

PROF. PEDRO LARRAÑAGA

A. GENERAL INFORMATION

PERSONAL INFORMATION

Name:	Pedro Larrañaga
Nationality:	Spanish
Address:	Department of Artificial Intelligence Technical University of Madrid Campus de Montegancedo, s/n 28660 Boadilla del Monte, Madrid, Spain
Telephone:	(+34) 91 336 74 43
Fax:	(+34) 91 352 48 19
E-mail:	pedro.larranaga@fi.upm.es
Url:	http://cig.fi.upm.es

ACADEMIC POSITIONS

- Head of the Computational Intelligence Group since its foundation in 2010
- Professor at the Department of Artificial Intelligence, Technical University of Madrid, Spain (since 2007)
- Professor at the Department of Computer Science and Artificial Intelligence, University of the Basque Country, Spain (2004-2007)
- Associate Professor at the Department of Computer Science and Artificial Intelligence, University of the Basque Country, Spain (1998-2004)
- Head of the Intelligent Systems Group since its foundation in 1996
- Assistant Professor at the Department of Computer Science and Artificial Intelligence, University of the Basque Country, Spain (1987-1998)
- Lecture at the Department of Computer Science and Artificial Intelligence, University of the Basque Country, Spain (1985-1987)

QUALIFICATIONS

- Habilitation for full Professor in Computer Science, Madrid, Spain, 2003
- Ph.D. in Computer Science, *Structural Learning and Triangulation of Bayesian Networks by Genetic Algorithms*, University of the Basque Country, Spain, 1995. Awarded with the best Ph.D. thesis in Engineering in the University of the Basque Country
- M.Sc. in Mathematics, *Comparison Between Hierarchical Classification and by Factorial Analysis*, University of Valladolid, Spain, 1985
- Degree on Mathematics, specialization in Statistics, University of Valladolid, Spain, 1981

RESEARCH INTEREST

My main interest areas are: *Bayesian networks* (learning from data, supervised and unsupervised classification, triangulation), *evolutionary computation* (genetic algorithms, estimation of distribution algorithms, mathematical modelling, applications in optimization), *bioinformatics* (analysis of microarrays of DNA, protein folding, prediction of the secondary structure of proteins, multiple alignment of sequences) and *neuroscience* (supervised and unsupervised classification of neurons, early diagnostics methods in Parkinson and Alzheimer diseases, spatial distributions of synapses, brain computer interface)

B. PUBLICATION RECORD

BOOKS

1. A. Ibañez, C. Bielza, P. Larrañaga (2011). *Productividad y Visibilidad Científica de los Profesores Funcionarios de las Universidades Públicas Españolas en el Área de Tecnologías Informáticas*. Fundación General de la U.P.M.

EDITED BOOKS

1. J. A. Lozano, P. Larrañaga, I. Inza, and E. Bengoetxea (2005). *Towards a New Evolutionary Computation. Advances in Estimation of Distribution Algorithms*. Springer Verlag
2. P. Larrañaga, J. A. Lozano, J. M. Peña, I. Inza (2003). *Probabilistic Graphical Models for Classification*. Ruder Bošković Institute
3. P. Larrañaga, and J. A. Lozano (2002). *Estimation of Distribution Algorithms. A New Tool for Evolutionary Computation*. Kluwer Academic Publishers

JOURNAL PAPERS (ISI WEB OF KNOWLEDGE)

1. A. Garcia-Bilbao, R. Armañanzas, Z. Ispizua, B. Calvo, A. Alonso-Varona, I. Inza, P. Larrañaga, G. López-Vivanco, B. Suarez-Merino, M. Betanzos (2012). Identification of a biomarker panel for colorectal cancer diagnosis. *BMC Cancer*, in press
2. R. Armañanzas, P. Larrañaga, C. Bielza (2012). Ensemble transcript interaction networks: A case study on Alzheimer's disease. *Computer Methods and Programs in Biomedicine*, in press
3. L. Guerra, V. Robles, C. Bielza, P. Larrañaga (2012). A comparison of cluster quality indices using outliers and noise. *Intelligent Data Analysis*, in press
4. D. Vidaurre, C. Bielza, P. Larrañaga (2011). On nonlinearity in neural encoding models applied to the primary visual cortex. *Network: Computation in Neural Systems*, 22, 1-4, 97-125
5. A. Ibañez, P. Larrañaga, C. Bielza (2011). Using Bayesian networks to discover relationships between bibliometric indices. A case study of Computer Science and Artificial Intelligence journals. *Scientometrics*, 89, 2, 523-551
6. C. Bielza, G. Li, P. Larrañaga (2011). Multi-Dimensional classification with Bayesian networks. *International Journal of Approximate Reasoning*, 52, 705-727
7. M. García-Torres, R. Armañanzas, C. Bielza, P. Larrañaga (2011). Comparison of metaheuristic strategies for peakbin selection in proteomic mass spectrometry data. *Information Sciences*, in press
8. P. López-Cruz, C. Bielza, P. Larrañaga, R. Benavides-Piccione, J. DeFelipe (2011). Models and simulation of 3D neuronal dendritic trees using Bayesian networks. *Neuroinformatics*, 9, 347-369
9. C. Bielza, V. Robles, P. Larrañaga (2011). Regularized logistic regression without a penalty term: An application to cancer classification with microarray data. *Expert Systems with Applications*, 38, 5110-5118
10. R. Santana, C. Bielza, P. Larrañaga (2011). Optimizing brain networks topologies using multi-objective evolutionary computation. *Neuroinformatics*, 9, 3-19
11. H. Borchani, P. Larrañaga, C. Bielza (2011). Classifying evolving data streams with partially labelled data. *Intelligent Data Analysis*, 15, 655-670
12. L. Guerra, L. McGarry, V. Robles, C. Bielza, P. Larrañaga, R. Yuste (2011). Comparison between supervised and unsupervised classification of neuronal cell types: A case study. *Developmental Neurobiology*, 71, 1, 71-82

13. E. Bengoetxea, P. Larrañaga, C. Bielza, J.A. Fernández del Pozo (2011). Optimal row and column ordering to improve table interpretation using estimation of distribution algorithms. *Journal of Heuristics*, 17(5), 567-588
14. R. Armañanzas, Y. Saeys, I. Inza, M. García-Torres, C. Bielza, Y. van de Peer, P. Larrañaga (2011). Peakbin selection in mass spectrometry data using a consensus approach with estimation of distribution algorithms. *IEEE/ACM Transactions on Computational Biology and Bioinformatics*, 8(3), 760-774
15. P. Larrañaga, S. Moral (2011). Probabilistic graphical models in artificial intelligence. *Applied Soft Computing* 17, 3, 326-339
16. I. Cuesta, C. Bielza, M. Cuenca-Estrella, P. Larrañaga, J. L. Rodríguez-Tudela (2010). Evaluation by data mining techniques of fluconazole breakpoints established by the clinical and laboratory standards institute (CLSI) and comparison with those of the European committee on antimicrobial susceptibility testing (EUCAST). *Antimicrobial Agents and Chemotherapy*, 54, 4, 1541-1546
17. R. Santana, C. Bielza, P. Larrañaga, J. A. Lozano, C. Echegoyen, A. Mendiburu, R. Armañanzas, S. Shakya (2010). MATEDA 2.0: Estimation of distribution algorithms in MATLAB *Journal of Statistical Software* 35, 7, 1-30
18. D. Vidaurre, C. Bielza, P. Larrañaga (2010). Learning an L1-regularized Gaussian Bayesian network in the equivalence class space. *IEEE Transactions on Systems, Man and Cybernetics, Part B*, 40, 5, 1231-1242
19. R. Santana, P. Larrañaga, J. A. Lozano (2010). Learning factorizations in estimation of distribution algorithms using affinity propagation. *Evolutionary Computation* 18, 4, 515-546
20. C. Bielza, J. A. Fernández del Pozo, P. Larrañaga, E. Bengoetxea (2010). Multidimensional statistical analysis of the parameterization of a genetic algorithm for the optimal ordering of tables. *Expert Systems with Applications* (37), 804-815
21. J. A. Lozano, Q. Zhang, P. Larrañaga (2009). Special issue in Evolutionary Algorithms based on Probabilistic Models. *IEEE Transactions on Evolutionary Computation*, Vol. 13, No. 6, ???-???
22. A. Ibañez, P. Larrañaga, C. Bielza (2009). Predicting citation count of Bioinformatics papers within four years of publication. *Bioinformatics* 25, 24, 3303-3309
23. I. Cuesta, C. Bielza, P. Larrañaga, M. Cuenca-Estrella, F. Laguna, D. Rodriguez-Pardo, B. Almirante, A. Pahissa, J. Rodriguez-Tudela (2009). Data mining validation of fluconazole breakpoints established by the European committee on antimicrobial susceptibility testing. *Antomicrobial Agents and Chemotherapy* 53 (7), 2949-2954
24. B. Calvo, P. Larrañaga, J.A. Lozano (2009). Feature subset selection from positive and unlabelled examples. *Pattern Recognition Letters* 30, 1027-1036
25. R. Armañanzas, B. Calvo, I. Inza, M. López-Hoyos, V. Martínez-Taboada, E. Ucar, I. Bernalles, A. Fullaondo, P. Larrañaga, A. M. Zubiaga (2009). Microarray analysis of autoimmune diseases by machine learning procedures. *IEEE Transactions on Information Technology in Biomedicine* 13 (3), 341-350
26. A. Pérez, P. Larrañaga, I. Inza (2009). Bayesian classifiers based on kernel estimation: Flexible classifiers. *International Journal of Approximate Reasoning* 50 (2), 341-362
27. T. Romero, P. Larrañaga (2009). Triangulation of Bayesian networks with recursive estimation of distribution algorithms. *International Journal of Approximate Reasoning* 50 (3), 472-484
28. C. Bielza, V. Robles, P. Larrañaga (2009). Estimation of distribution algorithms as logistic regression regularizers of microarray classifiers. *Methods of Information in Medicine* 48 (3), 236-241
29. V. Robles, C. Bielza, P. Larrañaga, S. González, L. Ohno-Machado (2008). Optimizing logistic regression coefficients for discrimination and calibration using estimation of distribution algorithms. *TOP* 16 (2) 345-366

30. D. Morales, E. Bengoetxea, P. Larrañaga (2008). Selection of human embryos for transfer by Bayesian classifiers. *Computer in Biology and Medicine* **38**, 1177-1186
31. S. Furney, B. Calvo, P. Larrañaga, J. A. Lozano, N. López-Bigas (2008). Prioritization of candidate cancer genes. An aid to oncogenomic studies. *Nucleic Acids Research*, 1-9
32. R. Armañanzas, I. Inza, P. Larrañaga (2008). Detecting reliable gene interactions by a hierarchy of Bayesian networks classifiers. *Computer Methods and Programs in Biomedicine* **91**, 110-121
33. G. Santafé, J. A. Lozano, P. Larrañaga (2008). Inference of population structure using genetic markers and a Bayesian model averaging approach for clustering. *Journal of Computational Biology*, **15** (2), 207-220
34. R. Santana, J. A. Lozano, P. Larrañaga (2008). Protein folding in simplified models with estimation of distribution algorithms. *IEEE Transactions on Evolutionary Computation*, **12** (4), 418-438
35. R. Santana, P. Larrañaga, J. A. Lozano (2008). Combining variable neighborhood search and estimation of distribution algorithms. *Journal of Heuristics*, **14**, 519-547
36. D. Morales, E. Bengoetxea, P. Larrañaga, M. García, Y. Franco-Iriarte, M. Fresnada, M. Merino (2008). Bayesian classification for the selection of in-vitro human embryos using morphological and clinical data. *Computer Methods and Programs in Biomedicine* (**90**), 104-116
37. I. Zipritia, J. Elorriaga, A. Arruarte, P. Larrañaga, R. Armañanzas (2008). What is behind a summary evaluation decision? *Behavior Research Methods* (**40**), 2, 597-612
38. B. Calvo, J. A. Lozano, P. Larrañaga (2007). Learning Bayesian classifiers from positive and unlabeled examples. *Pattern Recognition Letters* **28**(16), 2375-2384
39. Y. Saeys, I. Inza, P. Larrañaga (2007). A review of feature selection techniques in bioinformatics. *Bioinformatics* **23** (19), 2507-2517
40. T. Miquelez, E. Bengoetxea, A. Mendiburu, P. Larrañaga (2007). Combining Bayesian classifiers and estimation of distribution algorithms for optimization in continuous domains. *Connection Science* **19** (4), 297-319
41. J. L. Flores, I. Inza, P. Larrañaga (2007). Wrapper discretization by means of estimation of distribution algorithms. *Intelligent Data Analysis Journal* **11** (5), 525-546
42. B. Calvo, N. López-Bigas, S. J. Furney, P. Larrañaga, J. A. Lozano (2007). A partially supervised approach to dominant and recessive human disease gene prediction. *Computer Methods and Programs in Biomedicine*, **85** (3), 229-237
43. R. Santana, P. Larrañaga, J. A. Lozano (2007). Side chain placement using estimation of distribution algorithms. *Artificial Intelligence in Medicine* **39** (1), 49-63
44. G. Santafé, J. A. Lozano, P. Larrañaga (2006). Bayesian model averaging of naive Bayes for clustering. *IEEE Transactions on Systems, Man, and Cybernetics* **36**, 5, 1149-1161
45. A. Pérez, P. Larrañaga, I. Inza (2006). Supervised classification with conditional Gaussian networks: Increasing the structure complexity from naive Bayes. *International Journal of Approximate Reasoning* **43**, 1-25
46. P. Larrañaga, B. Calvo, R. Santana, Y. Galdiano, C. Bielza, I. Inza, R. Armañanzas, G. Santafé, A. Pérez, V. Robles (2006). Machine learning in bioinformatics. *Briefings in Bioinformatics* **7**, No. 1, 86-112
47. C. Roberto, E. Bengoetxea, I. Bloch, P. Larrañaga (2005). Inexact graph matching for model-based recognition: Evaluation and comparison of optimization algorithms. *Pattern Recognition* **38**, 2099-2113
48. R. Blanco, I. Inza, M. Merino, J. Quiroga, and P. Larrañaga (2005). Feature selection in Bayesian classifiers for the prognosis of survival of cirrhotic patients treated with TIPS. *Journal of Biomedical Informatics*, **38**, 376-388

49. P. Larrañaga, J. A. Lozano, J. M. Peña, I. Inza (2005). Special issue on Probabilistic Graphical Models in Classification. *Machine Learning*, 59, 211–212
50. J. M. Peña, J. A. Lozano, and P. Larrañaga (2005). Globally multimodal problem optimization via an estimation of distribution algorithm based on unsupervised learning of Bayesian networks. *Evolutionary Computation*, 43–66
51. P. Larrañaga, J. A. Lozano (2005). Special issue on estimation of distribution algorithms. *Evolutionary Computation*, v–vi
52. T. Romero, P. Larrañaga, and B. Sierra (2004). Learning Bayesian networks in the space of orderings with estimation of distribution algorithms. *International Journal of Pattern Recognition and Artificial Intelligence*, 18 (4), 607–625
53. R. Blanco, P. Larrañaga, I. Inza, and B. Sierra (2004). Gene selection for cancer classification using wrapper approaches. *International Journal of Pattern Recognition and Artificial Intelligence*, 18 (8), 1373–1390
54. V. Robles, P. Larrañaga, J. M. Peña, E. Menasalvas, M. S. Pérez, and V. Herves (2004). Bayesian networks as consensed voting system in the construction of a multi-classifier for protein secondary structure prediction. *Artificial Intelligence in Medicine*, 31, 117–136
55. I. Inza, P. Larrañaga, R. Blanco, and A. J. Cerrolaza (2004). Filter versus wrapper gene selection approaches in DNA microarray domains. *Artificial Intelligence in Medicine*, 31, 91–103
56. T. Miquelez, E. Bengoetxea, and P. Larrañaga (2004). Evolutionary computation based on Bayesian classifiers. *International Journal of Applied Mathematics and Computer Science*, 14 (3), 101–115
57. P. Larrañaga, E. Menasalvas, J. M. Peña, and V. Robles (2004). Special issue in data mining in genomics and proteomics. *Artificial Intelligence in Medicine*, 31, iii–iv
58. J. M. Peña, J. A. Lozano, and P. Larrañaga (2004). Unsupervised learning of Bayesian networks via estimation of distribution algorithms: an application to gene expression data clustering. *International Journal of Uncertainty, Fuzziness and Knowledge-Based Systems*, 12, 63–82
59. C. González, J.A. Lozano, and P. Larrañaga (2002). Mathematical modelling of UMDAc algorithm with tournament selection. Behaviour on linear and quadratic functions. *International Journal of Approximate Reasoning*, 31, 313–340
60. P. Larrañaga, and J.A. Lozano (2002). Synergies between evolutionary computation and probabilistic graphical models. *International Journal of Approximate Reasoning*, 31, 155–156
61. E. Bengoetxea, P. Larrañaga, I. Bloch, A. Perchant, and C. Boeres (2002). Inexact graph matching by means of estimation of distribution algorithms. *Pattern Recognition*, 35 (12), 2867–2880
62. J. M. Peña, J. A. Lozano, and P. Larrañaga (2002). Learning recursive Bayesian multinets for clustering by means of constructive induction. *Machine Learning*, 47, 63–89
63. J. M. Peña, J. A. Lozano, P. Larrañaga, and I. Inza (2001). Dimensionality reduction in unsupervised learning of conditional Gaussian networks. *IEEE Transactions on Pattern Analysis and Machine Intelligence*, 23 (6), 590–603
64. I. Inza, M. Merino, P. Larrañaga, J. Quiroga, B. Sierra, and M. Giralá (2001). Feature subset selection by genetic algorithms and estimation of distribution algorithms. A case study in the survival of cirrhotic patients treated with TIPS. *Artificial Intelligence in Medicine*, 23 (2), 187–205
65. J. M. Peña, J. A. Lozano, and P. Larrañaga (2001). Performance evaluation of compromise conditional Gaussian networks for data clustering. *International Journal of Approximate Reasoning*, 28, 23–50
66. I. Inza, P. Larrañaga, and B. Sierra (2001). Feature subset selection by Bayesian networks: A comparison with genetic and sequential algorithms. *International Journal of Approximate Reasoning*, 27, 143–164

67. B. Sierra, N. Serrano, P. Larrañaga, E. J. Plasencia, I. Inza, J. J. Jiménez, P. Revuelta, M. L. Mora (2001). Using Bayesian networks in the construction of a bi-level multi-classifier. A case study using intensive care unit patients data. *Artificial Intelligence in Medicine*, 22, 233-248
68. I. Inza, P. Larrañaga, R. Etxeberria, and B. Sierra (2000). Feature subset selection by Bayesian network-based optimization. *Artificial Intelligence*, 123, 157-184
69. J.M. Peña, J.A. Lozano, and P. Larrañaga (2000). An improved Bayesian structural EM algorithm for learning Bayesian networks for clustering. *Pattern Recognition Letters*, 21 (8), 779-786
70. J. M. Peña, J. A. Lozano, and P. Larrañaga (1999). Learning Bayesian networks for clustering by means of constructive induction. *Pattern Recognition Letters*, 20 (11-13), 1219-1230
71. I. Inza, P. Larrañaga, B. Sierra, R. Etxeberria, J. A. Lozano, and J. M. Peña (1999). Representing the behaviour of supervised classification learning algorithms by Bayesian networks. *Pattern Recognition Letters*, 20 (11-13), 1201-1209
72. J. M. Peña, J. A. Lozano, and P. Larrañaga (1999). An empirical comparison of four initialization methods for the k -means algorithm. *Pattern Recognition Letters*, 20, 1027-1040
73. J. A. Lozano, P. Larrañaga, M. Graña, and F. X. Albizuri (1999). Genetic algorithms: Bridging the convergence gap. *Theoretical Computer Science*, 229, 11-22
74. P. Larrañaga, C. M. H. Kuijpers, R. H. Murga, I. Inza, and S. Dizdarevich (1999). Genetic algorithms for the travelling salesman problem: A review of representations and operators. *Artificial Intelligence Review*, 13, 129-170
75. J. A. Lozano and P. Larrañaga (1999). Applying genetic algorithms to search for the best hierarchical clustering of a dataset. *Pattern Recognition Letters*, 20, 911-918
76. B. Sierra, P. Larrañaga (1998). Predicting the survival in malignant skin melanoma using Bayesian networks automatically induced by genetic algorithms. An empirical comparison between different approaches. *Artificial Intelligence in Medicine*, 14 (1-2), 215-230
77. R. Etxeberria, P. Larrañaga, and J.M. Pikaza (1997). Analysis of the behaviour of genetic algorithms when learning Bayesian network structure from data. *Pattern Recognition Letters*, 18 (11-13), 1269-1273
78. X. Albizuri, A. d'Anjou, M. Graña, and P. Larrañaga (1997). Structure of the high-order Boltzman machine from independence maps. *IEEE Transactions on Neural Networks*, 8 (6), 1351-1358
79. P. Larrañaga, C. M. H. Kuijpers, M. Poza, and R. H. Murga (1997). Decomposing Bayesian networks: Triangulation of the moral graph with genetic algorithms. *Statistics and Computing*, 7, 19-34
80. P. Larrañaga, C. M. H. Kuijpers, R. H. Murga, and Y. Yurramendi (1996). Learning Bayesian network structures by searching for the best ordering with genetic algorithms. *IEEE Transactions on System, Man and Cybernetics. Part A: Systems and Humans*, 26 (4), 487-493
81. P. Larrañaga, M. Poza, Y. Yurramendi, R. H. Murga, and C. M. H. Kuijpers (1996). Structure learning of Bayesian networks by genetic algorithms: A performance analysis of control parameters. *IEEE Transactions on Pattern Analysis and Machine Intelligence*, 18 (9), 912-926
82. P. Echániz, P. Larrañaga, J. Arrizabalaga, J. L. Jiménez, J. A. Iribarren, E. Cuadrado (1992). Factores pronósticos en heroinómanos infectados por el VIH: análisis multivariable de factores serológicos inespecíficos en la evolución de la infección. *Revista Clínica Española*, 190, (8), 422-426
83. J. I. Emparanza, L. Aldámiz-Echevarria, E. G. Pérez-Yarza, P. Larrañaga, J. L. Jimenez, M. Labiano, and I. Ozcoidi (1988). Prognostic score in acute meningococemia. *Critical Care Medicine*, 16 (2), 168-169

JOURNAL PAPERS (NON IN ISI WEB OF KNOWLEDGE)

1. D. Vidaurre, C. Bielza, P. Larrañaga (2012). Forward stagewise naive Bayes. *Progress in Artificial Intelligence*, in press
2. Ibáñez, I., Larrañaga, P., Bielza, C. (2010). Predicen el número de citas que tendrán los artículos científicos. *Madri+d Noticias* (artículo de divulgación) y *Plataforma SINC de la FECYT* (Servicio de Información y Noticias Científicas)
3. D. Morales, E. Bengoetxea, P. Larrañaga (2009). Clasificadores Bayesianos en la selección embrionaria en tratamientos de reproducción asistida. *Matemática 4*, 3
4. R. Armañanzas, I. Inza, R. Santana, Y. Saeys, J.L. Flores, J.A. Lozano, Y. Van de Peer, R. Blanco, V. Robles, C. Bielza, P. Larrañaga (2008). A review of estimation of distribution algorithms in bioinformatics. *BioDataMining* **1**(6), 1-12
5. R. Santana, J. A. Lozano, P. Larrañaga (2008). Research topics in discrete estimation of distribution algorithms. *Memetic Computing*, 1, 135-54
6. G. Santafé, J. A. Lozano, P. Larrañaga (2006). Aprendizaje discriminativo de clasificadores Bayesianos. *Inteligencia Artificial. Revista Iberoamericana de Inteligencia Artificial* **29**, 39-47
7. M. Merino, J. Quiroga, I. Inza, P. Larrañaga (2004). Predicción de mortalidad precoz tras TIPS. ¿Es mejorable el MELD score?. *Revista de la Sociedad Española de Calidad Asistencial*
8. T. Miquelez, E. Bengoetxea, P. Larrañaga (2004). Evolutionary computation based on Bayesian classifiers. *International Journal of Applied Mathematics and Computer Science*, **14** (3), 101-115
9. P. Larrañaga, J.A. Lozano, H. Mühlenbein (2003). Algoritmos de estimación de distribuciones en problemas de optimización combinatoria. *Inteligencia Artificial. Revista Iberoamericana de Inteligencia Artificial*, No. 19, Vol. 2, 149-168
10. R. Blanco, I. Inza, P. Larrañaga (2003). Learning Bayesian networks in the space of structures by estimation of distribution algorithms. *International Journal of Intelligent Systems*, **18**, 205-220
11. I. Inza, B. Sierra, R. Blanco, P. Larrañaga (2002). Gene selection by sequential search wrapper approaches in microarray cancer class prediction. *Journal of Intelligent and Fuzzy Systems*, **12**, (1), 25-33
12. C. González, J. A. Lozano, P. Larrañaga (2000). Analyzing the population based incremental learning algorithm by means of discrete dynamical systems. *Complex Systems*, Vol. 12, No. 4, 465-479
13. J. A. Lozano, P. Larrañaga (1998). Aplicación de los algoritmos genéticos al problema del clustering jerárquico. *Inteligencia Artificial. Revista Iberoamericana de Inteligencia Artificial*, No. 5, 62-67
14. M. Graña, A. d'Anjou, X. Albizuri, J.A. Lozano, P. Larrañaga, Y. Yurramendi, M. Hernández, J.L. Jiménez, F.J. Torrealdea, M. Poza, A. I. González (1996). Experimentos de aprendizaje con máquinas de Boltzmann de alto orden. *Informática y Automática*, Vol. 29, No. 4, 42-57
15. C. M. H. Kuijpers, P. Larrañaga, I. Inza, S. Dizdarevic (1996). Algoritmo genetikoak saltzaile ibiltariaren problemaren. Gipuzkoako bira egokiaren atzetik. *Elhuyar*, Vol. 22, No. 2, 10-30
16. A. Beristain, J. Castaignède, J. L. De la Cuesta, I. Dendaluze, I. German, M. González, J. C. Heraut, P. Larrañaga, A. Maeso, E. Vidaurrezaga (1996). La representación social de la delincuencia. *Boletín Criminológico. Instituto Andaluz Interuniversitario de Criminología*, No. 24, 1-4
17. M. González, J. Castaignède, I. Dendaluze, P. Larrañaga (1995). Representaciones sociales de los jóvenes sobre la criminalidad. Investigación transfronteriza. *Revista de Derecho Penal y Criminología*, No. 5, 335-490
18. P. Larrañaga, J. L. Jiménez, M. Alkorta, J. A. Diego, E. Arnaiz (1994). Aplicación de la clasificación automática en la construcción de una tipología de residentes. Proyecto Hombre de Gipuzkoa. *Eguzkilore*, No. 8, 39-51

19. A. Beristain, P. Larrañaga, J. L. Jiménez (1990). La policía en la Comunidad Autónoma Vasca. *Eguzkilore*, No. 4, 189-202
20. L. Segura, C. Saiz, M. Erquicia, M. T. Gaztañaga, P. Larrañaga, J. L. Jimenez. Estudio comparativo entre tres métodos para la obtención del porcentaje de grasa corporal. *Archivos de Medicina del Deporte*, Vol. VII, No. 28, 361-364
21. P. Larrañaga (1988). La indemnización en las víctimas del delito. Un estudio basado en las sentencias dictadas en la audiencia provincial de Guipúzcoa durante el año 1986. *Eguzkilore*, No. 2, 139-224
22. P. Angulo, P. Larrañaga (1988). Korden paradoxa. *Elhuyar. Zientzia eta Teknika*, Vol. 14, 42-43
23. J. I. Emparanza, M. Labiano, I. Ozcoidi, P. Larrañaga, L. Aldámiz-Echevarria, E. G. Pérez-Yarza (1987). Score pronóstico para la sepsis meningocócica infantil. *Anales Españoles de Pediatría*, 346-346
24. M. Erquicia, P. Larrañaga (1987). Clasificación de los alimentos utilizando métodos estadísticos. *Nutrición Clínica y Dietética Hospitalaria*, No. 3/87, 15-22
25. P. Larrañaga, J. L. Jimenez (1987). Datu-analisis. *Elhuyar*, Vol. 13, No. 1, 17-24
26. P. Larrañaga, J. L. Jimenez (1986). Azpimultzo lausoak. *Elhuyar*, Vol. 12, No. 2, 45-50
27. P. Larrañaga (1985). Datuak sailkatzeko bi metodoen arteko konparaketa. *Elhuyar*, Vol. 11, No. 3-4, 368-381

BOOK CHAPTERS

1. I. Inza, B. Calvo, R. Armañanzas, E. Bengoetxea, P. Larrañaga, J. A. Lozano (2009). Machine learning: An indispensable tool in bioinformatics. *Bioinformatics Methods in Clinical Research*. Humana Press
2. C. Echegoyen, R. Santana, J. A. Lozano, P. Larrañaga (2008). The impact of exact probabilistic learning algorithms in EDAs based on Bayesian network. *Linkage in Evolutionary Computation*. Springer Verlag
3. D. Morales, E. Bengoetxea, P. Larrañaga (2008). Combining multi-classifiers with Gaussian network for selection of in-vitro human embryos using morphological and clinical data. *Data Mining and Medical Knowledge Management: Cases and Applications*. IGI Global Inc.
4. V. Robles, J. M. Peña, P. Larrañaga, M. S. Pérez, V. Herves (2006). GA-EDA: A new hybrid cooperative search evolutionary algorithm. *Towards a New Evolutionary Computation. Advances on Estimation of Distribution Algorithms*. Springer
5. T. Miquélez, E. Bengoetxea, P. Larrañaga (2006). Bayesian classifiers in optimization: An EDA-like approach. *Towards a New Evolutionary Computation. Advances on Estimation of Distribution Algorithms*. Springer
6. S. Dizdarevich, P. Larrañaga, B. Sierra, J. A. Lozano, J. M. Peña (2005). Combining statistical and machine learning based classifiers in the prediction of corporate failure. *Artificial Intelligence in Accounting and Auditing. Volume 6. International Perspective*, 177-211, Markus Wiener Publishers
7. P. Larrañaga, I. Inza, and J. L. Flores (2005). A guide to the literature on inferring genetic networks by probabilistic graphical models. *Data Analysis and Visualization in Genomics and Proteomics*, John Wiley.
8. R. Blanco, I. Inza, and P. Larrañaga (2004). Learning Bayesian networks by floating search methods. *Advances in Bayesian Networks*, 181-200, Springer
9. I. Inza, P. Larrañaga, and B. Sierra (2002). Estimation of distribution algorithms for feature subset selection in large dimensionality domains. *Data Mining: A Heuristic Approach*, 97-116, Idea Group Publishing

10. C. Cotta, E. Alba, R. Sagarna, and P. Larrañaga (2002). Adjusting weights in artificial neural networks using evolutionary algorithms. *Estimation of Distribution Algorithms. A New Tool for Evolutionary Computation*, 361-377, Kluwer Academic Publishers
11. J. Roure, P. Larrañaga, and R. Sangüesa (2002). An empirical comparison between K-means, GAs and EDAs in partitional clustering. *Estimation of Distribution Algorithms. A New Tool for Evolutionary Computation*, 343-360, Kluwer Academic Publishers
12. L.M. de Campos, J. A. Gámez, P. Larrañaga, S. Moral, and T. Romero (2002). Partial abductive inference in Bayesian networks: An empirical comparison between GAs and EDAs. *Estimation of Distribution Algorithms. A New Tool for Evolutionary Computation*, 323-341, Kluwer Academic Publishers
13. B. Sierra, E. A. Jiménez, I. Inza, P. Larrañaga, and J. Muruzábal (2002). Rule induction by estimation of distribution algorithms. *Estimation of Distribution Algorithms. A New Tool for Evolutionary Computation*, 313-322, Kluwer Academic Publishers
14. I. Inza, P. Larrañaga, and B. Sierra (2002). Feature weighting for nearest neighbor by estimation of distribution algorithms. *Estimation of Distribution Algorithms. A New Tool for Evolutionary Computation*, 295-311, Kluwer Academic Publishers
15. I. Inza, P. Larrañaga, and B. Sierra (2002). Feature subset selection by estimation of distribution algorithms. *Estimation of Distribution Algorithms. A New Tool for Evolutionary Computation*, 269-293, Kluwer Academic Publishers
16. E. Bengoetxea, P. Larrañaga, I. Bloch, and A. Perchant (2002). Solving graph matching with EDAs using a permutation-based representation. *Estimation of Distribution Algorithms. A New Tool for Evolutionary Computation*, 243-265, Kluwer Academic Publishers
17. V. Robles, P. de Miguel, and P. Larrañaga (2002). Solving the traveling salesman problem with EDAs. *Estimation of Distribution Algorithms. A New Tool for Evolutionary Computation*, 211-229, Kluwer Academic Publishers
18. R. Sagarna, and P. Larrañaga (2002). Solving the 0-1 knapsack problem with EDAs. *Estimation of Distribution Algorithms. A New Tool for Evolutionary Computation*, 195-209, Kluwer Academic Publishers
19. E. Bengoetxea, T. Miquélez, P. Larrañaga, and J. A. Lozano (2002). Experimental results in function optimization with EDAs in continuous domains. *Estimation of Distribution Algorithms. A New Tool for Evolutionary Computation*, 211-229, Kluwer Academic Publishers
20. C. González, J. A. Lozano, and P. Larrañaga (2002). Mathematical modeling of discrete estimation of distribution algorithms. *Estimation of Distribution Algorithms. A New Tool for Evolutionary Computation*, 147-163, Kluwer Academic Publishers
21. J. A. Lozano, R. Sagarna, and P. Larrañaga (2002). Parallel estimation of distribution algorithms. *Estimation of Distribution Algorithms. A New Tool for Evolutionary Computation*, 129-145, Kluwer Academic Publishers
22. J. M. Peña, J. A. Lozano, P. Larrañaga (2002). Benefits of data clustering in multimodal function optimization via EDAs. *Estimation of Distribution Algorithms. A New Tool for Evolutionary Computation*, 101-127, Kluwer Academic Publishers
23. P. Larrañaga (2002). A review on estimation of distribution algorithms. *Estimation of Distribution Algorithms. A New Tool for Evolutionary Computation*, 57-100, Kluwer Academic Publishers
24. P. Larrañaga, and C. M. H. Kuijpers (1999). Moral graph (triangulation of). *Encyclopedia of Statistical Sciences. Update Volume 3*, 462-464, John Wiley & Sons Ltd.
25. P. Larrañaga, C. M. H. Kuijpers, R. H. Murga, Y. Yurramendi, M. Graña, J. A. Lozano, X. Albizuri, A. d'Anjou, and F. J. Torrealdea (1996). Genetic algorithms applied to Bayesian networks. *Computational Learning and Probabilistic Reasoning*, 211-234, John Wiley & Sons Ltd.

LECTURE NOTES

1. H. Karshenas, R. Santana, C. Bielza, P. Larrañaga (2011). Multi-objective optimization with joint probabilistic modeling of objectives and variables. *Lecture Notes in Computer Science 6576*, 298-312, Springer
2. P. López-Cruz, C. Bielza, P. Larrañaga (2011). The von Mises naive Bayes classifier for angular data. *Lecture Notes in Artificial Intelligence, 7023*, 145-154, Springer
3. E. Bengoetxea, P. Larrañaga (2010). EDA-PSO. A hybrid paradigm combining estimation of distribution algorithms and particle swarm optimization. *Lecture Notes in Computer Science, 6234*, 416-423, Springer
4. R. Santana, C. Bielza, P. Larrañaga (2010). Synergies between network-based representation and probabilistic graphical models for classification, inference and optimization problems in neuroscience. *Lecture Notes in Artificial Intelligence, 6098*, 149-158, Springer
5. H. Borchani, P. Larrañaga, C. Bielza (2010). Mining concept-drifting data streams containing labeled and unlabeled instances. *Lecture Notes in Artificial Intelligence, 6096*, 531-540, Springer
6. R. Santana, C. Bielza, P. Larrañaga (2010). Using probabilistic dependencies improves the search of conductance-based compartmental neuron models. *Lecture Notes in Computer Science, 6023*, 170-181, Springer
7. E. Díaz, E. Ponce-de-León, P. Larrañaga, C. Bielza (2010). Probabilistic graphical Markov model learning: An adaptive strategy. *Lecture Notes in Artificial Intelligence, 5845*, 225-236, Springer
8. R. Santana, P. Larrañaga, J. A. Lozano (2009). Adding probabilistic dependencies to the search of protein side chain configurations using EDAs. *Lecture Notes in Computer Science 5199*, 1120-1129, Springer
9. R. Santana, P. Larrañaga, J. A. Lozano (2007). The role of a priori information in the minimization of contact potentials by means of estimation of distribution algorithms. *Lecture Notes in Computer Science 4447*, 247-257, Springer
10. R. Armañanzas, B. Calvo, I. Inza, P. Larrañaga, I. Bernales, A. Fullaondo, A. M. Zubiaga (2007). Bayesian classifiers with consensus gene selection: A case study in the systemic lupus erythematosus. *Lecture Notes in Mathematics in Industry*, 560-565, Springer
11. T. Miquelez, E. Bengoetxea, P. Larrañaga (2006). Evolutionary Bayesian classifier-based optimization in continuous domains. *Lecture Notes in Computer Science 4247*, 529-536, Springer
12. A. Pérez, P. Larrañaga, I. Inza (2006). Information theory and classification error in probabilistic classifiers. *Lecture Notes in Artificial Intelligence 4265*, 347-351, Springer
13. R. Santana, P. Larrañaga, J. A. Lozano (2006). Mixtures of Kikuchi approximations. *Lecture Notes in Artificial Intelligence 4212*, 365-376, Springer
14. R. Blanco, L. van der Gaag, I. Inza, and P. Larrañaga (2004). Selective classifiers can be too restrictive. A case study on oesophageal cancer. *Lectures Notes in Computer Science 3337*, 212-223, Springer
15. R. Santana, P. Larrañaga, and J. A. Lozano (2004). Protein folding in 2 dimension lattices with estimation of distribution algorithms. In *Lectures Notes in Computer Science 3337*, 388-398, Springer
16. J. M. Peña, V. Robles, P. Larrañaga, V. Herves, F. Rosales, and M. S. Pérez (2004). GA-EDA: hybrid evolutionary algorithm using genetic and estimation of distribution algorithms. In *Lectures Notes in Computer Science*, 361-371, Springer
17. V. Robles, P. Larrañaga, J. M. Peña, M. S. Pérez, E. Menasalvas, and V. Herves (2003). Learning semi naïve Bayes structures by estimation of distribution algorithms. In *Lecture Notes in Computer Science 2902*, 244-258, Springer

18. V. Robles, P. Larrañaga, J. M. Peña, E. Menasalvas, and M. S. Pérez (2003). Interval estimation naïve Bayes. *Lecture Notes in Computer Science*, 2810, 143-154, Springer
19. C. González, J. D. Rodríguez, J. A. Lozano, and P. Larrañaga (2003). Analysis of the univariate marginal distribution algorithm modeled by Markov chains. *Lecture Notes in Computer Science*, 2686, 510-517, Springer
20. V. Robles, P. Larrañaga, J. M. Peña, O. Marbán, J. Crespo, and M. S. Pérez (2003). Collaborative filtering using interval estimation naïve Bayes. *Lecture Notes in Artificial Intelligence*, 2663, 46-53, Springer
21. B. Sierra, I. Inza, and P. Larrañaga (2001). On applying supervised classification techniques in medicine. *Lecture Notes in Computer Sciences* 2199, 14-19, Springer
22. E. Bengoetxea, P. Larrañaga, I. Bloch, and A. Perchant (2001). Estimation of distribution algorithms: a new evolutionary computational approach for graph matching problems. *Lecture Notes in Computer Science* 2134, 454-468, Springer
23. B. Sierra, E. Lazkano, I. Inza, M. Merino, P. Larrañaga, and J. Quiroga (2001). Prototype selection and feature subset selection by estimation of distribution algorithms. A case study in the survival of cirrhotic patients treated with TIPS. In *Lecture Notes in Artificial Intelligence* 2101, 20-29, Springer
24. I. Inza, M. Merino, P. Larrañaga, J. Quiroga, B. Sierra, and M. Giralá (2000). Feature subset selection using probabilistic tree structures. A case study in the survival of cirrhotic patients treated with TIPS. *Lecture Notes in Computer Science* 1933, 97-100, Springer
25. B. Sierra, I. Inza, and P. Larrañaga (2000). Medical Bayes networks. *Lecture Notes in Computer Science* 1933, 4-14, Springer
26. B. Sierra, N. Serrano, P. Larrañaga, E. J. Plasencia, I. Inza, J. J. Jimenez, J. M. de la Rosa, and M. L. Mora (1999). Machine learning inspired approaches to combine standard medical measures at an intensive care unit. *Lecture Notes in Artificial Intelligence* 1620, 366-371, Springer
27. P. Larrañaga, M. J. Gallego, B. Sierra, L. Urkola, and M. J. Michelena (1997). Bayesian networks, rule induction and logistic regression in the prediction of the survival of women survival suffering from breast cancer. *Lecture Notes in Artificial Intelligence* 1323, 303-308, Springer
28. P. Larrañaga, B. Sierra, M. J. Gallego, M. J. Michelena, and J. M. Pikaza (1997). Learning Bayesian networks by genetic algorithms: A case study in the prediction of survival in malignant skin melanoma. *Lecture Notes in Artificial Intelligence* 1211, 261-272, Springer
29. P. Larrañaga, R. H. Murga, M. Poza, and C. M. H. Kuijpers (1996). Structure learning of Bayesian networks by hybrid genetic algorithms. *Lecture Notes in Statistics* 112, 165-174, Springer
30. P. Larrañaga, M. Graña, A. d'Anjou, and F. J. Torrealdea (1993). Genetic algorithms elitist probabilistic of degree 1, a generalization of simulated annealing. *Lecture Notes in Artificial Intelligence* 728, 208-217, Springer
31. P. Larrañaga, and Y. Yurramendi (1993). Structure learning approaches in causal probabilistic networks. *Lecture Notes in Computer Science* 747, 227-232, Springer

CONFERENCES PUBLICATIONS

1. R. Santana, C. Bielza, P. Larrañaga (2011). An ensemble of classifiers with multiple sources of information for MEG data. *Proceedings of the MEG Mind Reading Challenge of the International Conference on Artificial Neural Networks (ICANN-2011)*, 25-30
2. A. Ibáñez, P. Larrañaga, C. Bielza (2011). Predicting the h-Index with cost-sensitive naive Bayes. *Proceedings of the 11th International Conference on Intelligent Systems Design and Applications (ISDA-2011)*, 599-604, IEEE Publishers

3. H. Borchani, C. Bielza, and P. Larrañaga (2011). Learning multi-dimensional Bayesian network classifiers using Markov blankets: A case study in the prediction of HIV protease inhibitors. *Workshop on Probabilistic Problem Solving in Biomedicine (AIME2011)*, 29–40
4. D. Morales, C. Bielza, and P. Larrañaga (2011). Spatial clustering analysis of functional magnetic resonance imaging data. *Proceedings of the Fields-MITACS Conference on Mathematics of Medical Imaging*, poster abstract 1.4
5. J. H. Zaragoza, E. Sucar, E. F. Morales, C. Bielza, P. Larrañaga (2011). Bayesian chain classifiers for multidimensional classification. *Proceedings of Twenty-Second International Joint Conference on Artificial Intelligence (IJCAI-2011)*, 2192–2197, AAAI Press
6. R. Santana, H. Karshenas, C. Bielza, P. Larrañaga (2011). Quantitative genetics in multi-objective optimization algorithms: From useful insights to effective methods. *Proceedings of the 2011 Genetic and Evolutionary Conference (GECCO-2011)*, 91–92, ACM Digital Library
7. R. Santana, H. Karshenas, C. Bielza, P. Larrañaga (2011). Regularized k -order Markov models in EDAs. *Proceedings of the 2011 Genetic and Evolutionary Conference (GECCO-2011)*, 593–600, ACM Digital Library
8. R. Santana, C. Bielza, P. Larrañaga (2011). Affinity propagation enhanced by estimation of distribution algorithms. *Proceedings of the 2011 Genetic and Evolutionary Conference (GECCO-2011)*, 331–338, ACM Digital Library
9. R. Santana, C. Bielza, J. A. Lozano, P. Larrañaga (2009). Mining probabilistic models learned by EDAs in the optimization of multi-objective problems. *Proceedings of the 2009 Genetic and Evolutionary Conference (GECCO-2009)*, 445–452, ACM Digital Library
10. A. Pérez, P. Larrañaga, I. Inza (2005). Supervised classification with Gaussian networks. Filter and wrapper approaches. *Tendencias de la Minería de Datos en España*, 379–390, Gráficas Quintanilla
11. R. Armañanzas, B. Calvo, I. Inza, P. Larrañaga, I. Bernales, A. Fullaondo, A. M. Zubiaga (2005). Clasificadores Bayesianos con selección consensuada de genes en la predicción del lupus eritematoso sistémico. *Minería de Datos: Técnicas y Aplicaciones*, 107–136, Gráficas Quintanilla
12. G. Karciauskas, T. Kocka, F. Jensen, P. Larrañaga, J. A. Lozano (2004). Learning of latent class models by splitting and merging components. *Probabilistic Graphical Models 2004*
13. V. Robles, M. S. Pérez, V. Herves, J. M. Peña, P. Larrañaga (2003). Parallel stochastic search for protein secondary structure prediction. *Fifth International Conference on Parallel Processing and Applied Mathematics*, 1162–1169, Springer
14. V. Robles, P. Larrañaga, E. Menasalvas, M. S. Pérez, V. Herves (2003). Improvement of naïve Bayes collaborative filtering using interval estimation. *The 2003 IEEE/WIC International Conference on Web Intelligence*, 168–174, IEEE Computer Society
15. G. Santafé, J. A. Lozano, P. Larrañaga (2003). Fitting mixture models with estimation of distribution algorithms. *II Congreso Español sobre Metaheurísticas, Algoritmos Evolutivos y Bioinspirados 2003*, 232–236, Universidad de Oviedo
16. G. Santafé, J. A. Lozano, and P. Larrañaga (2003). Fitting mixture models with estimation of distribution algorithms. *Actas del II Congreso Español sobre Metaheurísticas, Algoritmos Evolutivos y Bioinspirados*, 232–236, Universidad de Oviedo
17. P. Larrañaga (2002). Learning Bayesian networks from data. Some applications in biomedicine. *15th European Conference on Artificial Intelligence. Workshop of Intelligent Data Analysis in Medicine and Pharmacology 2002*, 3–4
18. R. Blanco, I. Inza, P. Larrañaga (2002). Floating search methods in learning Bayesian networks. *First European Workshop on Probabilistic Graphical Models*, 9–16,

19. J.M. Peña, J.A. Lozano, P. Larrañaga (2002). Unsupervised learning of Bayesian networks via estimation of distribution algorithms. *First European Workshop in Probabilistic Graphical Models*, 144-151
20. Elvira Consortium (2002). Elvira: An environment for probabilistic graphical models. *First European Workshop in Probabilistic Graphical Models*, 222-230
21. P. Larrañaga, I. Inza, R. Blanco, A.J. Cerrolaza (2002). Filter vs. wrapper approaches in the selection of accurate genes on DNA microarray domains. *III Jornadas de Bioinformática*, 91-92
22. V. Robles, P. Larrañaga, J. M. Peña, M. S. Pérez (2002). Protein secondary structure prediction with naïve Bayes classifiers. *III Jornadas de Bioinformática*, 114-115
23. I. Inza, P. Larrañaga, R. Blanco, A. Cerrolaza (2002). Filter and wrapper gene selection procedures in DNA microarray domains. *VIII Iberoamerican Conference on Artificial Intelligence. Workshop BEIA, Bioinformatics and Artificial Intelligence*, 23-34, Copisteria Format
24. P. Larrañaga, E. Bengoetxea, J. A. Lozano, V. Robles, A. Mendiburu, P. de Miguel (2001). Searching for the best permutation with estimation of distribution algorithms. In *Seventeenth International Joint Conference on Artificial Intelligence. Workshop on Stochastic Search Algorithms*, 7-14
25. T. Miquélez, E. Bengoetxea, I. Morlán, and P. Larrañaga (2001). Obtención de filtros para restauración de imágenes por medio de algoritmos de estimación de distribuciones. *IX Conferencia de la Asociación Española para la Inteligencia Artificial*, 1145-1154, Servicio de Publicaciones de la Universidad de Oviedo
26. R. Blanco, P. Larrañaga, I. Inza, B. Sierra (2001). Selection of highly accurate genes for cancer classification by estimation of distribution algorithms. *European Conference on Artificial Intelligence in Medicine. Workshop on Bayesian Models in Medicine*, 29-34,
27. E. Bengoetxea, P. Larrañaga, I. Bloch, A. Perchant (2001). Image recognition with graph matching using estimation of distribution algorithms. *Proceedings of Medical Image Understanding and Analysis 2001*, 89-92
28. C. González, J. A. Lozano, P. Larrañaga (2001). The convergence behavior of the PBIL algorithm: A preliminary approach. *International Conference in Artificial Neural Nets and Genetic Algorithms*, 228-231, Springer
29. J. M. Peña, I. Iazarugaza, J. A. Lozano, E. Aldasoro, P. Larrañaga (2001). Geographical clustering of cancer incidence by means of Bayesian networks and conditional Gaussian networks. *Artificial Intelligence and Statistics 2001*, 266-271
30. J. A. Lozano, R. Sagarna, P. Larrañaga (2001). Parallel estimation of Bayesian networks algorithms. *Thrid International Symposium on Adaptive Systems*, 137-144
31. R. Blanco, I. Inza, P. Larrañaga (2001). Learning Bayesian networks from data by novel population-based stochastic search algorithms. *IX Conferencia de la Asociación Española para la Inteligencia Artificial*, 1095-1104, Servicio de Publicaciones de la Universidad de Oviedo
32. P. Larrañaga, R. Etzeberria, J. A. Lozano, and J. M. Peña (2000). Combinatorial optimization by learning and simulation of Bayesian networks. *Proceedings of the Sixteenth Conference on Uncertainty in Artificial Intelligence*, 343-352, Morgan Kaufmann
33. E. Bengoetxea, P. Larrañaga, I. Bloch, A. Perchant, C. Boeres (2000). Inexact graph matching using learning and simulation of Bayesian networks. An empirical comparison between different approaches with synthetic data. *Fourteenth European Conference on Artificial Intelligence. Workshop on Bayesian and Causal Networks: From Inference to Data Mining*
34. I. Inza, P. Larrañaga, B. Sierra (2000). Bayesian networks for feature subset selection. *Fourteenth European Conference on Artificial Intelligence. Workshop on Bayesian and Causal Networks: From Inference to Data Mining*

35. P. Larrañaga, R. Etxeberria, J. A. Lozano, J. M. Peña (2000). Optimization in continuous domains by learning and simulation of Gaussian networks. *2000 Genetic and Evolutionary Computation Conference Workshop Program*, 201-204, Springer
36. B. Sierra, N. Serrano, P. Larrañaga, E. Plasencia, I. Inza, J. J. Jimenez, J. M. de la Rosa, M. L. Mora (1999). Bayesian networks as consensed voting system in the construction of a multi-classifier. A case study using intensive care unit patients data. *Workshop in Computers in Anaesthesia and Intensive Care: Knowledge-Based Information Management*, 57-66
37. R. Etxeberria, P. Larrañaga (1999). Global optimization using Bayesian networks. *Second International Symposium on Artificial Intelligence*, 332-339
38. P. Larrañaga, R. Etxeberria, J. A. Lozano, B. Sierra, I. Inza, J. M. Peña (1999). A review of the co-operation between evolutionary computation and probabilistic graphical models. *Second Symposium on Artificial Intelligence*, 314-324
39. S. Dizdarevich, F. Lizarraga, P. Larrañaga, B. Sierra, and M. J. Gallego (1997). Statistical and machine learning methods in the prediction of bankruptcy. *III International Meeting on Artificial Intelligence in Accounting, Finance, and Tax*, 85-100, Papel Copy S. L.
40. A.I. Gonzalez, M. Graña, J.A. Lozano, and P. Larrañaga (1997). Experimental results of a Michigan-like evolutionary strategy for non-stationary clustering. *International Conference on Artificial Neural Nets and Genetic Algorithms*, 555-559, Springer
41. B. Sierra, and P. Larrañaga (1997). Searching for the optimal Bayesian network in classification tasks by genetic algorithms. *4th Workshop on Uncertainty Processing*, 144-155, Ediční oddělení VŠE
42. R. Etxeberria, P. Larrañaga, J. M. Pikaza (1997). Reducing Bayesian networks' complexity while learning from data. *Causal Models and Statistical Learning*, 151-168, UNICOM
43. J. A. Lozano, P. Larrañaga, M. Graña (1996). Partitional cluster analysis with genetic algorithms: searching for the number of clusters. *Fifth Conference of International Federation of Classification Societies. Data Science, Classification and Related Methods*, 251-252, Springer
44. P. Larrañaga, B. Sierra, M. J. Gallego, and M. J. Michelena (1996). Bayesian networks induced by genetic algorithms in the prediction of the survival of breast cancer. *International Conference on Intelligent Technologies in Human-Related Sciences*, 259-266, Secretariado de Publicaciones de la Universidad de León
45. P. Larrañaga, and M. Poza (1994). Structure learning of Bayesian networks by genetic algorithms. *Studies in Classification, Data Analysis, and Knowledge Organization: New Approaches in Classification and Data Analysis*, 300-307, Springer
46. P. Larrañaga (1993). Learning Bayesian network structures by an hybrid algorithm (genetic algorithm + simulated annealing). *4th Conference of the International Federation of Classification Societies*, 59-60, Springer

TECHNICAL REPORTS

1. R. Armañanzas, C. Bielza, P. Larrañaga, P. Martínez-Martín (2011). *Restating Parkinson's disease severity indices by means of non-motor criteria*. Technical Report TR:UPM-FI/DIA/2011-2, Universidad Politécnica de Madrid
2. H. Karshenas, R. Santana, C. Bielza, P. Larrañaga (2011). *Regularized model learning in estimation of distribution algorithms for continuous optimization problems*. Technical Report TR:UPM-FI/DIA/2011-1, Universidad Politécnica de Madrid
3. R. Santana, C. Bielza, P. Larrañaga (2010). *Network measures for re-using problem information in EDAs*. Technical Report TR:UPM-FI/DIA/2010-3, Universidad Politécnica de Madrid (2010)
4. P. López-Cruz, C. Bielza, P. Larrañaga, R. Benavides-Piccione, J. DeFelipe (2010). *Bayesian networks applied to the simulation and modelling of 3D basal dendritic trees from pyramidal neurons*. Technical Report TR:UPM-FI/DIA/2010-2, Universidad Politécnica de Madrid (2010)

5. C. Bielza, G. Li, P. Larrañaga (2010). *Multi-Dimensional classification with Bayesian networks*. Technical Report TR:UPM-FI/DIA/2010-1, Universidad Politécnica de Madrid (2010)
6. D. Vidaurre, C. Bielza, P. Larrañaga (2009). *Learning a $L1$ -regularized Gaussian Bayesian network in the equivalence class space*. Technical Report. UPM.FI/DIA/2009-2 (2009)
7. C. Bielza, J. A. Fernández del Pozo, P. Larrañaga, E. Bengoetxea (2009). *Multidimensional statistical analysis of the parameterization of a genetic algorithm for the optimal ordering of tables*. Technical Report. UPM.FI/DIA/2009-1 (2009)
8. R. Santana, C. Echegoyen, A. Mendiburu, C. Bielza, J. A. Lozano, P. Larrañaga, R. Armañanzas and S. Shakya (2009). *MATEDA: A suite of EDA programs in Matlab*. Technical Report EHU-KZAA-IK-2/09 (2009)
9. R. Santana, P. Larrañaga, J. A. Lozano (2009). *Learning factorizations in estimation of distribution algorithms using affinity propagation*. Technical Report EHU-KZAA-IK-1/08 (2009)
10. R. Santana, P. Larrañaga, J. A. Lozano (2005). *Properties of Kikuchi approximations constructed from clique based decompositions*. Technical Report EHU-KZAA-IK-2/05
11. G. Santafé, J. A. Lozano, P. Larrañaga (2004). *Full Bayesian model averaging of naive Bayes for clustering*. Technical Report EHU-KZAA-IK-3/04
12. G. Santafé, J. A. Lozano, P. Larrañaga (2004). *El algoritmo TM para clasificadores Bayesianos*. Technical Report EHU-KZAA-IK-2/04
13. T. Miquelez, E. Bengoetxea, and P. Larrañaga (2004). *Applying Bayesian classifiers to evolutionary computation*. Technical Report KAT-IK-04-01. Department of Architecture and Technology of Computers. University of the Basque Country
14. R. Blanco, I. Inza, and P. Larrañaga (2001). *Learning Bayesian networks structures by estimation of distribution algorithms. An empirical comparison among four initializations*. Technical Report EHU-KZAA-IK-2-01. Department of Computer Science and Artificial Intelligence. University of the Basque Country
15. E. Bengoetxea, P. Larrañaga, I. Bloch, A. Perchant, and C. Boeres (2001). *Inexact graph matching using learning and simulation of probabilistic graphical models*. Technical Report 2001D017. Ecole Nationale Supérieure des Télécommunications, Paris
16. I. Inza, P. Larrañaga, and B. Sierra (2000). *Feature weighting for nearest neighbor by estimation of Bayesian networks algorithms*. Technical Report EHU-KZAA-IK-3-00. Department of Computer Science and Artificial Intelligence. University of the Basque Country
17. J. A. Lozano, C. González, P. Larrañaga, and I. Inza (2000). *Analyzing the PBIL algorithm by means of discrete dynamical systems*. Technical Report EHU-KZAA-IK-2-00. Department of Computer Science and Artificial Intelligence. University of the Basque Country
18. B. Sierra, I. Inza, P. Larrañaga (2000). *Inteligencia computacional aplicada a la predicción del voto en encuestas electorales*. Technical Report EHU-KZAA-IK-1-00. Department of Computer Science and Artificial Intelligence. University of the Basque Country
19. P. Larrañaga, R. Etxeberria, J. A. Lozano, and J. M. Peña (1999). *Optimization by learning and simulation of Bayesian and Gaussian networks*. Technical Report EHU-KZAA-IK-4-99. Department of Computer Science and Artificial Intelligence. University of the Basque Country
20. C. González, J. A. Lozano, and P. Larrañaga (1999). *The convergence behavior of PBIL algorithm: a preliminar approach*. Technical Report EHU-KZAA-IK-3-99. Department of Computer Science and Artificial Intelligence. University of the Basque Country
21. I. Inza, P. Larrañaga, R. Etxeberria, and B. Sierra (1999). *Feature subset selection by Bayesian networks based optimization*. Technical Report EHU-KZAA-IK-2-99. Department of Computer Science and Artificial Intelligence. University of the Basque Country

22. I. Inza, M. Merino, P. Larrañaga, J. Quiroga, B. Sierra, and M. Giralda (1999). *Feature subset selection by population-based incremental learning. A case study in the survival of cirrhotic patients treated with TIPS*. Technical Report EHU-KZAA-IK-1-99. Department of Computer Science and Artificial Intelligence. University of the Basque Country
23. I. Inza, P. Larrañaga, B. Sierra, M. Niño (1998). *Combination of classifiers. A case study in oncology*. Technical Report EHU-KZAA-IK-1-98. Technical Report EHU-KZAA-IK-1-99. Department of Computer Science and Artificial Intelligence. University of the Basque Country
24. P. Larrañaga, M. Poza, J. A. Diego, and E. Arnaez (1994). *Ayuda al diagnóstico de la respuesta a un programa de rehabilitación de toxicómanos, a través de redes causales probabilísticas y árboles de clasificación inducidos por algoritmos genéticos*. Technical Report EHU-KZAA-IK-4-94. Department of Computer Science and Artificial Intelligence. University of the Basque Country
25. P. Larrañaga, C. M. H. Kuijpers, M. Poza, and R. Murga (1994). *Optimal decomposition of Bayesian networks by genetic algorithms*. Technical Report EHU-KZAA-IK-3-94. Department of Computer Science and Artificial Intelligence. University of the Basque Country
26. P. Larrañaga, C. M. H. Kuijpers, and R. Murga (1994). *Tackling the travelling salesman problem with evolutionary algorithms: representations and operators*. Technical Report EHU-KZAA-IK-2-94. Department of Computer Science and Artificial Intelligence. University of the Basque Country

AWARDS

1. Second position on the competition “MEG Mind Reading” on *PASCAL2 and the International Conference on Artificial Neural Networks*, Espoo (2011)
2. Best paper of the *International Society of Applied Intelligence (ISAI)*, Cordoba (2010)
3. First Position on the competition “Biomag Data Analysis Competition 2010” on *Multivariate Classification of MEG brain data*, Dubrovnik, Croacia (2010)
4. Best paper of the *Mexican International Conference on Artificial Intelligence*, Guanajuato, México (2009)
5. Best paper of the *III International Meeting on Artificial Intelligence in Accounting, Finance and Tax*, Huelva (1997)

C. RESEARCH PROJECTS

PUBLIC PROJECTS

1. *Spanish Network for the Advancement and Transference of Computational Intelligence*. Ministry of Economy, 2012-2012
2. *Spanish Network on Data Mining and Machine Learning*. Ministry of Science and Innovation, 2010-2012
3. *HBP - Human Brain Project*. FET Flagship Initiative Preparatory Actions, 2011-2011
4. *Data Mining with Probabilistic Graphical Models: New Algorithms and Applications*. Ministry of Science and Innovation, 2011-2013
5. *A Biomedical Virtual Lab for Researching Alzheimer Disease. A Framework based on Computational Intelligence*. Ministry of Science and Innovation, 2010-2011
6. *Multi-Dimensional Classifiers based on Probabilistic Graphical Models. Applications in Computer Vision*. Ministry of Science and Innovation, 2009-2010
7. *Cajal Blue Brain Project*. Ministry of Science and Innovation, 2008-2017
8. *Technologies for the Intelligent Universe of the Future*. Center for the Industrial Technological Development, 2008-2011

9. *Incremental Learning of Bayesian Networks with Data Streams*. Ministry of Foreign Affairs and Cooperation, 2008-2009
10. *CONSOLIDER: Multimodal Interaction in Pattern Recognition and Computer Vision*, Ministry of Education and Science, 2007-2012. Project Leader
11. *Computational Intelligence with Probabilistic Graphical Models: From Methodological Development to Efficient Implementations*, Basque Government, 2007-2012
12. *Assessing Quality of Individuals Prediction in Medical Decision Support Systems*. National Institutes of Health, 2007-2010
13. *Spanish Network on Computational Biomedicine*. Carlos III Institute of Health, 2007-2010
14. *Spanish Network on Data Mining and Machine Learning*. Ministry of Science and Technology, 2007-2007
15. *Application of Genomic and Proteomic to the Identification of Therapeutical Targets for Human Autoimmune Systematic Diseases*. Basque Government, 2005-2007
16. *Biomedical Informatics*. University of the Basque Country, 2005-2006. Project Leader
17. *Coordination and Articulation of Research, Development and Innovation based on Soft Computing*. Ministry of Education and Science, 2005-2006
18. *Computational Intelligence with Bayesian Networks, Gaussian Networks and Kikuchi Approximations*. Ministry of Education and Science, 2006-2008
19. *Spanish Network on Probabilistic Graphical Models and Applications*. Ministry of Education and Science, 2005-2006
20. *Methodological Advances and Applications of Estimation of Distribution Algorithms*. Basque Government, 2004-2005
21. *Spanish Net on Data Mining and Machine Learning*. Ministry of Science and Technology, 2005-2005
22. *Spanish Net on Pattern Recognition and Applications*. Ministry of Science and Technology, 2004-2005
23. *Scores for the Selection of Relevant Genes in DNA Microarrays*. Diputación Foral de Gipuzkoa, 2004-2004
24. *Grant for Research Groups*. University of the Basque Country, 2003-2005. Project leader
25. *Knowledge Discovery and Analysis in Genomic and Proteomic for the Development of Products and Services in Health and Life Quality*. Basque Government, 2003-2005
26. *Spanish Net on Data Mining and Machine Learning*. Ministry of Science and Technology, 2003-2004
27. *Spanish Net on Metaheuristics on Optimization*. Ministry of Science and Technology, 2003-2004
28. *Genetic Networks: Modelling the Interaction Between Genes by Means of Bayesian and Gaussian Networks*. Diputación Foral de Gipuzkoa, 2003-2003
29. *Application of Genomic and Proteomic to the Identification of Therapeutic Dianas in Human Autoimmun Diseases*. Basque Government, 2002-2004
30. *Modelling Gene Interaction by Means of Bayesian and Gaussian Networks*. Ministry of Health and Consum, 2002-2004. Project leader
31. *Learning of Probabilistic Graphical Models. Application to the Clustering of Data from Microarrays*. Ministry of Science and Technology, 2002-2004. Project leader
32. *Grant to Research Groups*. University of the Basque Country. 2001-2003. Project leader

33. *Recognizing Internal Structures of the Brain by Means of Methods Based on Fuzzy Logic, Bayesian Networks, Genetic Algorithms and Estimation of Distribution Algorithms*. Basque Government, 2001-2003. Project leader
34. *Automatic Generation of Cases for the Validation and Verification of Software by Means of Advanced Optimization Techniques*. Basque Government, 2001-2002
35. *Development of a System for the Meteorological Prediction*. Basque Government, 2001-2001
36. *Recognition of Internal Structures of the Brain with the Help of an Anatomical Atlas and Methodology Based on Graphs and Bayesian Networks*. Ministry of Education and Science, 2000-2001. Project leader
37. *Estimation of Distribution Algorithms in Combinatorial Optimization Problems*. University of the Basque Country, 2000-2000. Project leader
38. *A Parallel Approach to Combinatorial Optimization*. Basque Government, 1999-2000
39. *Automatic Updating of Postal Codes Using Heuristics Applied to Machine Learning and Pattern Recognition*. Diputación Foral of Guipuzcoa, Spain, 1998-1998
40. *Development of Software for Probabilistic Graphical Models*. Ministry of Education and Science, 1997-2000. Project leader
41. *Genetic Algorithms for the Induction of Intelligent Systems with Applications to Oncological Records in the Basque Country*. Basque Government, 1997-1999
42. *Solving the Vehicle Routing Problem with Combinatorial Optimization Heuristics*. Diputación Foral of Guipuzcoa, Spain, 1997-1997
43. *Predicting Enterprise Bankrupt Using Statistical and Artificial Intelligence Based Classification Techniques*. Diputación Foral of Guipuzcoa, Spain, 1997-1997. Project leader
44. *Structural Learning of Bayesian Networks for Classification*. University of the Basque Country, 1997-1997
45. *Cluster Analysis Applied to Market Segmentation*. Diputación Foral of Guipuzcoa, Spain, 1996-1996
46. *Comparison Between Statistical and Artificial Intelligence Methods for the Prediction of the Survival in Breast Cancer*. Diputación Foral of Guipuzcoa, Spain, 1996-1996. Project leader
47. *A Decision Systems based on Graphics, Hypertext and Probabilistic Causal Networks for the Acquisition, Updating of the Knowledge and Decision Making*. Diputación Foral of Guipuzcoa, Spain, 1996-1996
48. *Stochastic Methods and Models for Controlling Autonomous Systems: Stochastic Neural Networks, Bayesian Networks and Evolutionary Algorithms*. Basque Government, 1995-1996
49. *High Order Boltzman Machines for the Recognition of Optical Characters*. University of the Basque Country, 1995-1995
50. *Development, Implementation, and Validation of an Algorithm for Learning Bayesian Networks from Data*. Spanish Ministry of Health, 1994-1994
51. *Simulation and Structural Learning of Probabilistic Causal Networks. Application to Pediatrics*. Diputación Foral of Guipuzcoa, Spain, 1994-1994. Project leader
52. *Probabilistic Causal Networks and Sampling Methods Applied to Medical Domains*. Diputación Foral of Guipuzcoa, Spain, 1994-1994. Project leader
53. *Stochastic Methods for Classification and Learning: Neural Networks, Bayesian Networks and Classification Trees*. Basque Government, 1993-1994

PRIVATE PROJECTS

1. Abbott Products Operations AG. *Probabilistic Mapping PDQ-39/PDQ-8 to EQ-5D* (2011)
2. Atos Origin (P10-1015-100). *Modelos Gráficos Probabilistas Dinámicos y sus Aplicaciones* (2009–2011)
3. Produban (Banco Santander). *Minería de Datos y Geomarketing sobre Datos Financiero/Bancarios* (2009–2010)
4. Panda Security. *Adaptación de Classificadores en Detección de Software Malicioso* (2008)
5. Fundación Gaiker Centro Tecnológico. *Análisis Bioinformático de Microarrays* (2006)
6. Progenika Biopharma, S.A. *Creación de Modelos Estadísticos a Partir de Datos. Clínicos y Genéticos Provenientes de una Muestra de Enfermos con Colitis y Enfermedad de Crohn* (2006)
7. Panda Software S. L. *Asesoría Técnica en Minería de Datos y Reconocimiento de Patrones* (2005)
8. Panda Software S. L. *Análisis Estadístico* (2004)
9. Arvin Meritor. *Clustering Individuals on Tribologic and CAE Data* (2003)
10. MINORPLANET SYSTEMS S.A. *EVAOPTIM* (2001)
11. Vda. de Loinaz y Sobrinos de Mercader. *Desarrollo de Software para la Optimización de la Distribución de Combustibles* (1997)
12. Inguru Consultores. *Seguimiento de la Red de Vigilancia de la Calidad de las Aguas y del Estado Ambiental de los Ríos de la Comunidad Autónoma de Euskadi* (1997)
13. Prospektiker Erakundea. *Proyecto Habitat* (1994)
14. Asociación Proyecto Hombre. *Encuesta al Residente: Tipologías, Redes Bayesianas, Árboles de Clasificación* (1994)
15. Prospektiker Erakundea. *Vivienda. Iberdrola. Valencia* (1993)
16. Sociedad Cultural de Investigación Submarina. *Campaña Estival de Medición de Variables Biológicas en dos Zonas de la Costa de Guipuzcoa Próximas a Hondarriabia y Zumaia* (1993)
17. Prospektiker Erakundea. *Estudio Prospectivo y Estratégico del Consumo de Energía Eléctrica en la C.A.E. en la Perspectiva del Año 2005* (1992)
18. Asociación Proyecto Hombre. *Encuesta al Residente. Aplicación de Técnicas Multivariantes: Tipologías* (1992)
19. Siadeco. *Encuesta Dirigida a los Alumnos de 2º, 5º y 8º de E.G.B. del Modelo D* (1992)
20. Ikertalde. *Actualización del Censo de Establecimientos Comerciales en la C.A.P.V. y Elaboración del Informe sobre los Nuevos Comercios del País Vasco Correspondiente al Periodo 1984-1991* (1992)
21. Asociación Vasca de Enfermería. *Actitud de la Mujer ante la Autoexploración de Mamas y Genitales* (1991)
22. Siadeco. *Encuesta Realizada en Iparralde sobre el Euskara y el Francés* (1991)
23. Laboratorio de Sociología Jurídica. *Relación Administración de Justicia - Ciudadano* (1990)
24. Laboratorio de Sociología Jurídica. *El Ciudadano como Justiciable* (1990)
25. Laboratorio de Sociología Jurídica. *Encuesta de Personas con Experiencias en Juicios Civiles o Laborales* (1990)
26. Prospektiker Erakundea. *Estructura y Evolución de las Ocupaciones* (1989)

27. Prospektiker Erakundea. *Alumnos de Formación Profesional en Alternancia* (1989)
28. Siadeco. *La Problemática de la Mujer en Donostia* (1988)
29. Siadeco. *Irakaskuntza eta Berorren Etorkizuna Lea-Artibaiko Bailaran: Hizkuntz-plangintzarako Oinarriak* (1988)
30. Prospektiker Erakundea. *Estudio de las Necesidades de Formación Ocupacional a los Años 1989, 1990, 1991* (1988)
31. Siadeco. *El Euskara y el Mundo del Niño en Eibar* (1987)

D. TEACHING AND SUPERVISION

UNDERGRADUATE COURSES

Machine Learning, Information Systems, Mathematical Methods in Computer Sciences, Probabilistic Methods in Artificial Intelligence, Statistical Inference, Operational Research, Probability and Statistics, and Statistics

MASTER COURSES

Data Mining: Methods and Techniques, Bayesian Networks, Bayesian Reasoning with Graphical Models, Machine Learning

DOCTORATE COURSES

Bayesian Reasoning, Probabilistic Graphical Models in Bioinformatics, Learning of Bayesian Networks from Data, Introduction to Research, From Data to Knowledge, Probabilistic Graphical Models, Intelligent Systems Induced by Genetic Algorithms, Intelligent Systems in Molecular Biology, Intelligent Systems in Finances, Applications of Bayesian Networks, Stochastic Methods in Optimization, and Bayesian Networks

SUPERVISED PH. D. THESES

1. A. Pérez (2010). *Supervised Classification in Continuous Domains with Bayesian Networks*. Ph.D. in Computer Science. University of the Basque Country
2. T. Miquélez (2010). *Avances en Algoritmos de Estimación de Distribuciones. Alternativas en el Aprendizaje y Representación de Problemas*. Ph.D. in Computer Science. University of the Basque Country
3. R. Armañanzas (2009). *Consensus Policies to Solve Bioinformatic Problems Through Bayesian Network Classifiers and Estimation of Distribution Algorithms*. Ph.D. in Computer Science. University of the Basque Country. Awarded with the best Ph.D. thesis in Engineering in the University of the Basque Country
4. D. Morales (2008). *Modelos Gráficos Probabilísticos Aplicados a la Fecundación en Vitro*. Ph.D. in Computer Science. University of the Basque Country
5. B. Calvo (2008). *Positive Unlabelled Learning with Applications in Computational Biology*. Ph.D. in Computer Science. University of the Basque Country
6. G. Santafé (2008). *Advances on Supervised and Unsupervised Learning of Bayesian Networks Models. Applications to Population Genetics*. Ph.D. in Computer Science. University of the Basque Country
7. T. Romero (2007). *Algoritmos de Estimación de Distribuciones Aplicados a Problemas Combinatorios en Modelos Gráficos Probabilísticos*. Ph.D. in Computer Science. University of the Basque Country

8. C. González (2006). *Contributions on Theoretical Aspects of Estimation of Distribution Algorithms*. Ph.D. in Computer Science. University of the Basque Country
9. R. Santana (2006). *Advances in Probabilistic Graphical Models for Optimization and Learning. Applications in Protein Modelling*. Ph.D. in Computer Science. University of the Basque Country. Awarded with the best Ph.D. thesis in Engineering in the University of the Basque Country
10. R. Blanco (2005). *Learning Bayesian Networks from Data with Factorization and Classification Purposes. Applications in Biomedicine*. Ph.D. in Computer Science. University of the Basque Country. Awarded with the best Ph.D. thesis in Engineering in the University of the Basque Country
11. M. Merino (2004). *Predicción de Mortalidad Precoz tras Implantación Percutánea Intrahepática en Pacientes Cirróticos. Aplicación de Métodos de Clasificación Supervisada*. Ph.D. in Medicine. University of Navarra
12. V. Robles (2003). *Clasificación Supervisada basada en Redes Bayesianas. Aplicación en Biología Computacional*. Ph.D. in Computer Science. Polytechnical University of Madrid
13. E. Bengoetxea (2002). *Inexact Graph Matching Using Estimation of Distribution Algorithms*. Ph.D. in Computer Science. Ecole Nationale Supérieure de Télécommunications de Paris
14. I. Inza (2002). *Advances in Supervised Classification Based on Probabilistic Graphical Models*. Ph.D. in Computer Science. University of the Basque Country. 2002. Awarded with the best Ph.D. thesis in Engineering in the University of the Basque Country
15. J. M. Peña (2001). *On Unsupervised Learning of Bayesian Networks and Conditional Gaussian Networks*. Ph.D. in Computer Science. University of the Basque Country
16. B. Sierra (2000). *Aportaciones Metodológicas a la Clasificación Supervisada*. Ph.D. in Computer Science. University of the Basque Country. Awarded with the best Ph.D. thesis in Engineering in the University of the Basque Country
17. J. A. Lozano (1998). *Algoritmos Genéticos Aplicados a la Clasificación no Supervisada*. Ph.D. in Computer Science. University of the Basque Country. Awarded with the best Ph.D. thesis in Engineering in the University of the Basque Country

SUPERVISED MASTER THESES

1. M.F. Baguear (2011). *Morphological Study of Dendritic Spines*. Technical University of Madrid
2. P. López-Cruz (2010). *Simulación de Morfologías Dendríticas mediante Redes Bayesianas*. Technical University of Madrid
3. A. Ibáñez (2009). *Técnicas de Aprendizaje Automático Aplicadas a la Bibliometría*. Technical University of Madrid

SUPERVISED GRADUATE PROJECTS

1. M. Ratón (2008). *Optimización continua basada en algoritmos de estimación de regresión*. Technical University of Madrid
2. Y. Galdiano (2006). *Redes de coexpresión génica a partir de modelos gráficos probabilísticos*. University of the Basque Country
3. A. Díez (2006). *Multiclasificadores en el diagnóstico de cáncer a partir de datos de expresión génica*. University of the Basque Country
4. A. de Antonio (2006). *Alineamiento múltiple de secuencias por medio de algoritmos de estimación de distribuciones*. University of the Basque Country
5. A. Fernández (2005). *Clasificadores Bayesianos en la predicción del Alzheimer a partir de perfiles de expresión génica*. University of the Basque Country

6. F. Vincent (2004). *Analyse de signaux physiologiques*. École Nationale Supérieure des Télécommunications. Paris
7. B. Gil (2004). *Rellenando Quinielas con Clasificadores Bayesianos*. University of the Basque Country
8. I. Ezcurdia (2004). *Detección de Genes Asociados a Diferentes Tipos de Cáncer a Partir del Análisis de Datos de Microchips por Medio de Redes Bayesianas*. University of the Basque Country
9. A. Baranguán (2003). *Optimización de Clasificadores Bayesianos*. University of the Basque Country
10. O. Pérez (2003). *El Algoritmo LEM con Clasificadores Bayesianos*. University of the Basque Country
11. A. Gómez (2003). *Predicción de la Estructura Secundaria de las Proteínas. Combinación de Clasificadores*. University of the Basque Country
12. A. Cerroloza (2002). *Algoritmos Indirectos Discretos para la Selección de Variables en Clasificación Supervisada sobre Microarrays de ADN*. University of the Basque Country
13. E. de la Horra (2001). *www.campusdeportivo.com: Herramientas para Técnicos e Informes de Jugadores*. University of the Basque Country
14. E. Jiménez (2000). *Comparación Empírica entre Simulated Annealing, Algoritmos Genéticos y Algoritmos de Estimación de Distribuciones de Probabilidad en Problemas de Optimización Combinatorial*. University of the Basque Country
15. J. L. Cardoso (2000). *Comparación Empírica entre Algoritmos Genéticos y Algoritmos de Estimación de Distribuciones de Probabilidad en la Búsqueda de Teclados Óptimos*. University of the Basque Country
16. A. Martín (2000). *Algoritmos de Distribuciones de Probabilidad en Criptografía*. University of the Basque Country
17. I. Garate (1999). *Ikasketa Automatiko Bidezko Kinielen Betetzea*. University of the Basque Country
18. M. Niño (1998). *Nuevo Método de Combinación de Clasificadores de Aprendizaje Automático. Un Caso de Estudio en la Predicción de Bancarrota*. University of the Basque Country
19. S. Dizdarevic (1997). *Statistical and Machine Learning Methods in the Prediction of Corporate Failure*. University of the Basque Country

E. SERVICE TO THE ACADEMIC COMMUNITY

EDITOR OF PROCEEDINGS

1. P. Larrañaga, J. A. Lozano, J. M. Peña, and I. Inza (2003). *Proceedings of the ECML/PKDD - 2003 Workshop on Probabilistic Graphical Models for Classification*. Ruder Bošković Institute

EDITOR OF JOURNAL SPECIAL ISSUES

1. J. A. Lozano, Q. Zhang, P. Larrañaga (2009). Special issue in Evolutionary Algorithms based on Probabilistic Models. *IEEE Transactions on Evolutionary Computation*, Vol. 13, No. 6
2. P. Larrañaga, J. A. Lozano, J. M. Peña, and I. Inza (2005). Special issue in Probabilistic Graphical Models for Classification. *Machine Learning*, 59
3. J. A. Lozano, and P. Larrañaga (2005). Special issue in Estimation of Distribution Algorithms. *Evolutionary Computation*, 13(1)
4. P. Larrañaga, E. Menasalvas, J. M. Peña, and V. Robles (2003). Special issue in Data Mining in Genomics and Proteomics. *Artificial Intelligence in Medicine*, 31
5. P. Larrañaga, and J. A. Lozano (2002). Special issue in Synergies Between Probabilistic Graphical Models and Evolutionary Computation. *International Journal of Approximate Reasoning*, 31

DISSERTATION COMMITTEES

- M. Correa, Universidad Politécnica de Madrid (2010)
- I. Gurrutxaga, Universidad del País Vasco (2010)
- B. Arrieta, Universidad del País Vasco (2010)
- J. M. Maudes, Universidad de Burgos (2010)
- M. Vázquez, Universidad Complutense de Madrid (2010)
- K. Pichara, Pontificia Universidad Católica de Chile (2010)
- E.R.C. Morales, Universidad del País Vasco (2010)
- F. J. García, Universidad de Granada (2009)
- M. A. Antón, Universidad de Navarra (2009)
- M. Arias, UNED (2009)
- C. Garcia, Universidad de Granada (2008)
- A. Ibarguren, Universidad del País Vasco (2008)
- D. Salas, Universidad de Granada (2008)
- I. Flesch, Radboud University Nijmegen (2008)
- J. M. Martínez, Universidad del País Vasco (2008)
- A. Peñalver, Universidad de Alicante (2007)
- C. Rubio, Universidad de Granada (2007)
- L. de la Ossa, Universidad de Castilla-La Mancha (2007)
- M. García, Universidad de La Laguna (2007)
- R. Sagarna, Universidad del País Vasco (2007)
- V. Segura, Universidad de Navarra (2007)
- Marcel van Gerven, Radboud University Nijmegen (2007)
- J.A. Fernández del Pozo, Universidad Politécnica de Madrid (2006)
- F. Boto, Universidad del País Vasco (2006)
- G. Castillo, Universidad de Aveiro (2006)
- A. Mendiburu, Universidad del País Vasco (2006)
- J. M. Pérez, Universidad del País Vasco (2006)
- J. Rodríguez, Universidad del País Vasco (2006)
- G. Martínez, Universidad Autónoma de Madrid (2006)
- M. J. Flores, Universidad de Castilla La Mancha (2005)
- R. C. Romero, Universidad de Granada (2005)
- J. Bacardit, Universitat Ramon Llull (2005)
- J. L. Sevilla, Universidad de Navarra (2005)
- D. Monett, Humboldt University Berlin (2004)

- J. R. Cano, Universidad de Granada (2004)
- J. J. Rodriguez, Universidad de Valladolid (2004)
- J. Roure, Universitat Politècnica de Catalunya (2004)
- Ana M. González, Universidad Autónoma de Madrid (2004)
- J. Cerquides, Universitat Politècnica de Catalunya (2003)
- R. Rumí, Universidad de Almería (2003)
- J. T. Fernández, Universidad de Murcia (2003)
- P. Bosman, University of Utrecht (2003)
- J. Díez, Universidad de Oviedo (2003)
- E. Bengoetxea, Ecole Nationale Supérieure de Télécommunications, Paris (2002)
- A. D. Pascual, Universidad Autónoma de Madrid (2001)
- E. Bernadó, Universitat Ramon Llull (2001)
- J. M. Puerta, Universidad de Granada (2001)
- I. Rodríguez, Universidad de La Laguna (2000)
- S. Acid, Universidad de Granada (1999)
- J. A. Gámez, Universidad de Granada (1998)
- A. Muñoz, Universidad Politécnica de Valencia (1997)
- M. Lozano, Universidad de Granada (1996)
- A. Lekuona, Universidad de Zaragoza (1996)

INVITED SPEAKER IN UNIVERSITIES

- Chile: Pontificia Universidad Católica de Chile
- Czech Republic: University of Economics
- Denmark: University of Aalborg
- Germany: Fraunhofer Institute
- India: Indian Institute of Science
- Portugal: Aveiro University
- Spain: University of Valladolid, University of La Laguna, University of Rey Juan Carlos, University of Carlos III of Madrid, Polytechnical University of Madrid, University of Málaga, Autonomous University of Madrid, Spanish Biotechnology National Center, University of Granada
- South Korea: Seoul National University
- The Netherlands: University of Utrecht, Nijmegen University
- Tunisia: Tunis University
- United States of America: Harvard University, Massachusetts Institute of Technology, Pittsburgh University
- United Kingdom: Essex University

JOURNAL REFEREE:

- ACM Computing Surveys
- Applied Artificial Intelligence
- Artificial Intelligence in Medicine
- Bioinformatics
- BMC Bioinformatics
- Complexity
- Computación y Sistemas
- Computational Statistics
- Computational Statistics and Data Analysis
- Computers in Biology and Medicine
- Discrete Applied Mathematics
- Electronic Transactions on Artificial Intelligence
- Engineering Applications of Artificial Intelligence
- Engineering Computations: International Journal for Computer-Aided Engineering and Software
- European Journal of Operational Research
- Evolutionary Computation
- Genetic Programming and Evolvable Machines
- Journal of Artificial Intelligence Research
- Journal of Biomedical Informatics
- Journal of Heuristics
- Journal of Machine Learning Research
- Journal of Mathematical Modelling
- Journal of Parallel and Distributed Computing
- IEEE/ACM Transactions on Computational Biology and Bioinformatics
- IEEE Transactions on Evolutionary Computation
- IEEE Transactions on Information Technology in Biomedicine
- IEEE Transactions on Knowledge and Data Engineering
- IEEE Transactions on Pattern Analysis and Machine Intelligence
- IEEE Transactions on Systems, Man, and Cybernetics
- Information Processing and Management
- Information Sciences
- Inteligencia Artificial. Revista Iberoamericana de Inteligencia Artificial
- International Journal of Approximate Reasoning
- International Journal of Computer Mathematics
- International Journal of Electronic Power and Energy Systems

- International Journal of Intelligent Systems
- International Journal of Hybrid Intelligent Systems
- International Journal of Uncertainty, Fuzziness and Knowledge-Based Systems
- International Journal on Artificial Intelligence Tools
- Medical, Biological Engineering and Computing
- Neurocomputing
- Pattern Analysis and Applications
- Pattern Recognition
- Pattern Recognition Letters
- Soft Computing
- Zentralblatt MATH

PLENARY TALKS IN CONFERENCES

- Probabilistic Graphical Models in Europe (PGM), Granada (2012)
- A Bridge Between Probability, Set Oriented Numerics and evolutionary Computation, (EVOLVE), Mexico (2012)
- IEEE World Congress on Computational Intelligence (WCCI), Barcelona (2010)
- Simposio Argentino de Inteligencia Artificial (ASAI), Buenos Aires (2010)
- Tercer Congreso Internacional de Computación Evolutiva, Aguascalientes (2007)
- Mini Euro Conference on Variable Neighborhood Search, Tenerife (2005)
- X Conference of the Spanish Artificial Intelligence Association, Gijón (2003)
- International Summer School on Metaheuristics, Tenerife (2003)
- Mexican Conference on Artificial Intelligence, Merida (2002)
- Intelligent Data Analysis in Medicine and Pharmacology in the European Conference on Artificial Intelligence (ECAI2002), Lyon (2002)

ORGANIZER OF CONGRESS AND SCIENTIFIC EVENTS

1. *Co-Chair of the Congress on Evolutionary Conference, CEC2010 Informáticas*, Barcelona, (2010)
2. *IX Jornada de Seguimiento de Proyectos en Tecnologías Informáticas*, Madrid (2010)
3. *VIII Jornada de Seguimiento de Proyectos en Tecnologías Informáticas*, Madrid (2009)
4. *VII Jornada de Seguimiento de Proyectos en Tecnologías Informáticas*, Zaragoza (2007)
5. *Intelligent Data Analysis 2005*, Madrid (2005)
6. *14th European Conference on Machine Learning – 7th European Conference on Principles and Practice of Knowledge Discovery. Workshop on Probabilistic Graphical Models for Classification*, Cavtat–Dubrovnik (2003)
7. *International Symposium on Adaptive Systems: Evolutionary Computation and Probabilistic Graphical Models*, La Habana (2001)

PROGRAM COMMITTEE MEMBER

1. Prestigious Applications of Intelligent Systems in the European Conference on Artificial Intelligence (ECAI2012), Montpellier, 2012
2. IEEE Word Congress on Computational Intelligence (WCCI2012), Brisbane, 2012
3. Genetic and Evolutionary Conference (GECCO2012), Atlanta, 2012
4. First International Conference on Pattern Recognition Applications and Methods (ICPRAM2012), Algarve, 2012
5. Sixth European Workshop on Probabilistic Graphical Models (PGM'12), Granada, 2012
6. Conferencia de la Asociación Española de Inteligencia Artificial, CAEPIA2011, San Cristóbal de La Laguna, 2011
7. Probabilistic Problem Solving in Biomedicine in the 13th Conference on Artificial Intelligence in Medicine (AIME2011), Bled, 2011
8. Genetic and Evolutionary Conference (GECCO2011), Dublin, 2011
9. 26th Conference on Uncertainty in Artificial Intelligence (UAI-2011), Barcelona, 2011
10. Intelligent Data Analysis Conference, IDA2011, Porto, 2011
11. International Joint Conference on Artificial Intelligence, IJCAI2011, Barcelona, 2011
12. 23rd International Conference on Industrial, Engineering & Other Applications of Applied Intelligent Systems (IEA-AIE 2010). Special Session on "New Frontiers in Data Analysis, Optimization and Visualization for Bioinformatics and Neuroscience", Córdoba, 2010
13. 26th Conference on Uncertainty in Artificial Intelligence (UAI-2010), Catalina Island (California, EEUU), 2010
14. Fifth European Workshop on Probabilistic Graphical Models (PGM'10), Helsinki (Finlandia), 2010
15. 13th International Conference on Discovery Science (DS-2010), Canberra (Australia), 2010
16. ASAI 2010 Simposio Argentino de Inteligencia Artificial, Buenos Aires, 2010
17. 27th International Conference on Machine Learning, ICML2010, Haifa, 2010 Intelligent Data Analysis, IDA2010, Tucson (Arizona), 2010
18. 13th International Conference on Information Processing and management of Uncertainty in Knowledge-Based Systems, Dortmund, 2010
19. European Conference on Machine Learning, ECML2010, Barcelona, 2010
20. 20th Brazilian Symposium on Artificial Intelligence, SBIA2010, Sao Bernardo do Campo, 2010
21. Congreso Español sobre Metaheurísticas, Algoritmos Evolutivos y Bioinspirados, MAEB2010, Valencia, 2010
22. 14th Pacific-Asia Conference on Knowledge Discovery and Data Mining, PAKDD2010, Hyderabad, 2010
23. Congress on Evolutionary Computation, CEC2010, Barcelona, 2010
24. 12th Conference on Artificial Intelligence in Medicine, AIME2009, Verona, 2009
25. Congress on Evolutionary Computation, CEC2009, Trondheim, 2009
26. 22nd International Florida Artificial Intelligence Research Society Conference, FLAIRS-22, Sanibel Island, 2009
27. Genetic and Evolutionary Computation Conference, GECCO2009, Montreal, 2009

28. Conferencia de la Asociación Española de Inteligencia Artificial, CAEPIA2009, Sevilla, 2009
29. Discovery Science, DS2009, Porto, 2009
30. Mexican International Conference on Artificial Intelligence, MICAI2009, Guanajuato, 2009
31. International Conference on Adaptive and Natural Computing Algorithms, ICANNGA2009, Kuopio, 2009
32. Intelligent Data Analysis, IDA2009, Lyon, 2009
33. European Conference on Symbolic and Quantitative Approaches to Reasoning with Uncertainty, ECSQARU2009, Verona, 2009
34. FLAIRS Conference, FLAIRS2009, Sanibel Island, 2009
35. Congreso Español sobre Metaheurísticas, Algoritmos Evolutivos y Bioinspirados, MAEB2009, Málaga, 2009
36. Asian Conference on Machine Learning, ACML2009, Nanjing, 2009
37. International Joint Conference on Artificial Intelligence, IJCAI2009, Pasadena, 2009
38. Genetic and Evolutionary Computation Conference, GECCO2008, Atlanta, 2008
39. IEEE World Congress on Computational Intelligence, WCCI2008, Hong Kong, 2008
40. IV International Symposium on Applications of Modelling as an Innovative Technology in the Agri-Food Chain, MODEL-IT2008, Madrid, 2008
41. 8th International Conference on Hybrid Intelligent Systems, HIS2008, Barcelona, 2008
42. International Conference on Machine Learning, ICML2008, Helsinki, 2008
43. European Conference on Artificial Intelligence, ECAI2008, Patras, 2008
44. Parallel Problem Solving from Nature, PPSN2008, Dortmund, 2008
45. International Conference on Adaptive and Natural Computing Algorithms, ICANNGA2009, Kuopio, 2009
46. Intelligent Data Analysis in Medicine and Pharmacology, IDAMAP2008, Washington, 2008
47. Feature Selection in Data Mining and Knowledge Discovery, FSDM2008, Antwerp, 2008
48. Artificial Intelligence in Medicine, AIME2007, Amsterdam, 2007
49. International Conference on Artificial Intelligence and Applications, AIA 2007, Innsbruck, 2007
50. International Conference on Adaptive and Natural Computing Algorithms, ICANNGA 2007, Warsaw, 2007
51. European Conference on Symbolic and Quantitative Approaches to Reasoning and Uncertainty, ECSQARU2007, Hammamet, 2007
52. International Conference on Natural Computation, ICNC2007, Haikon, 2007
53. Conferencia de la Asociación Española para la Inteligencia Artificial, Salamanca, 2007
54. European Conference on Machine Learning (Area Chair), ECML-PKDD2007, Warsaw, 2007
55. Intelligent Data Analysis in bioMedicine and Pharmacology, Amsterdam, 2007
56. Genetic Algorithms and Evolutionary Computation, GECCO2007, Londres, 2007
57. Data Warehousing and OLAP, DAWAK2007, Regensburg, 2007

58. Uncertainty in Artificial Intelligence, UAI2007, Vancouver, 2007
59. Intelligent Data Analysis, IDA2007, Ljubljana, 2007
60. IEEE Congress on Evolutionary Computation, CEC2007, Singapore, 2007
61. Jornadas de Algoritmos Evolutivos y Metaheurísticas, JAEM2007, Zaragoza, 2007
62. Intelligent Data Analysis in Biomedicine and Pharmacology, IDAMAP2006, Verona, 2006
63. Genetic and Evolutionary Computation Conference, GECCO2006, Seattle, 2006
64. Congress on Evolutionary Computation, CEC2006, Vancouver, 2006
65. European Conference on Artificial Intelligence, ECAI2006, Italia, 2006
66. Data Warehousing and Knowledge Discovery, DaWaK2006, Krakow, 2006
67. European Conference on Machine Learning, ECML-PKDD2006, Berlin, 2006
68. Probabilistic Graphical Models, PGM2006, Praga, 2006
69. 7th International Symposium on Biological and Medical Data Analysis, Thessaloniki, 2006
70. Non-Darwinian Evolutionary Computation Special Track at the 18th International Conference on Tools with Artificial Intelligence, ICTAI 2006, Washington, 2006
71. Mini Euro Conference on Variable Neighborhood Search, Tenerife, 2005
72. International Symposium on Biological and Medical Data Analysis, ISBMDA2005, Aveiro, 2005
73. Cuarto Congreso Español de Metaheurísticas, Algoritmos Evolutivos y Bioinspirados, Granada, 2005
74. ICMI 2005, Tunes, 2005
75. Conference on Evolutionary Computation, CEC2005, Edinburgh, 2005
76. Genetic and Evolutionary Computation, GECCO2005, Washington, 2005
77. International Conference on Machine Learning. Workshop on Ontology Learning, ICML2005, Bonn, 2005
78. Mexican International Conference on Artificial Intelligence, MICAI2005, Monterrey, 2005
79. 7th International Conference on Adaptive and Natural Computing Algorithms, ICANNGA2005, Coimbra, 2005
80. Segundo Congreso Mexicano de Computación Evolutiva, COMCEV2005, Aguascalientes, 2005
81. Intelligent Data Analysis, Madrid, 2005
82. International Symposium on Biological and Medical Data Analysis, ISBMDA2005, Aveiro, 2005
83. Cuarto Congreso Español de Metaheurísticas, Algoritmos Evolutivos y Bioinspirados, MAEB2005, Granada, 2005
84. ICMI 2005, Tunes, 2005
85. Conference on Evolutionary Computation, CEC2005, Edinburgh, 2005
86. Genetic and Evolutionary Computation, GECCO2005, Washington, 2005
87. International Conference on Machine Learning. Workshop on Ontology Learning, ICML2005, Bonn, 2005
88. Mexican International Conference on Artificial Intelligence, MICAI2005, Monterrey, 2005

89. 7th International Conference on Adaptive and Natural Computing Algorithms, ICANNGA2005, Coimbra, 2005
90. Segundo Congreso Mexicano de Computación Evolutiva, AguasCalientes, 2005
91. Mini Euro Conference on Variable Neighborhood Search, Tenerife, 2005
92. European Conference on Symbolic and Quantitative Approach to Reasoning and Uncertainty, EC-SQARU2005, Barcelona, 2005
93. European Conference on Computational Biology, ECCB2005, Madrid, 2005
94. Fifth International Conference on Artificial Neural Nets and Genetic Algorithms, ICANNGA2005, Coimbra, 2005
95. V Annual Spanish Bioinformatics Conference, Barcelona, 2004
96. Uncertainty in Artificial Intelligence, UAI2004, Banff, 2004
97. First Iberoamerican Workshop on Machine Learning for Scientific Data Analysis, Puebla, 2004
98. Iberoamerican Conference on Artificial Intelligence, IBEARMIA2004, Puebla, 2004
99. Information Processing and Management Uncertainty, IPMU2004, Perugia, 2004
100. PPSNVIII Parallel Problem Solving From Nature, Birmingham, 2004
101. European Conference on Artificial Intelligence, ECAI2004, Valencia, 2004
102. Tercer Congreso Español de Metaheurísticas, Algoritmos Evolutivos y Bioinspirados, Cordoba, 2004
103. Genetic and Evolutionary Conference, GECCO2004, Seattle, 2004
104. Second European Workshop on Probabilistic Graphical Models, PGM2004, Leiden, 2004
105. Mexican International Conference on Artificial Intelligence, MICAI2004, Morelia, 2004
106. International Symposium on Medical Data Analysis, ISMDA2003, Berlin, 2003
107. International Joint Conference on Artificial Intelligence, IJCAI2003, Acapulco, 2003
108. Genetic and Evolutionary Conference, GECCO2003, Chicago, 2003
109. Ninth European Conference on Artificial Intelligence in Medicine 2003. Joint Workshop Intelligent Data Analysis in Medicine and Pharmacology 2003 and Knowledge-Based Information Management in Anaesthesia and Intensive Care 2003, Cyprus, 2003
110. Segundo Congreso Español de Metaheurísticas, Algoritmos Evolutivos y Bioinspirados, Gijón, 2003
111. Primer Congreso Mexicano de Computación Evolutiva, COMCEV2003, Guanajuato, 2003
112. Fifth International Conference on Artificial Neural Nets and Genetic Algorithms, ICANNGA2003, Rhoen, 2003
113. First European Workshop on Probabilistic Graphical Models, PGM2002, Cuenca, 2002
114. PPSNVII Parallel Problem Solving From Nature, Granada, 2002
115. 15th European Conference on Artificial Intelligence. Workshop of Intelligent Data Analysis in Medicine and Pharmacology, IDAMAP2002, Lyon, 2002
116. Mexican International Conference on Artificial Intelligence, MICAI2002, Mérida, 2002
117. Congreso Español de Algoritmos Evolutivos y Bioinspirados, Mérida, 2002
118. Optimization by Building and Using Probabilistic Models, GECCO2001, San Francisco, 2001

119. Fourteenth European Conference on Artificial Intelligence in Medicine. Workshop on Bayesian Models in Medicine, Cascais, 2001
120. International Symposium on Medical Data Analysis, ISMDA2001, Madrid, 2001
121. International Symposium on Adaptive Systems, La Habana, 2001
122. International Conference in Machine Learning, ICML2001, Seattle, 2001
123. IX Conferencia de la Asociación Española de Inteligencia Artificial, CAEPIA2001, Gijón, 2001
124. IX Symposium Nacional de Reconocimiento de Formas y Análisis de Imágenes, Castellón de la Plana, 2001
125. International Conference on Artificial Neural Nets and Genetic Algorithms, ICANNGA2001, Praga, 2001
126. Optimization by Building and Using Probabilistic Models, GECCO2000, Las Vegas, 2000
127. International Symposium on Medical Data Analysis, ISMDA2000, Frankfurt, 2000
128. Fourteenth European Conference on Artificial Intelligence, ECAI2000, Berlin, 2000
129. 8th International Conference on Information Processing and Management of Uncertainty in Knowledge Based Systems, Madrid, 2000
130. VIII Conferencia de la Asociación Española para la Inteligencia Artificial, Murcia, 1999
131. Fourth International Conference on Artificial Neural Nets and Genetic Algorithms, Portorož, 1999
132. IV Jornadas de Informática, Las Palmas de Gran Canaria, 1998
133. Third International Conference on Artificial Neural Nets and Genetic Algorithms, Norwich, 1997

SESSION CHAIR OF CONFERENCES

1. Memetic, Multimeme, and Hybrid Algorithms in *Congress on Evolutionary Computation*, Barcelona (2010)
2. Applications in the *Fifth European Workshop on Probabilistic Graphical Models*, Helsinki (2010)
3. Soft Computing in the *Indo-Spain Workshop on Information and Communication Technology*, Bangalore (2010)
4. Evolutionary Algorithms Based on Probabilistic Models in the *Congress on Evolutionary Computation*, Seattle (2006)
5. Algoritmos Evolutivos: Fundamentos II in the *MAEB*, Granada (2005)
6. Bayesian Statistics in the *European Conference on Machine Learning*, Porto (2005)
7. Algorithms in the *4th European Conference on Computational Biology*, Madrid (2005)
8. Computación Evolutiva in the *X Conferencia de la Asociación Española de Inteligencia Artificial*, San Sebastián (2003)
9. Machine Learning II in the *VIII Iberoamerican Conference on Artificial Intelligence*, Seville (2002)
10. Learning in Graphical Models in the *First European Workshop in Probabilistic Graphical Models*, Cuenca (2002)
11. Machine Learning in the *Second International Symposium on Medical Data Analysis*, Madrid (2001)
12. Computación Evolutiva in the *IX Conferencia de la Asociación Española para la Inteligencia Artificial*, Gijón (2001)

TUTORIALS

- XIV Conference of the Spanish Artificial Intelligence Association, Tenerife (2011)
- Discovery Science, Porto (2010)
- Conferencia Española de Informática, Valencia (2010)
- Congress on Evolutionary Computation, Edinburgh 2005
- Congress on Evolutionary Computation, Canberra 2003
- VIII Iberoamerican Conference on Artificial Intelligence, Seville 2002
- Parallel Problem Solving from Nature VII, Granada (2002)
- Mexican International Conference on Artificial Intelligence, Merida (2002)
- IX Conference of the Spanish Artificial Intelligence Association, Gijón (2001)
- International Symposium on Adaptive Systems. Evolutionary Computation and Probabilistic Graphical Models, Havana (2001)
- Parallel Problem Solving from Nature VI, Paris (2000)

MEMBER OF EVALUATING COMMITTEES

1. *ICREA Academia*, Barcelona
2. *Junta de Andalucía*, Córdoba
3. *Gobierno de Castilla y León*, Valladolid
4. *Gobierno de Aragón*, Zaragoza
5. *Generalitat Valenciana*, Valencia
6. *Ruder Bošković*, Zagreb
7. *Austrian Science Fund*, Viena
8. *Comité de Evaluadores de Proyectos en Tecnologías de la Información*, Spanish Ministry of Science and Technology, Madrid
9. *European Coordinating Committee for Artificial Intelligence*, European Conference on Artificial Intelligence, Edimburgh
10. *Fundación Séneca*, Murcia
11. *Agencia Nacional de Evaluación y Prospectiva*, Madrid
12. *Council of Physical Sciences of NWO (Computer Science)*, Netherlands Organization for Scientific Research, La Haya

MANAGING

- Academic Secretary of the Computer Science School of the University of the Basque Country (1988–1991)
- Expert Manager of Computer Technology area, Deputy Directorate of research projects, of the Spanish Ministry of Science and Innovation (2007–2010)
- Member of the Committee for the Evaluation of the Research Activities of the University Professors, Spanish Ministry of Education (2010–2011)