN 0167-8655, 2008.
- Class-switching Neural Network Ensembles.  
Martínez-Muñoz G., Sánchez-Martínez A., Hernández-Lobato D. and Suárez A.  
Neurocomputing, vol. 71, Issues 13-15, Artificial Neural Networks (ICANN 2006) / Engineering of Intelligent Systems (ICEIS 2006), pages 2521-2528, ISSN 0925-2312, 2008.

## Conferences

- Learning Feature Selection Dependencies in Multi-task Learning  
Hernández-Lobato D., Hernández-Lobato J.M.  
Advances in Neural Information Processing Systems (NIPS), Tahoe, Nevada, 2013, pages 746-754.
- Gaussian Process Conditional Copulas with Applications to Financial Time Series  
Hernández-Lobato J. M., Lloyd J., Hernández-Lobato D.  
Advances in Neural Information Processing Systems (NIPS), Tahoe, USA, 2013, Pages 1736-1744.
- Statistical Tests for the Detection of the Arrow of Time in Vector Autoregressive Models  
Morales-Mombiola P., Hernández-Lobato D., Suárez A.  
International Joint conference on Artificial Intelligence (IJCAI) 2013 (In press).
- On the Independence of the Individual Predictions in Parallel Randomized Ensembles  
Hernández-Lobato D., Martínez-Muñoz G., and Suárez A.  
European Symposium on Artificial Neural Networks (ESANN), Bruges, Belgium, 2012, pages 233-238.
- Robust Multi-Class Gaussian Process Classification  
Hernández-Lobato D., Hernández-Lobato J. M., and Dupont P.  
Advances in Neural Information Processing Systems (NIPS), Granada, Spain, 2011, pages 280-288.
- Feasibility of a Molecular Diagnosis of Arthritis Based on the Identification of Specific Transcriptomic Profiles in Knee Synovial Biopsies.  
I. Focant, D. Hernández-Lobato, J. Ducreux, P. Durez, A. Nzeusseu, Toukap, D. Elewaut, F. Houssiau, P. Dupont and B. Lauwerys.  
Belgian Congress on Rheumatology, Ghent, Belgium, 2011.
- Variance Estimators for t-Test Ranking Influence the Stability and Predictive Performance of Microarray Gene Signatures.  
Touleimat N. Hernández-Lobato D., and Dupont P.  
European Conference on Computational Biology (ECCB), Ghent, Belgium, September 26-29, 2010.
- Expectation Propagation for Bayesian Multi-task Feature Selection.  
Hernández-Lobato D., Hernández-Lobato J. M., Helleputte T. and Dupont P.  
Machine Learning and Knowledge Discovery in Databases, European Conference, ECML PKDD 2010, Barcelona, Spain, September 20-24, 2010, Proceedings, Part I LNCS 6321, pp. 522-537.
- A Double Pruning Algorithm for Classification Ensembles.  
Soto V., Martínez-Muñoz G., Hernández-Lobato D. and Suárez A. In Multiple Classifiers Systems, Cairo, Egypt, 2010, LNCS 5997, ISBN 978-3-642-12126-5, pp. 104-113.
- Statistical Instance-based Ensemble Pruning for Multi-class Problems  
Martínez-Muñoz G., Hernández-Lobato D. and Suárez A.  
In International Conference on Artificial Neural Networks, Limassol, Cyprus, ICANN 2009.
- Sparse Bayes Machines for Binary Classification.  
Hernández-Lobato D.  
Proceedings of the 18th International Conference on Artificial Neural Networks - ICANN

2008, Prague, Czech Republic, September 3-6, 2008, Part I LNCS 5163 , pp. 205-214, 2008, ISBN 978-3-540-87535-2.

- Out of Bootstrap Estimation of Generalization Error Curves in Bagging Ensembles.  
Hernández-Lobato D., Martínez-Muñoz G. and Suárez A.  
Proceedings of the 8th International Conference on Intelligent Data Engineering and Automated Learning, Birmingham, UK, IDEAL 2007, LNCS 4881, pp. 47-56, ISBN 978-3-540-77225-5.
- GARCH Processes with Non-parametric Innovations for Market Risk Estimation.  
Hernández-Lobato J. M., Hernández-Lobato D. and Suárez A.  
Proceedings of the 17th International Conference on Artificial Neural Networks, Porto, Portugal, ICANN 2007, Part I, LNCS 4668, pp. 718-727, 2007, ISBN 978-3-540-74689-8.
- Selection of Decision Stumps in Bagging Ensembles.  
Martínez-Muñoz G., Hernández-Lobato D. and Suárez A.  
Proceedings of the 17th International Conference on Artificial Neural Networks, Porto, Portugal, ICANN 2007, Part I, LNCS 4668, pp. 319-328, 2007, ISBN 978-3-540-74689-8.
- Pruning Adaptive Boosting Ensembles by Means of a Genetic Algorithm.  
Hernández-Lobato D. , Hernández-Lobato J. M., Ruiz-Torrubiano R. , Valle Á.  
7th Intelligent Data Engineering and Automated Learning, Burgos, Spain, IDEAL 2006, LNCS 4224, pp. 995-1002, 2006, ISBN 978-3-540-45485-4.
- Building Ensembles of Neural Networks with Class-switching.  
Gonzalo Martínez-Muñoz, Aitor Sánchez-Martínez, Daniel Hernández-Lobato, Alberto Suárez.  
Proceedings of the 16th International Conference on Artificial Neural Networks, Athens, Greece, ICANN 2006, Part I, LNCS 4131, pp. 178-187, 2006, ISBN 3-540-38625-4.
- Pruning in Ordered Regression Bagging Ensembles.  
Hernández-Lobato D., Martínez-Muñoz G. and Suárez A.  
Proceedings of the International Joint Conference on Neural Networks, 2006, IEEE World Congress on Computational Intelligence. Vancouver, Canada, pp. 1266-1273.