

# Héctor Allende Olivares

*Dr. Rer. Nat. Statistik*

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Nationality: Chilean

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## *Studies and Degrees*

<b>Technische Universitaet Dortmund, Germany</b> Informatik Abteilung Post-Doctorate Machine Learning	1999-2000
<b>Technische Universitaet Dortmund, Germany</b> Statistik Abteilung Informatik Abteilung Dr. Rer. Nat. Statistik	1984-1988
<b>University of Chile, Santiago, Chile</b> CIENES Master in Statistics	1980-1981
<b>Federico Santa María Technical University, Valparaíso, Chile</b> Master in Mathematics	1976-1978
<b>Federico Santa María Technical University, Valparaíso, Chile</b> Electrical Engineer	1969-1975

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## *Academic Activities*

<b>Federico Santa María Technical University, Valparaíso, Chile</b> Department of Informatics Associate professor	2004- act.
<b>Federico Santa María Technical University, Valparaíso, Chile</b> Technological Science Center of Valparaíso (CCTVAL) Principal Researcher	2004- act.

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*Academic Activities in External Institutions*

<b>University of Playa Ancha, Valparaíso, Chile</b> Member of directive board	2009-2012
<b>Technical Committee of International Evaluation of PSU, Chile</b> Representative of the council of rectors (CRUCH)	2011-2012
<b>National Commission of Accreditation (CNA)</b> Member Committee of Area of Postgraduate Engineering	2007- 2015
<b>Ingeniería II of Fondecyt Projects (CONICYT)</b> Member of the Evaluation Committee	2007-2011
<b>Ingeniería II Committee (CONICYT)</b> Member of the Postgraduate Scholarship Committee	2007-2009
<b>Chilean Pattern Recognition Association (ACHIRP)</b> President	2005-2009
<b>National Commission for Postgraduate Accreditation CONAP-CONICYT</b> Member	2005-2006
<b>National Center for Productivity</b> Program for the Modernization of Public Management Member of the committee of judges of the National Prize to the Quality of the Public Services	1997-2000
<b>Sociedad Chilena de Estadística (SOCHE)</b> President	1994-1998

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*Academic Administration Activities at UTFSM*

<b>Ph.D. in Computer Science Engineering Program</b> Director	2004-2013
<b>Central Commission of Academic Hierarchy</b> President	2016- act.
<b>Central Commission of Academic Hierarchy</b> Member	2012- act.
<b>Commission of Academic Hierarchy</b> Department of Informatics President	2010-2012
<b>Program of Master's Degree in Engineering Sciences mention, Computer Science</b> Director	2001-2007; 2011-2013

<b>Academic Council</b> Member	2000-2004; 1989-1991
<b>Mathematics Department</b> Director	1989-1991
<b>Superior Council</b> Member. Students Representative	1969-1972

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*Other Background of Academic Relevance*

**Editorial Board Journal of Multiple-Value Logic and Soft-Computing**

**Editorial Board Archives for the Philosophy and History of Soft Computing**

<b>Association of Academics</b> Federico Santa María Technical University President	1996-1998
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<b>Inter-American Statistical Institute (IASI)</b> Correspondent for Chile	1994-1999
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<b>Industrial Modernization Program Capital Goods Sector for Latin America United Nations. Methods of Improvement of Industrial Processes, Industrial Statistics</b> ONUDI Project US/RLA/90004/17-5P/065000 Consultant	1994-1995
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<b>Chilean Journal of Statistics</b> Editor of application	1991-1998
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*Scholarships*

<b>UTFSM Scholarship</b> Undergraduate Engineering Studies	1969-1972
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<b>O.E.A. Scholarship.</b> Graduate Studies Master in Statistics	1980-1981
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<b>German Academic Exchange Service Scholarship (D.A.A.D.)</b> Ph.D. Studies in Statistics	1984-1989
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<b>German Academic Exchange Service Scholarship (D.A.A.D.)</b> Post-Doctoral Studies, Machine Learning	1999-2000
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*Acknowledgments*

**Best Graduate Award** 1981  
International Master's Program in Statistics CIENES, University of Chile

**Award for Best Doctorate in Statistics** 1987  
Deutsche Statistische Gesellschaft (DSG), Berlin, Germany

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*Languages*

**Spanish, German, English**

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*Research Lines*

**Areas**  
Machine Learning, Intelligent Data analysis, Statistics methods in pattern recognition

**Associated disciplines**  
Data Science, Automatic data processing, Computational experiments design, Computer Science

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*Competitive Research Projects (last 10 years)*

**Mecesup "FSM 1101"** 2011-2013  
"Strengthening and Internationalization of the Ph.D. Program in Computer Engineering at the Federico Santa María Technical University"  
Project Director

**Fondecyt Regular N° 1110854** 2011-2014  
"Ensemble of machine learning-based local estimators for high frequency time series forecasting"  
Project Director

**Basal-Millennium Project**  
Valparaíso Science and Technology Center (CCTVAL)  
Principal Researcher

**Mecesup FSM 0707** 2009-2012  
"Strengthening of a new Doctoral Program in Computer Engineering"  
Project Director

**Conicyt-ICHA (Advanced Human Capital Insertion)** 2012-2014  
**N° 79112038**  
Machine Learning Methods Applied to the Extraction of Patterns on Large Data Streams.  
Insertion Dr. Ricardo Ñanculef. Project  
Project Director

- Conicyt Attraction of Advanced Human Capital N° 80120008** 2011-2013  
Methodology for the Construction of Secure and Reliable Computer Systems. Attracted Scientist Eduardo Fernández Buglioni (Florida Atlantic University, EE.UU)  
Project Director
- Fundación Andes C-13955/8** 2004-2006  
“Strengthening of Post-Graduate Programs in Computer Engineering”  
Project Director
- PROSUL MCT/CNPq No. 14** 2006-2009  
“Innovative Techniques in Signal Processing, Images and Digital Video”  
Chilean Project Coordinator, MERCOSUR
- Fondecyt Regular N° 1070220** 2007-2010  
“Ensemble Learning Strategies for high-dimensional and non-stationary data”  
Project Director
- International Cooperation N° 7070093** 2007-2008  
“Ensemble Learning Strategies for high-dimensional and non-stationary data”  
Project Director
- Fondecyt International Cooperation N° 7060040** 2006  
“Robust Learning Algorithms for Modular Neural Networks”  
Project Director
- Fondecyt Regular N° 1061201** 2006-2007  
“Development of flexible architecture models of artificial neural networks learn under changing environments over time”  
Co-investigator
- Fondecyt N° 1040365** 2004-2007  
“Robust Learning Algorithms for Modular Neural Networks in Non-Stationary Time Series”  
Project Director
- Fondecyt International Cooperation N° 7050205** 2005-2006  
“Robust Learning Algorithms for Modular Neural Networks in Non-Stationary Time”  
Project Director
- Fondecyt N° 7040051** 2004-2005  
“Robust Learning Algorithms for Modular Neural Networks in Non-Stationary Time”  
Project Director. International Cooperation Project
- Alemania-BMBF CHL 03/Z013** 2001-2005  
“Verteilte Algorithmen für Computational Intelligence, Effizienz und Effektivität”  
Project Director
- BMBF-Conicyt N° 2003097** 2001-2005  
“Distributed algorithms in computational intelligence, with emphasis on the aspects of synergy, efficiency and effectiveness”  
Project Director. Responsible Researcher

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*Other Research Projects (last 10 years)*

**DGIP-UTFSM N° 24.14.04** 2014-2015  
“Automatic Classification Algorithms”

**DGIP-UTFSM N° 24.12.01** 2012-2013  
“Learning algorithms for the classification of unbalanced data”  
Project Director

**DGIP-UTFSM N° 24.10.08** 2010-2011  
“Incremental learning algorithms in learning machines”  
Project Director

**DGIP-UTFSM N° 24.07.25** 2007-2009  
“Flexible and robust learning algorithms in dynamic environments”  
Project Director

**DGIP-UTFSM N° 24.04.25** 2004-2006  
“Modular Neural Networks in the Recognition of Patterns of Large Databases”  
Project Director

**DGIP-UTFSM No 24.02.24** 2002-2004  
“Robust Neural Networks in Pattern Recognition”  
Project Director

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*Scientific Societies Participation*

**Chilean Association of Pattern Recognition (ACHIRP)**  
Founder Member

**International Association for Pattern Recognition (IAPR)**  
Member

**International Association Statistical Computing. (IASC)**  
Member

**Interamerican Statistical Institute (IASI)**  
Member

**International Statistical Institute (ISI)**  
Member

**Chilean Society of Statistics**  
Member

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*Publications in Journal*

1. **M.A. Solís, M. Olivares, H. Allende** Nov 2016  
A switched control strategy for swing-up and state regulation for the rotary inverted pendulum. Submitted to Review Mechatronics, Elsevier (ISI)
2. **J. Zamora, M. Mendoza, H. Allende** 2016  
Hashing-based clustering in high dimensional data. Expert Systems with Applications. In Expert Systems with Applications. Vol. 62, pp 202-211 (ISI)
3. **M. Solis, M. Olivares, H. Allende** 2016  
Stabilizing Dynamic State Feedback Controller Synthesis: A Reinforcement Learning Approach In Studies in Informatics and Control Vol. 25 (2), pp 245-254 (ISI)
4. **T. Mardones, H. Allende, C. Moraga** 2016  
Leveraging similarities and structure for dense representations combination in image retrieval. In Journal of Visual Communication & Image Representation Vol. 38, pp 641-657 (ISI)
5. **R. Salas, A. Veloz, C. Moraga, H. Allende** 2016  
SONFIS: Structure identification and Modeling with a Self-Organizing Neuro-Fuzzy Inference System. In International Journal of Computational Intelligence Systems. Vol. 9 (3), pp 416-432 (ISI)
6. **H. Allende-Cid, R. Monge, H. Allende** 2016  
Soft Computing Applied to Distributed Regression with Context-Heterogeneity. In Journal for Multi-Valued Logic and Soft Computing. Vol. 26, pp 389-416 (ISI)
7. **H. Allende-Cid, H. Allende, R. Monge, C. Moraga** 2015  
Discrete Neighborhood Representations and Modified Stacked Generalization Methods for Distributed Regression. Journal of Universal Computer Science 2015. Volume 21, (6), pp 842-855 (ISI)
8. **H. Allende** 2015  
Comments on: A conversation with Oscar Bustos. In Chilean Journal of Statistics. Vol. 6, No. 2, pp 95-96
9. **E. Canessa, H. Allende** 2015  
Performance of a Genetic Algorithm applied to Robust Design in Multi-objective Systems under different Levels of Fractioning. Rev. Fac. Ing. Univ. Antioquia. N. ° 75 pp. 80-94 (Scielo)
10. **J. Zamora, M. Mendoza, H. Allende** 2014  
Query intent detection based on query log mining. In Journal of Web Engineering, Vol. 13(1), pp 24-5 (ISI)
11. **G. Ulloa, H. Allende-Cid, H. Allende** 2014  
Robust Sieve Bootstrap Prediction Intervals for Contaminated Time Series. In International Journal of Pattern Recognition and Artificial Intelligence, Vol. 28 (7), pp 1-14 (ISI)

- 12. R. Ñanculef, E. Frandi, C. Sartori, H. Allende** 2014  
A Novel Frank-Wolfe Algorithm. Analysis and Applications to Large-Scale SVM Training. In Journal Information Science. Vol. 285, pp 66-99 (ISI)
- 13. E. Canessa, H. Allende** 2014  
"Robust Design in Multiobjective Systems using Taguchi's Parameter Design Approach and Pareto Genetic Algorithm". Revista Faculty of Engineering, Universidad de Antioquia. Vol.72, pp 73-86 (ISI)
- 14. F. Ramírez, H. Allende** 2013  
Detection of flaws in aluminum castings: a comparative study between generative and discriminant approaches. In Journal Insight, Non-Destructive Testing and Condition Monitoring, Vol. 55 (7), pp 366-371 (ISI) DOI: 10.1784/insi.2012.55.7.366
- 15. R. Ñanculef, C. Valle, H. Allende, C. Moraga** 2012  
"Training regression ensembles by sequential target correction and resampling". In Information Science Vol. 195, 154-174 (ISI)
- 16. C. Fernández, C. Valle, F. Saravia, H. Allende** 2012  
"Behavior analysis of neural network ensemble algorithm on a virtual machine cluster". In Neural Computing and Applications Vol. 21(3), pp 535-542 (ISI)
- 17. E. Canessa, C. Droop and H. Allende** 2012  
"An Improved Genetic Algorithm for Robust Design in Multivariate Systems". In Journal Quality & Quantity, Vol. 46 (2), pp 665-678 (ISI)
- 18. E. Canessa, S. Vera and H. Allende** 2012  
"A new method for estimating missing values for a Genetic Algorithm used in robust design". Engineering Optimization Vol. 44 (7), 787-800 (ISI)
- 19. R. Salas, C. Saavedra. H. Allende and C. Moraga** 2011  
"Machine Fusion to Enhance the Topology Preservation of Vector Quantization Artificial Neural Networks". In Pattern Recognition Letters. Vol. 32 (7), pp 962-972 (ISI)
- 20. H. Allende-Cid, E. Canessa, A. Quezada, H. Allende** 2011  
"An Improved Fuzzy Rule-based Automated Trading Agent". In Studies in Informatics and Control; Vol. 20 (2): 135-142 (ISI)
- 21. C. Valle, F. Saravia, H. Allende, R. Monge and C. Fernández** 2010  
"Parallel Approach for Ensemble Learning with Locally Coupled Neural Networks". In Neural Processing Letters Vol. 2 (3): 277-291
- 22. H. Allende, D. Bravo and E. Canessa S.** 2010  
"Robust Design in Multivariate Systems using Genetic Algorithms". In Journal Quality & Quantity Vol. 44 (2): 315- 332 (ISI)
- 23. R. Ñanculef, C. Concha, H. Allende, D. Candell and C. Moraga** 2009  
"AD-SVMs: A Light Extension of SVMs for Multicategory Classification". In International Journal of Hybrid Intelligence Systems (JHIS), Vol. 6 (2): 69-79



24. **R. Salas, H. Allende, S. Moreno, C. Moraga** 2007  
 "A Robust and flexible model of Hierarchical Self Organizing Map for non-stationary environments". Journal Neuro-computing. Vol. 70 (16-18), pp 2744-2757 (ISI)
25. **R. Nanculef, C. Valle, H. Allende, C. Moraga** 2006  
 "Ensemble Learning with Local Diversity". ICANN-2006. Artificial Neural Networks, Lecture Notes in Computer Science, Vol. 4131, pp 264-273 (ISI)
26. **H. Allende, A. Frery, J. Galbiati, L. Pizarro** 2006  
 M-Estimators with Asymmetric Influence Functions the Distribution GAO Case. Journal of Statistical Computation and Simulation, Vol. 76 (11): 941-956 (ISI)
27. **R. Nanculef, C. Valle, H. Allende, C. Moraga** 2006  
 Local Negative Correlation with Resampling. In Lecture Notes in Artificial Intelligence, Springer-Verlag Vol. 4224, pp 570-577 (ISI)
28. **S. Moreno, C. Saavedra, R. Salas and H. Allende** 2006  
 "Robustness Analysis of the Neural Gas Learning Algorithm". In Lecture Note in Computer Science, Serie LNAI, Vol. 4225, pp 559-568 (ISI)
29. **R. Nanculef, C Valle, H. Allende, C. Moraga** 2005  
 "Self-Poised Ensemble Learning". In Lecture Notes in Computer Science: Advances in Intelligence Data Analysis, Vol. 3646, pp 272-282 (ISI)
30. **S. Moreno, H. Allende, C. Rogel and R. Salas** 2005  
 "Robust Growing Hierarchical Self Organizing Map". In Lecture Notes in Computer Science, Vol. 3512, pp 341-348 (ISI)
31. **R. Nanculef, C Valle, H. Allende, C. Moraga** 2005  
 "Moderated Innovations in Self-Poised Learning Ensemble Learning". CIS-2005, Xian China. LNCS- LNAI Vol. 3801, pp 49-56 (ISI)
32. **C. Saavedra, H. Allende, S. Moreno, R. Salas** 2005  
 "K-Dynamical Self Organizing Maps". In Lecture Notes in Computer Science: "Artificial Intelligence. Serie, LNAI Vol. 3789, pp. 702-711 (ISI)
33. **R. Salas, H. Allende, S. Moreno and C. Saavedra** 2005  
 "Flexible architecture of Self Organizing Maps in changing environments". In Lecture Notes in Computer Science: Pattern Recognition and Image Analysis. Vol. 3773, pp 642-653 (ISI)
34. **H. Allende and J. Galbiati** 2005  
 "Edge detection in contaminated images, using cluster analysis". In Lecture Notes in Computer Science: "Pattern Recognition and Image Analysis". Vol. 3773, pp 945-953 (ISI)
35. **H. Allende, S. Moreno, C. Rogel, R. Salas** 2004  
 "Robust Self-organizing Maps". In Lecture Notes in Artificial Intelligence; Vol. 3287, pp 179-186 (ISI)
36. **H. Allende, N. Lacourly, S. Torres** 2004  
 "A Robust Portmanteau TRA Tests and their Limit Distribution". In Communications in Statistical, Theory and Methods; Vol. 33 (8), pp 1899-1915 (ISI)

- 37. H. Allende, R. Ñanculef, R. Salas** 2004  
 “Robust Bootstrapping Neural Networks”. In LNCS, Lecture Notes in Artificial Intelligence; Vol. 2972, pp 813-822 (ISI)
- 38. H. Allende, C. Elías, S. Torres** 2004  
 “Estimation of the Option Prime: Microsimulation of Backward Stochastic Differential Equations”. In International Statistical Review, Vol. 72, pp 107-121 (ISI)
- 39. H. Allende, J. Galbiati** 2004  
 “A Non-parametric Filter for Digital Image Restoration, using Cluster Analysis”. In Pattern Recognition Letters; Vol. 25(8), pp 841-847 (ISI)  
 DOI: 10.1016/j.patrec.2004.01.009
- 40. H. Allende, C. Moraga, R. Salas, R. Torres** 2003  
 “Robust Expectation Maximization Learning Algorithm for Mixture of Experts”. In Lecture Notes in Computer Science: Computational Methods in Neural Modeling. Vol. 2686, pp 238-245 (ISI)
- 41. H. Allende, L. Pizarro** 2003  
 “Robust Estimation of Roughness Parameter in SAR Amplitude Images”. In Lecture Notes in Computer Science: Pattern Recognition and Image Analysis. Vol. 2905, pp 129-136 (ISI)
- 42. R. Salas, R. Torres, H. Allende, C. Moraga** 2003  
 Robust Estimation of Confidence Interval in Neural Networks applied to Time Series. In Lecture Notes in Computer Science: Artificial Neural Nets Problem Solving Methods; Vol. 2687: 441-448 (ISI)
- 43. H. Allende, C. Moraga, R. Salas, R. Torres** 2003  
 “Robust Learning Algorithm for the mixture of experts”. In Lecture Notes in Computer Science: Pattern Recognition and Image Analysis. Vol. 2652, pp 19-27 (ISI)
- 44. H. Allende, C. Moraga, R. Salas** 2003  
 “Robust and effective learning algorithm for the Feedforward neural based on the Influence Function”. In Lecture Notes in Computer Science: Patterns Recognition and Image Analysis. Vol. 2652, pp 28-36 (ISI)
- 45. H. Allende, C. Moraga, R. Salas**, Robust Estimator for the learning Process in Neural Networks applied in Time Series. In Lecture Notes in Computer Science: Artificial Neural Network. Vol. 2415, pp 1080-1086, 2002 (ISI)
- 46. H. Allende, C. Moraga, R. Salas** 2002  
 Artificial Neural Networks in Time Series Forecasting: A comparative Analysis”. In Kybernetika Vol. 38 (6). Pp 685-707 (ISI)
- 47. H. Allende, J. Galbiati, R. Vallejos** 2001  
 Robust Image Modeling on Image Processing. In Pattern Recognition Letters. Vol. 22, pp 1219-1231 (ISI)
- 48. H. Allende, C. Moraga, R. Salas** 2001  
 Neural Model Identification using Local Robustness Analysis. In Lecture Notes in Computer Science: Computational Intelligence. Vol. 2206, pp 162-173 (ISI)

- 49. H. Allende, J. Galbiati** 1999  
 "Discussion of Using Statistics and Statistical Thinking to improve Organizational Performance". In International Statistical Review. Vol. 67(2), pp 122-126 (ISI)
- 50. H. Allende, J. Galbiati** 1998  
 "Digital Image restoration using Autoregressive Time series type models". In Bulletin ESA. Vol. 434, pp 53-59
- 51. H. Allende, J. Galbiati** 1996  
 Robust Test in time series Modelling. In Journal of the Inter-American Statistical Institute, Vol. 48 (151), pp. 35-79
- 52. G. del Pino, R. Aravena, H. Allende, P. Iglesias, G. Marshall** 1996  
 "Comentarios sobre Propuesta Curricular para Estadística y Probabilidad en la Educación Media". Chilean Journal of Statistics Vol. 13, pp. 57-72
- 53. H. Allende, S. Heiler** 1992  
 "Recursive Generalized M-Estimate for Autoregressive Moving Average Models". Journal of Time Series Analysis, Vol. 13 (1), pp 1- 18 (ISI)
- 54. H. Allende** 1990  
 "Robust Recursive Estimation of Autoregressive Models". Chilean Journal of Statistics Vol. 6, pp. 3-19
- 55. H. Allende, E. Valenzuela** 1984  
 "Interpolación en series de tiempo con aplicación a la estimación de datos faltantes en una serie Eólica", Chilean Journal of Statistics. Vol. 1 (1-2), pp. 46-53

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*Proceedings ISI*

- 1. Erick López, Carlos Valle, Héctor Allende and Esteban Gil** 2016  
 Efficient Training over Long Short-Term Memory Networks for Wind Speed Forecasting. CIARP 2016, Lima, Perú. 8-11, November 2016
- 2. H. Allende-Cid, D. Acuña and H. Allende-Cid** 2016  
 "Sub-sampling the Concurrent Adaboost Algorithm: An Efficient Approach For Large Datasets". CIARP 2016 and publication in the LNCS proceedings. Lima, Peru, November 2016
- 3. J. Pavez, C. Valle, and H. Allende** 2016  
 "Covariate shift method using approximated density ratios". In Proceedings International Conference on Pattern Recognition Systems (ICPRS-16). Talca, Chile. April 2016
- 4. H. Allende-Cid, C. Moraga, R. Monge, and H. Allende** 2016  
 "The Problem of Centralizing Distributed Data Sources in the Regression Task". In Proceedings International Conference on Pattern Recognition Systems (ICPRS-16). Talca, Chile. April 2016

5. **E. López, C. Valle and H. Allende** 2016  
 'Recurrent Networks for Wind Speed Forecasting". In Proceedings International Conference on Pattern Recognition Systems (ICPRS-16). Talca, Chile. April 2016
  
6. **D. Acuña, H. Allende** 2015  
 El rol de los supuestos distribucionales en modelos GARCH asimétricos para la predicción de la volatilidad. XLII Jornadas Nacionales de Estadística (JNE 2015). Univ. del Bio-Bio. Concepción entre el 14 y 16 de octubre de 2015
  
7. **Alejandro Veloz, Luis Hernandez-Garcia, Héctor Allende, Claudio Moraga, Rodrigo Salas, and Steren Chabert** 2015  
 Fuzzy General Linear Model for functional Magnetic Resonance Imaging. International Society for Magnetic Resonance in Medicine (ISMRM 2015), 30 de mayo – 5 de junio de 2015, Toronto, Canadá
  
8. **Mardones T., Allende H., Moraga C.** 2015  
 Combining Fisher Vectors in image retrieval Using different sampling techniques. ICPRAM 2015 - 4th International Conference on Pattern Recognition Applications and Methods, Lisbon Portugal 10-12 January 2015
  
9. **D. Acuña, H. Allende-Cid, H. Allende** 2015  
 The effect of innovation assumptions on asymmetric GARCH models for volatility forecasting. 20th Iberoamerican Congress on Pattern Recognition (CIARP 2015) 9-12 nov 2015. Montevideo, Uruguay. Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics), 9423, pp. 3-10
  
10. **T. Mardones, H. Allende, C. Moraga** 2015  
 Graph Fusion Using Global Descriptors for Image Retrieval. 20th Iberoamerican Congress on Pattern Recognition (CIARP 2015) 9-12 nov 2015. Montevideo, Uruguay. Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics), 9423, pp. 290-297. DOI: 10.1007/978-3-319-25751-8\_35
  
11. **G. Ulloa, H. Allende-Cid, H. Allende** 2015  
 Image edge detection based on a spatial autoregressive bootstrap approach. 20th Iberoamerican Congress on Pattern Recognition (CIARP 2015) 9-12 nov 2015. Montevideo, Uruguay. Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics), 9423, pp. 408-415. DOI: 10.1007/978-3-319-25751-8\_49
  
12. **S. Campos, L. Pizarro, C. Valle, K. Gray, H. Allende, D. Rueckert** 2015  
 Evaluating imputation techniques for missing data in ADNI: A patient classification study. 20th Iberoamerican Congress on Pattern Recognition (CIARP 2015) 9-12 nov 2015. Montevideo, Uruguay
  
13. **H. Allende-Cid, C. Valle, C. Moraga, H. Allende, R. Salas** 2015  
 Improving the Weighted Distribution Estimation for AdaBoost using a Novel Concurrent. IDC-2015 Intelligent Distributed Computing 7-9 October, Guimaraes, Portugal

- 14. Allende-Cid H, Moraga C, Allende H, Monge R** 2015  
Regression from Distributed Data Sources Using Discrete Neighborhood Representations and Modified Stalked Generalization Models. 8th International Symposium on Intelligent Distributed Computing, IDC 2014. Proceedings Springer Studies in Computational Intelligence ISBN 978-3-319-10421-8, Vol. 570,pp 249-258
- 15. Mardones T, Allende H, Moraga C** 2015  
“Combining Fisher Vectors in image retrieval 4th International Conference on Pattern Recognition Applications and Methods ICPRAM-2015. In Proceedings of IEEE Computer Society ISBN: 978-989-758-077, Vol. 2 pp, 128-135
- 16. López E, Allende H, Allende-Cid H** 2014  
“Machine Learning Method for High-Frequency Data Forecasting”. 19th Iberoamerican Congress, CIARP. Proceedings. Springer Lecture Notes in Computer Science Vol. 8827 pp. 621-628, CIARP-2014
- 17. Campos S, Allende H** 2014  
“Imputation Techniques for missing data Heterogeneous datasets: The ADNI Study. XI Congreso Latinoamericano de Sociedades de Estadística CLATSE. In Proceedings of Chilean Society
- 18. López E., Allende H** 2014  
Forecasting High Frequency Time Series by using machine learning. XI Congreso Latinoamericano de Sociedades de Estadística CLATSE. In Proceedings of Chilean Society
- 19. G. Ulloa, H. Allende-Cid, H. Allende** 2013  
“Robust Sieve Bootstrap Prediction Intervals for Contaminated Non-linear Processes”. In Lecture Notes in Computer Science Vol. 8258 pp. 84-91 (PART 1), CIARP-2013. DOI: 10.1007/978-3-642-41822-8\_11
- 20. Ulloa, G, Allende, H** 2013  
Siev Bootstrap prediction intervals for contaminated BIP-ARMA processes (2013), Proceedings - International Conference of the Chilean Computer Science Society, SCCS, art. no. 6694096, pp. 241-244. DOI: 10.1109/SCCS.2012.37
- 21. H. Allende, Emanuele Frandi, Ricardo Ñanculef, Claudio Sartori** 2013  
Pairwise Away Steps for the Frank-Wolfe Algorithm. Conference (NIPS 2013) FALTAN DATOS pp. publisher, fecha published
- 22. T. Mardones, H. Allende, C. Moraga** 2013  
Combining descriptors obtained through different sampling techniques in image retrieval. V Chilean workshop on Pattern Recognition (CWPR-2013) 2013. 11-15 Nov 2013, Temuco Chile
- 23. H. Allende, H. Allende-Cid, R. Monge, C. Moraga** 2013  
Wind Speed Forecasted under a Distributed Learning Approach. V Chilean workshop on Pattern Recognition (CWPR-2013) 2013, 11-15 Nov 2013, Temuco Chile
- 24. F. Ramírez, H. Allende** 2012  
“Dual Support Vector Domain Description for Imbalanced Classification”. In Lecture Notes in Computer Science Vol. 7552 pp. 710-717, 2012. ICANN- 2012

- 25. P. Ormeño, F. Ramírez, C. Valle, H. Allende-Cid, H. Allende** 2012  
 “Robust Asymmetric Adaboost”. In Lecture Notes in Computer Science, Vol. 7441 pp. 519-526, 2012. CIARP- 2012
- 26. L. Sanz, H. Allende, M. Mendoza** 2012  
 “Text Content Reliability Estimation in Web Documents: A New Proposal”. In Lecture Notes in Computer Science Vol. 7182 pp. 438-449, 2012. CICLing-2012
- 27. G. Domínguez, J. Zamora, M. Guevara, H. Allende, R. Salas** 2012  
 “Stream Volume Prediction in Twitter with Artificial Neural Networks” In Proceedings of IEEE Computer Society Vol. pp. 488-493, 2012. ICPRAM-2012
- 28. A. Veloz, R. Salas, H. Allende-Cid, H. Allende** 2012  
 SIFAR: “Self-Identification of Lags of an Autoregressive TSK-based Model”. In Proceedings of IEEE Computer Society pp. 226-231, 2012. The International Symposium on Multiple-Valued Logic, ISMVL-2012
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*Directed Dissertations and Theses*

*Engineering Dissertations*

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2. Generación de Estrategia defensiva en Robocop SSL mediante Aprendizaje Reforzado, Dissertation to opt for the Degree of Ingeniería Civil Informática March 2016, Franco Felipe Ollino Orellana. Department of informatics, Federico Santa María Technical University
3. Modelos T-GARCH para modelar la volatilidad en series de tiempo financieras. Dissertation to opt for the Degree of Ingeniería Civil Informática, November 2015. Diego Acuña Rozas. Department of informatics, Federico Santa María Technical University
4. Modelos Predictivos en Series Cronológicas de Alta Frecuencia: Un Estudio Comparativo, Dissertation to opt for the Degree of Ingeniería Civil Informática December 2014, Erick López Ovando. Department of informatics, Federico Santa María Technical University
5. Reconocimiento de objetos tridimensionales para manipulación robótica interactiva, Dissertation to opt for the Degree of Ingeniería Civil Informática October 2014, Luz maría Martínez. Department of informatics, Federico Santa María Technical University
6. Concatenación de representaciones compactas de imágenes en el problema de recuperación de imágenes Dissertation to opt for the Degree of Ingeniería Civil Informática October 2014, Tomás Mardones Latham. Department of informatics, Federico Santa María Technical University
7. Implantación de norma ISO 22000 a partir de la norma Holandesa HACCP Dissertation to opt for the Degree of Ingeniero Civil Industrial Nov. 2013, Eduardo Tapia. Faculty of Engineering and Science, Adolfo Ibáñez University
8. Representación Topológica de las Características de la Señal Digitalizada de la Música para la Generación Automática de Listas de Reproducción, Dissertation to opt for the Degree of Ingeniero Civil en Informática, August 2012, Héctor Hidalgo Sepúlveda. Department of informatics, Federico Santa María Technical University
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#### *Master Thesis*

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5. Intervalos de Predicción Sieve Bootstrap en Series de tiempo contaminadas. Thesis to opt for the Degree of Magíster en Ciencias de la Ingeniería Informática, January 2014, Gustavo Ulloa Poblete. Department of informatics, Federico Santa María Technical University
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9. Adaboost Robusto Asimétrico, Thesis to opt for the Degree of Magíster en Ciencias de la Ingeniería Informática, July 2012, Pablo Ormeño Arriagada. Department of informatics, Federico Santa María Technical University
10. Identification of Lags in non-linear Autoregressive Time Series using a Flexible FuzzyModel, Thesis to opt for the Degree of Magíster en Ciencias de la Ingeniería Informática, November 2011; Alejandro Veloz Baeza, Department of informatics, Federico Santa María Technical University
11. “Algoritmo tipo SMO para la AD-SVM aplicado a Clasificación Multicategoría”. Thesis to opt for the Degree of Magíster en Ciencias de la Ingeniería Informática, January 2011; Diego Candel, Department of informatics, Federico Santa María Technical University
12. “Segmentación de imágenes matrices de resonancia magnética mediante el algoritmo EM modificado”. Thesis to opt for the Degree of Magíster en Ciencias de la Ingeniería Informática, October 2010; Ramiro Donoso, Department of informatics, Federico Santa María Technical University
13. “Algoritmo Paralelo para Ensamblados de Máquinas de Aprendizaje”. Thesis to opt for the Degree of Magíster en Ciencias de la Ingeniería Informática, May 2010; Francisco Saravia, Department of informatics, Federico Santa María Technical University
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17. “Modelo Neuro-difuso con aprendizaje auto-organizativo”. Thesis to opt for the Degree of Magíster en Ciencias de la Ingeniería Informática, June 2009; Héctor Allende Cid, Department of informatics, Federico Santa María Technical University
18. Modelo de pronóstico de Demanda para el mercado inmobiliario de la región de Valparaíso” Thesis to opt for the Degree of Magíster en Ingeniería de Negocios, March 2009; Ricardo Raby Carreño, Faculty of Engineering and Science, Adolfo Ibáñez University
19. “Estudio comparativo de Algoritmos de Clustering en análisis de Imágenes Digitales”. Thesis to opt for the Degree of Magíster en Ciencias de Ingeniería, Junio 2008; Pablo Valdivieso Urrea, Faculty of Engineering and Science, Adolfo Ibáñez University
20. “Fusión de Técnicas de Vectores de Cuantización”. Thesis to opt for the Degree of Magíster en Ciencias de la Ingeniería Informática, February 2008; Carolina Saavedra Ruiz, Department of informatics, Federico Santa María Technical University
21. “Ensamblado de modelos para aprendizaje incremental”. Thesis to opt for the Degree of Magíster en Ciencias de la Ingeniería Informática, January 2008; Patricia Trejo González, Department of informatics, Federico Santa María Technical University
22. “Robustez y flexibilidad en mapas autoorganizativos en ambientes no estacionarios”, Thesis to opt for the Degree of Magíster en Ciencias de la Ingeniería Informática, January 2007; Sebastián Moreno Araya, Department of informatics, Federico Santa María Technical University
23. Análisis de la serie de tiempo del fenómeno del Niño mediante redes neuronales de Jordan, Thesis to opt for the Degree of Magíster en Ingeniería de Negocios, May 2006; Felipe A. Günter Gomá Brockmann, Faculty of Engineering and Science, Adolfo Ibáñez University
24. Interpretación de micro arreglos de expresión genética mediante redes neuronales elásticas, Thesis to opt for the Degree of Magíster en Ciencias de la Ingeniería Informática, julio 2006. Marcos Lévano Huamaccto. Faculty of Engineering, Department of informatics, University of Santiago, Chile
25. Modelos de Clustering en variables mezcladas de Segmentación de Mercado, Thesis to opt for the Degree of Magíster en Ciencias de la Ingeniería, May 2006. Claudio Hoffmeister Castro, Faculty of Engineering and Science, Adolfo Ibáñez University
26. Modelo de optimización de operaciones en IANSA S.A., Thesis to opt for the Degree of Magíster en Ciencias de la Ingeniería, March 2006. Maribel González Uriarte, Faculty of Engineering and Science, Adolfo Ibáñez University



27. “Método de segmentación de imágenes digitales basado en análisis de clustering”, Thesis to opt for the Degree of Magíster en Ciencias de la Ingeniería Informática March 2006. Carlos Becerra Castro, Department of informatics, Federico Santa María Technical University
28. “Diversidad Parcial en Ensembles de Máquinas de Aprendizaje”, Thesis to opt for the Degree of Magíster en Ciencias de la Ingeniería Informática December 2005. Ricardo Ñanculef Alegría, Department of informatics, Federico Santa María Technical University
29. “Método Agregación en ensembles de redes neuronales Feedforward”, Thesis to opt for the Degree of Magíster en Ciencias de la Ingeniería , November 2005; Christian Matthews Hartmann, Faculty of Engineering and Science, Adolfo Ibáñez University
30. “Diversidad en Redes Neuronales Ensemble”, Thesis to opt for the Degree of Magíster en Ciencias de la Ingeniería Informática, July 2005. Carlos Valle Vidal, Department of informatics, Federico Santa María Technical University
31. “Selección de Arquitecturas en redes neuronales Feedforward”, Thesis to opt for the Degree of Magíster en Ciencias de la Ingeniería , March 2004; Iván Suazo Forno, Faculty of Engineering and Science, Adolfo Ibáñez University
32. “Estimación robusta de Parámetros en Distribuciones con datos SAR”, Thesis to opt for the Degree of Magíster en Ingeniería Informática, December 2003, Luis Pizarro Quiroz, Department of informatics, Federico Santa María Technical University
33. “Algoritmo robusto de Aprendizaje para modelo en Mezcla de Experto”, Thesis to opt for the Degree of Magíster en Ciencias de la Ingeniería Informática, November 2003; Romina Torres Torres, Department of informatics, Federico Santa María Technical University
34. “Robustez en Redes Neuronales Feedforward,” Thesis to opt for the Degree of Magíster en Ingeniería Informática, August 2002, Rodrigo Salas Fuentes, Department of informatics, Federico Santa María Technical University
35. “Estimación Robusta en procesos Autorregresivos Bidimensionales”, Thesis to opt for the Degree of Magíster en Ciencias mención Matemáticas, December 1999; Ronny Vallejos Arriagada, Departamento de Matemática , Federico Santa María Technical University

#### *Doctoral Thesis*

1. Miguel Solis, 2017, Reinforcement Learning on Control Systems with Unobserved States, Doctorate in Informatic Engineering, UTFSM
2. Tomás Mardones, 2016, Combinación de Representaciones Compactas de Imágenes en el Problema de Recuperación de Imágenes, Doctorate in Informatic Engineering, UTFSM
3. Juan Zamora, 2016, Single-Pass Clustering for Massive Text Data, Doctorate in Informatic Engineering, UTFSM

4. Carlos Valle, 2014, Ensemble Learning with Locally Coupled Learners, Doctorate in Informatic Engineering, UTFSM
5. Juan Ricardo Ñanculef, 2011, Building Support Vector Models using Coreset-based Methods, Doctorate in Informatic Engineering, UTFSM
6. Rodrigo Salas, 2010, Robustness and Flexibility analysis of the learning algorithms of Artificial neural networks, Doctorate in Informatic Engineering, UTFSM

*Doctor Candidates*

1. Fuzzy Linear Modeling in Functional Magnetic Resonance Imaging. Thesis to opt for the Degree of Doctorate in Informatic Engineering, Doctor Candidate Alejandro Veloz Baeza. Department of informatics, Federico Santa María Technical University. Tentative graduation date: March 2017
2. Semi-supervised Imputation for heterogeneous data. Thesis to opt for the Degree of Doctorate in Informatic Engineering, Doctor Candidate Sergio Campos Chartier. Department of informatics, Federico Santa María Technical University. Tentative graduation date: November 2017
3. Forecasting Model for Wind Power Generation based on Recurrent Neural Networks. Thesis to opt for the Degree of Doctorate in Informatic Engineering, Doctor Candidate Erick López Ovando. Department of informatics, Federico Santa María Technical University. Tentative graduation date: March 2018
4. Likelihood-free Inference using Approximated Likelihood Ratios. Thesis to opt for the Degree of Doctorate in Informatic Engineering, Doctor Candidate Juan Pavez Sepúlveda. Department of informatics, Federico Santa María Technical University. Tentative graduation date: November 2018