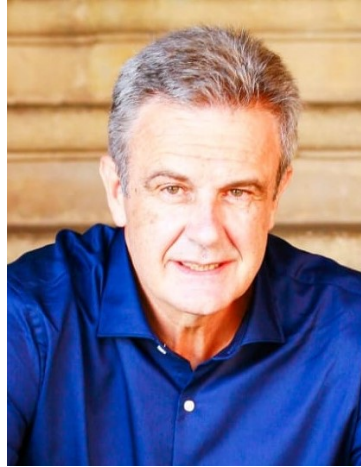


## PROF. PEDRO LARRAÑAGA



### A. GENERAL INFORMATION

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#### PERSONAL INFORMATION

Name:	Pedro Larrañaga
Birthdate:	June 4, 1958
Nationality:	Spanish
Address:	Department of Artificial Intelligence Technical University of Madrid Campus de Montegancedo, s/n 28660 Boadilla del Monte, Madrid, Spain
Telephone:	690 729 622
E-mail:	<a href="mailto:pedro.larranaga@fi.upm.es">pedro.larranaga@fi.upm.es</a>
Url:	<a href="http://cig.fi.upm.es/CIGmembers/pedro-larranaga">http://cig.fi.upm.es/CIGmembers/pedro-larranaga</a>

#### ACADEMIC POSITIONS

- Director of the ELLIS Unit Madrid (2022-2024)
- Leader of the Computational Intelligence Group since its foundation in 2010
- Full Professor at the Department of Artificial Intelligence, Technical University of Madrid, Spain (since 2007)
- Full 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)
- Leader 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)
- Lecturer 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

## OTHERS

- Six research periods (*sexenios*) awarded by the Ministry of Education, Culture and Sports
- Six teaching periods (*quinquenios*) awarded by the Technical University of Madrid
- (Unique) Knowledge transfer and innovation period awarded by the Ministry of Science, Innovation and Universities

## 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), *neuroscience* (supervised and unsupervised classification of neurons, early diagnostics methods in Parkinson and Alzheimer diseases, spatial distributions of synapsis, brain computer interface), *machine learning in industrie 4.0* (anomaly detection, predictive maintenance, real time diagnosis)

## THE CV IN NUMBERS (01 MARCH 2025)

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### PUBLICATION RECORD

- Books: 6
- Edited Books: 3
- Journal Papers (ISI Web of Knowledge): 203
- Journal Papers (Non in ISI Web of Knowledge): 39
- Book Chapters: 36
- Lecture Notes: 47
- Conferences Publications: 97
- Technical Reports: 43

### RESEARCH PROJECTS

- Public Research Projects: 79
- Private Research Projects: 58

### TEACHING AND SUPERVISION

- Supervised Ph. D. Theses: 36
- Supervised Master Theses: 68
- Supervised Graduate Projects: 25

### SERVICE TO THE ACADEMIC COMMUNITY

- Editorial Board: 3
- Editor of Proceedings: 1
- Editor of Journal Special Issues: 6
- Journal Referee: in 113 different journals
- Plenary Talks in Conferences: 32
- Organizer of Congress and Scientific Events: 16
- Program Committee Member: 179
- Session Chair of Conferences: 18
- Tutorials: 14
- PhD Dissertation Committees: 82
- Member of Committees-Panels Evaluating Projects and Research Careers: 39
- Software Registration: 1
- Patents: 3

### CITATIONS AND *h*-INDEX

- Included in the list of the World Top 2 % Most Cited Scientists in 2019, 2020, 2021, 2022, 2023, 2024, a prestigious ranking done by the Stanford University
- Web of Science  
Citations: 12,664  
*h*-index: 45
- Scopus  
Citations: 14,523  
*h*-index: 48
- Google Scholar  
Citations: 30,783  
*h*-index: 69

## B. PUBLICATION RECORD

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### BOOKS

1. C. Bielza, P. Larrañaga (2021). *Data Driven Computational Neuroscience*. Cambridge University Press
2. P. Larrañaga, D. Atienza, J. Diaz-Rojo, C. Puerto-Santana, A. Ogbechie, C. Bielza (2018). *Industrial Applications of Machine Learning*. CRC Press (Chinese version in 2023)
3. 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.
4. J. R. Aizpurua, X. Mendizabal, I. Rodriguez, P. Larrañaga, I. Azkune, J. Etxeberria (1985). *Matematika. Batxilergo Balioaniztun Bateratua 2*. Elkar
5. M. Martinez, X. Mendizabal, I. Rodriguez, I. Eguren, P. Larrañaga, R. Emparantza, J. R. Aizpurua (1984). *Matematika. Batxilergo Balioaniztun Bateratua 1*. Elkar
6. Elhuyar Matematika taldea (1984). *Matematika L.H. 2-2*. Elkar

### EDITED BOOKS

1. J. M. Juarez, C. fernandez-Llatas, C. Bielza, O. Johnson, P. Kocbek, P. Larrañaga, N. Martin, J. Munoz-Gama, G. Stiglic, M. Sepulveda, A. Vellido (2023). *Explainable and Process Mining Applications for Healthcare*. Springer
2. J. A. Lozano, P. Larrañaga, I. Inza, E. Bengoetxea (2005). *Towards a New Evolutionary Computation. Advances in Estimation of Distribution Algorithms*. Springer Verlag
3. P. Larrañaga, J. A. Lozano, J. M. Peña, I. Inza (2003). *Probabilistic Graphical Models for Classification*. Ruder Bošković Institute
4. P. Larrañaga, J. A. Lozano (2002). *Estimation of Distribution Algorithms. A New Tool for Evolutionary Computation*. Kluwer Academic Publishers

### JOURNAL PAPERS (JCR - WEB OF SCIENCE)

1. Soloviev, V.P., Bielza, C., Larrañaga, P., Dunjko, V., Wang, H. (2024). Trainability maximization using estimation of distribution algorithms assisted by surrogate modelling for quantum architecture search. *EPJ Quantum Technology* 11, 69
2. Quesada, D., Larrañaga, P., Bielza, C. (2024). dbnR: Gaussian dynamic Bayesian network learning and inference in R. *Journal of Statistical Software*, 5126,
3. V.P. Soloviev, P. Larrañaga, C. Bielza (2024). EDAspy: An extensible python package for estimation of distribution algorithms. *Neurocomputing*, 598, 128043
4. T. Blasco, F. Balzerani, L. Valcarcel, P. Larrañaga, C. Bielza, M. Francino, J. Rufián-Henares, F. Planes, S. Pérez-Burillo (2024). BN-BacArena: Bayesian network extension of bacArena for the dynamic simulation of microbial communities. *Bioinformatics*, 40, 5, btae266
5. Puerto-Santana, C.E., Larrañaga, P., Bielza, C. (2024). Feature saliencies in asymmetric hidden Markov models. *IEEE Transactions on Neural Networks and Learning Systems*, 35, 3, 3586-3600
6. Larrañaga, P., Bielza, C. (2024). Estimation of distribution algorithms in machine learning: A survey. *IEEE Transactions on Evolutionary Computation*, 28, 5, 1301-1321
7. Soloviev, V.P., Bielza, C., Larrañaga, P. (2024). Semiparametric estimation of distribution algorithms for continuous optimization. *IEEE Transactions on Evolutionary Computation*, 28, 4, 1069-1083

8. Bernaola, N., Michiels, M., Larrañaga, P., Bielza, C. (2023). Learning massive interpretable gene regulatory networks of the human brain by merging Bayesian networks. *PLOS Computational Biology*, 19, 12, e1011443
9. C. Puerto-Santana, P. Larrañaga, C. Bielza (2023). Feature subset selection in data-stream environments using asymmetric hidden Markov models and novelty detection. *Neurocomputing*, 554, 126641
10. Villa-Blanco, C., Bielza, C., Larrañaga, P. (2023). Feature subset selection for data and feature streams: A review. *Artificial Intelligence Review*, 56, Suppl 1, 1011-1062
11. G. Valverde, D. Quesada, P. Larrañaga, C. Bielza (2023). Causal reinforcement learning based on Bayesian networks applied to industrial settings. *Engineering Applications of Artificial Intelligence*, 125, 106657
12. E. Valero-Leal, C. Bielza, P. Larrañaga, S. Renooij (2023). Using MAP-independence to find defeasible reasoning-based explanations in Bayesian networks. *International Journal of Approximate Reasoning*, 160, 108965
13. C. Villa-Blanco, A. Bregoli, C. Bielza, P. Larrañaga, F. Stella (2023). Constraint-based and hybrid structure learning of multidimensional continuous-time Bayesian network classifiers. *International Journal of Approximate Reasoning*, 159, 108945
14. V.P. Soloviev, P. Larrañaga, C. Bielza (2023). Quantum approximate optimization algorithm for Bayesian network structure learning. *Quantum Information Processing*, 22(19), 1-28
15. D. Quesada, C. Bielza, P. Fontán, P. Larrañaga (2022). Piecewise forecasting of nonlinear time series with model tree dynamic Bayesian networks. *International Journal of Intelligent Systems*, 37, 9108-9137
16. D. Atienza, C. Bielza, P. Larrañaga (2022). PyBNesian: An extensible Python package for Bayesian networks. *Neurocomputing*, 504, 204-209
17. V.P. Soloviev, P. Larrañaga, C. Bielza (2022). Estimation of distribution algorithms using Gaussian Bayesian networks to solve industrial optimization problems constrained by environment variables. *Journal of Combinatorial Optimization*, 44, 1077-1098
18. C. Puerto-Santana, C. Bielza, J. Diaz-Rozo, G. Ramirez-Gargallo, F. Mantovani, G. Virumbrales, J. Labarta, Pedro Larrañaga (2022). Asymmetric HMMs for online ball-bearing health assessments, *IEEE Internet of Things Journal*, 9(20), 20160-20177
19. P. Laccourreye, C. Bielza, Pedro Larrañaga (2022). Explainable machine learning for longitudinal multi-omic microbiome. *Mathematics*, 10, 1994
20. D. Atienza, P. Larrañaga, C. Bielza (2022). Rejoinder on: Hybrid semiparametric Bayesian networks. *TEST*, 31, 344-347
21. D. Atienza, P. Larrañaga, C. Bielza (2022). Hybrid semiparametric Bayesian networks. *TEST*, 31, 299-327
22. D. Atienza, C. Bielza, and P. Larrañaga (2022). Semiparametric Bayesian networks. *Information Sciences*, 584, 564-582
23. F. Rodriguez-Sanchez, C. Bielza, and P. Larrañaga (2022). Multi-partition clustering of mixed data with Bayesian networks. *International Journal of Intelligent Systems*, 37(3), 2188-2218
24. C. Puerto-Santana, P. Larrañaga, and C. Bielza (2021). Autoregressive asymmetric linear Gaussian hidden Markov models. *IEEE Transactions on Pattern Analysis and Machine Intelligence*, 44(9), 4642-4658
25. F. Rodriguez-Sanchez, C. Rodriguez-Blazquez, C. Bielza, P. Larrañaga, D. Weintraub, P. Martinez-Martin, A. Rizos, A. Schrag, K. Chaudhuri (2021). Identifying Parkinson's disease subtypes with motor and non-motor symptoms via model-based multi-partition clustering. *Scientific Reports* 11(1), 1-10

26. C. Villa-Blanco, P. Larrañaga, and C. Bielza (2021). Multi-dimensional continuous time Bayesian network classifiers. *International Journal of Intelligent Systems*, 36(12), 7839-7866
27. M. Benjumeda, Y.-I. Tan, K. A. González-Otárula, D. Chandramohan, E. F. Chang, J. A. Hall, C. Bielza, P. Larrañaga, E. Kobayashi, R. C. Knowlton (2021). Patient specific prediction of temporal lobe epilepsy surgical outcomes. *Epilepsia*, 62(9), 2113-2122
28. D. Quesada, G. Valverde, P. Larrañaga, and C. Bielza (2021). Long-term forecasting of multivariate time series in industrial furnaces with dynamic Gaussian Bayesian networks. *Engineering Applications of Artificial Intelligence*, 103, 104301
29. B. Mihaljevic, C. Bielza and P. Larrañaga (2021). Bayesian networks for interpretable machine learning and optimization. *Neurocomputing*, 456, 648-665
30. B. Mihaljevic, P. Larrañaga, and C. Bielza (2021). Comparing the electrophysiology and morphology of human and mouse layer 2/3 pyramidal neurons with Bayesian networks. *Frontiers in Neuroinformatics*, 15, Article 580873
31. S. Gil-Begue, C. Bielza, P. Larrañaga (2021). Multi-dimensional Bayesian network classifiers: A survey. *Artificial Intelligence Review*, 54(1), 519–559
32. D. Atienza, C. Bielza, J. Diaz-Rozo, and P. Larrañaga (2020). Efficient anomaly detection in a laser-surface heat-treatment process via laser-spot tracking. *IEEE/ASME Transactions on Mechatronics*, 26(1), 405-415
33. M. Michiels, P. Larrañaga, and C. Bielza (2020). BayeSuites: An open web framework for massive Bayesian networks focused on neuroscience. *Neurocomputing*, 428, 166-181
34. F. Rodriguez-Sanchez, P. Larrañaga, and C. Bielza (2020). Incremental learning of latent forests. *IEEE Access*, 8, 224420-224432
35. B. Mihaljevic, P. Larrañaga, R. Benavides-Piccioni and J. DeFelipe, and C. Bielza (2020). Comparing basal dendrite branches in human and mouse hippocampal CA1 pyramidal neurons with Bayesian networks. *Scientific Reports*, 10, Article 18592
36. R. Yuste, M. Hawrylycz, N. Aalling, A. Aguilar-Valles, D. Arendt, R. Armananzas, G. Ascoli, T. Bergmann, C. Bielza, V. Bokharaie, I. Bystron, M. Capogna, Y. Chang, C. de Kock, A. Clemens, J. DeFelipe, S. Dos Santos, K. Dunville, D. Feldmeyer, R. Fiath, G. Fishell, A. Foggetti, X. Gao, P. Ghaderi, N. Goriounova, O. Gunturkun, K. Hagihara, V. J. Hall, M. Helmstaedter, S. Herculano-Houzel, M. Hilscher, H. Hirase, J. Hjerling-Leffler, R. Hodge, Z. J. Huang, R. Huda, Y. Juan, K. Khodosevich, O. Kiehn, H. Koch, E. Kuebler, M. Kühnemund, P. Larrañaga, B. Lelieveldt, E. L. Louth, J. Lui, H. Mansvelder, O. Marin, J. Martinez-Trujillo, A. Mohapatra, H. Moradi, H. Mungub, M. Nedergaard, P. Némec, N. Ofer, U. Pfisterer, S. Pontes, W. Redmond, J. Rossier, J. Sanes, R. Scheuermann, E. Serrano-Saiz, P. Somogyi, J. F. Steiger, G. Tamás, A. Tolia, M. A. Tosches, M. Turrero-Garcia, C. Wozny, T. Wuttke, L. Yong, H. Zeng, E. S. Lein (2020). A community-based transcriptomics classification and nomenclature of neocortical cell types. *Nature Neuroscience*, 23, 1456–1468
37. I. Córdoba-Sánchez, G. Varando, C. Bielza, P. Larrañaga (2020). On generating random Gaussian graphical models. *International Journal of Approximate Reasoning*, 125, 240-250
38. I. Cordoba, C. Bielza, P. Larrañaga and G. Varando (2020). Sparse Cholesky covariance parametrization for recovering latent structure in ordered data. *IEEE Access*, 8, 154614-154624
39. J. Diaz-Rozo, C. Bielza, P. Larrañaga (2020). Machine-tool condition monitoring with Gaussian mixture models-based dynamic probabilistic clustering. *Engineering Applications of Artificial Intelligence*, 89, Article 103434
40. I. Cordoba, C. Bielza and P. Larrañaga (2020). A review of Gaussian Markov models for conditional independence. *Journal of Statistical Planning and Inference*, 206, 127-144
41. B. Mihaljevic, R. Benavides-Piccioni, C. Bielza, P. Larrañaga, and J. DeFelipe (2019). Classification of GABAergic interneurons by leading neuroscientists. *Scientific Data*, 6, Article 221

42. P. Fernandez-González, C. Bielza, and P. Larrañaga (2019). Random forests for regression as a weighted sum of k-potential nearest neighbors. *IEEE Access*, 7 (1), 25660-25672
43. M. Benjumeda, S. Luengo-Sanchez, P. Larrañaga, and C. Bielza (2019). Tractable learning of Bayesian networks from partially observed data. *Pattern Recognition*, 91, 190-199
44. S. Luengo-Sanchez, P. Larrañaga and C. Bielza (2019). A directional-linear Bayesian network and its application for clustering and simulation of neural somas. *IEEE Access*, 7(1), 69907-69921
45. I. Leguey, P. Larrañaga, C. Bielza, and S. Kato (2019). A circular-linear dependence measure under Johnson–Wehrly distributions and its application in Bayesian networks. *Information Sciences*, 486, 240-253
46. I. Leguey, C. Bielza, and P. Larrañaga (2019). Circular Bayesian classifiers using wrapped Cauchy distributions. *Data and Knowledge Engineering*, 122, 101-115
47. M. Benjumeda, C. Bielza, and P. Larrañaga (2019). Learning tractable Bayesian networks in the space of elimination orders. *Artificial Intelligence*, 274, 66-90
48. B. Mihaljevic, P. Larrañaga, and C. Bielza (2018). `bnclassify`: Learning Bayesian network classifiers. *R Journal*, 10(2), 455-468
49. L. Anton-Sanchez, F. Effenberger, C. Bielza, P. Larrañaga, H. Cuntz (2018). A regularity index for dendrites - local statistics of a neuron's input space. *PLOS Computational Biology*, 14(11), e1006593
50. B. Mihaljevic, P. Larrañaga, R. Benavides-Piccione, S. Hill, J. DeFelipe, and C. Bielza (2018). Towards a supervised classification of neocortical interneuron morphologies, *BMC Bioinformatics*, 19(1), 511
51. S. Luengo-Sanchez, I. Fernaud-Espinosa, C. Bielza, R. Benavides-Piccione, P. Larrañaga, J. DeFelipe (2018). 3D morphology-based clustering and simulation of human pyramidal cell dendritic spines. *PLOS Computational Biology*, 14(6), e1006221
52. J. Diaz-Rozo, C. Bielza, P. Larrañaga (2018). Clustering of data streams with dynamic Gaussian mixture models. An IoT application in industrial processes. *IEEE Internet of Things Journal*, 5(5), 3533-3547
53. G. Varando, R. Benavides-Piccione, A. Muñoz, A. Kastanauskaite, C. Bielza, P. Larrañaga, J. DeFelipe (2018). MultiMap: A tool to automatically extract and analyze spatial microscopic data from large stacks of confocal microscopy images. *Frontiers in Neuroanatomy*, 12, Article 37
54. M. Benjumeda, C. Bielza, and P. Larrañaga (2018). Tractability of most probable explanations in multidimensional Bayesian network classifiers. *International Journal of Approximate Reasoning*, 93, 74-87
55. J. Mu, K.R. Chaudhuri, C. Bielza, J. de Pedro-Cuesta, P. Larrañaga and P. Martinez-Martin (2017). Parkinson's disease subtypes from cluster analysis of motor and non-motor symptoms. *Frontiers in Aging Neuroscience*, 9, Article 301
56. L. Anton-Sanchez, P. Larrañaga, R. Benavides-Piccione, I. Fernaud-Espinosa, J. Felipe, and C. Bielza (2017). Three-dimensional spatial modeling of spines along dendritic networks in human cortical pyramidal neurons. *PLoS ONE*, 12, e0180400
57. L. Anton-Sanchez, C. Bielza, and P. Larrañaga (2017). Network design through forests with degree- and role-constrained minimum spanning trees. *Journal of Heuristics*, 23(1), 31-51
58. L. Rodriguez-Lujan, P. Larrañaga, C. Bielza (2017). Frobenius norm regularization for the multivariate von Mises distribution. *International Journal of Intelligent Systems*, 32(2), 153-176
59. P. Fernandez-Gonzalez, R. Benavides-Piccione, I. Leguey, C. Bielza, P. Larrañaga, J. DeFelipe (2016). Dendritic branching angles of pyramidal neurons of the human cerebral cortex. *Brain Structure and Function*, 222(4), 1847-1859

60. L. Anton-Sanchez, C. Bielza, P. Larrañaga, J. Felipe (2016). Wiring economy of pyramidal cells in the juvenile rat somatosensory cortex. *PLoS ONE*, 11(11), e0165915
61. L. Anton-Sanchez, C. Bielza, R. Benavides-Piccione, J. Felipe, P. Larrañaga (2016). Dendritic and axonal wiring optimization of cortical GABAergic interneurons. *Neuroinformatics*, 14(4), 453-464
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64. G. Varando, C. Bielza, P. Larrañaga (2016). Decision functions for chain classifiers based on Bayesian networks for multi-label classification. *International Journal of Approximate Reasoning*, 68, 164-178
65. H. Borchani, P. Larrañaga, J. Gama, C. Bielza (2016). Mining multi-dimensional concept-drifting data streams using Bayesian network classifiers. *Intelligent Data Analysis*, 20(2), 257-280
66. C. Rojo, I. Leguey, A. Kastanauskaite, C. Bielza, P. Larrañaga, J. DeFelipe, R. Benavides-Piccione (2016). Laminar differences in dendritic structure of pyramidal neurons in juvenile rat somatosensory cortex. *Cerebral Cortex*, 26(6), 2811-2822
67. Luengo-Sanchez, S., C. Bielza, R. Benavides-Piccione, I. Fernaud-Espinosa, J. DeFelipe, P. Larrañaga (2015). A univocal definition of the neuronal soma morphology using Gaussian mixture models. *Frontiers in Neuroanatomy*, 9, Article 137
68. Olazarán, J., M. Valentí, B. Frades, M. A. Zea-Sevilla, M. Ávila-Villanueva, M. A. Fernández-Blázquez, M. Calero, J. L. Dobato, J. A. Hernández-Tamames, B. León-Salas, L. Aguera-Ortiz, J. López-Álvarez, P. Larrañaga, C. Bielza, J. Álvarez-Linera, P. Martínez-Martin (2015). The Vallecas Project: a cohort to identify early markers and mechanisms of Alzheimer’s disease. *Frontiers in Aging Neuroscience*, 7, Article 181
69. H. Borchani, G. Varando, C. Bielza, P. Larrañaga (2015). A survey on multi-output regression. *WIREs Data Mining and Knowledge Discovery*, 5, 216-233
70. A. Ibáñez, R. Armañanzas, C. Bielza, P. Larrañaga (2015). Genetic algorithms and Gaussian Bayesian networks to uncover the predictive core set of bibliometric indices. *Journal of the American Society for Information Science and Technology*, 67(7), 1703—1721
71. A. Larrañaga, C. Bielza, P. Pongrácz, T. Faragó, A. Bálint, P. Larrañaga (2015). Comparing supervised learning methods for classifying sex, age, context and individual Mudi dogs from barking. *Animal Cognition*, 18(2), 405-421
72. G. Varando, P.L. López-Cruz, T. Nielsen, P. Larrañaga, C. Bielza (2015). Conditional density approximations with mixtures of polynomials. *International Journal of Intelligent Systems*, 30(3), 236-264
73. G. Varando, C. Bielza, P. Larrañaga (2015). Decision boundary for discrete Bayesian network classifiers. *Journal of Machine Learning Research*, 16, 2725–2749
74. B. Mihaljević, R. Benavides-Piccione, L. Guerra, J. DeFelipe, P. Larrañaga, C. Bielza (2015). Classifying GABAergic interneurons with semi-supervised projected model-based clustering. *Artificial Intelligence in Medicine*, 65(1), 49-59
75. A. R. Masegosa, R. Armañanzas, M.M. Abad-Grau, V. Potenciano, S. Moral, P. Larrañaga, C. Bielza, F. Matesanz (2015). Discretization of expression quantitative trait loci in association analysis between genotypes and expression data. *Current Bioinformatics*, 10(2), 144-164
76. P.L. López-Cruz, C. Bielza, P. Larrañaga (2015). Directional naive Bayes classifiers. *Pattern Analysis and Applications*, 18, 225-246
77. B. Mihaljević, R. Benavides-Piccione, C. Bielza, J. DeFelipe, P. Larrañaga, (2015). Bayesian network classifiers for categorizing cortical GABAergic interneurons. *Neuroinformatics*, 13(2), 193-208

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80. C. Bielza, P. Larrañaga (2014). Discrete Bayesian network classifiers: A survey. *ACM Computing Surveys*, 47(1), Article 5
81. B. Mihaljević, C. Bielza, R. Benavides-Piccione, J. DeFelipe, P. Larrañaga, (2014). Multi-dimensional classification of GABAergic interneurons with Bayesian network-modeled label uncertainty. *Frontiers in Computational Neuroscience*, 8, Article 150
82. C. Bielza, P. Larrañaga (2014). Bayesian networks in neuroscience: A survey. *Frontiers in Computational Neuroscience*, 8, Article 131
83. C. Bielza, R. Benavides-Piccione, P.L. López-Cruz, P. Larrañaga, J. DeFelipe (2014). Branching angles of pyramidal cell dendrites follow common geometrical design principles in different cortical areas. *Scientific Reports*, 4, Article 5909
84. P.L. López-Cruz, P. Larrañaga, J. DeFelipe, C. Bielza (2014). Bayesian network modeling of the consensus between experts: An application to neuron classification. *International Journal of Approximate Reasoning*, 55(1), 3-22
85. A. Ibáñez, C. Bielza, P. Larrañaga (2014). Cost-sensitive selective naive Bayes classifiers for predicting the increase of the h-index for scientific journals. *Neurocomputing*, 135(5), 45-52
86. L. Guerra, C. Bielza, V. Robles, P. Larrañaga, P. (2014). Semi-supervised projected model-based clustering. *Data Mining and Knowledge Discovery*, 28(4), 882-917
87. L.E. Sucar, C. Bielza, E.F. Morales, P. Hernandez-Leal, J.H. Zaragoza, P. Larrañaga (2014). Multi-label classification with Bayesian network-based chain classifiers. *Pattern Recognition Letters*, 41, 14-22
88. P.L. López-Cruz, C. Bielza, P. Larrañaga (2014). Learning mixtures of polynomials of multidimensional probability densities from data using B-spline interpolation. *International Journal of Approximate Reasoning*, 55, 989-1010
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31. 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
32. 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
33. 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
34. 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
35. 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
36. 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

37. 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
38. 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
39. P. Larrañaga (1993). *Tratamiento informático de encuestas*. Technical Report 9529. Department of Computer Science and Artificial Intelligence. University of the Basque Country
40. P. Larrañaga (1993). *Estatistika. Ariketak*. Technical Report 9528. Department of Computer Science and Artificial Intelligence. University of the Basque Country
41. P. Larrañaga (1993). *Estatistika. Teoria*. Technical Report 9527. Department of Computer Science and Artificial Intelligence. University of the Basque Country
42. P. Larrañaga (1986). *Estadística. Ejercicios*. Computer Science School. University of the Basque Country
43. P. Larrañaga (1986). *Estadística. Apuntes de Teoría*. Computer Science School. University of the Basque Country

#### JOINTLY GRANTED AWARDS

1. Best Master Thesis of R. Sojo (under my supervision) awarded by the Technical University of Madrid, Madrid (2023)
2. Best PhD thesis of D. Atienza (under my supervision) awarded by the Technical University of Madrid, Madrid (2023)
3. *Science and Technology for Society* awarded by the Technical University of Madrid (2023)
4. *Most Cited Scientific Paper Prize* awarded by the Technical University of Madrid (2021)
5. Best Paper of the *II Workshop of Spanish Research Groups on Artificial Intelligence in Biomedicine (IABiomed-2021)*, Málaga (2021)
6. Best Master Thesis of M.A. Riaño (under my supervision) awarded by the Technical University of Madrid, Madrid (2021)
7. Best Master Thesis of S. Gil-Begué (under my supervision) awarded by the Technical University of Madrid, Madrid (2018)
8. Best PhD thesis of L. Anton-Sanchez (under my supervision) awarded by the Technical University of Madrid, Madrid (2018)
9. Second Prize in the *Frances Allen Award of the Conferencia Española de Inteligencia Artificial*, Granada 2018
10. BayesFusion best student paper of the *9th International Conference on Probabilistic Graphical Models*, Prague (2018)
11. Second Prize in the *Poster Competition of the Advances in Directional Statistics Conference*, Rome (2017)
12. Best *PhD project on Artificial Intelligence given by the Spanish Artificial Intelligence Conference to Theoretical Studies and New Approaches to Bayesian Network Classifiers*, Albacete (2015)
13. Best paper of the *1st Machine Learning for Cyber Physical Systems Conference*, Lemgo (2015)
14. Best PhD thesis of P.L. López-Cruz (under my supervision) awarded by the Technical University of Madrid, Madrid (2015)

15. Best student paper of the *15th Annual Genetic and Evolutionary Computation Conference (GECCO)*, Amsterdam (2013)
16. “Marco Ramoni” best paper of the *14th Conference on Artificial Intelligence in Medicine, AIME*, Murcia (2013)
17. Second position on the competition “MEG Mind Reading” on *PASCAL2 and the International Conference on Artificial Neural Networks*, Espoo (2011)
18. Best paper of the *International Society of Applied Intelligence (ISAI)*, Cordoba (2010)
19. First Position on the competition “Biomag Data Analysis Competition 2010” on *Multivariate Classification of MEG brain data*, Dubrovnik, Croacia (2010)
20. Best paper of the *Mexican International Conference on Artificial Intelligence*, Guanajuato, México (2009)
21. Best paper of the *III International Meeting on Artificial Intelligence in Accounting, Finance and Tax*, Huelva (1997)

## C. RESEARCH PROJECTS

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### PUBLIC PROJECTS

1. *Inteligencia Artificial para la Industria 4.0: Generación de Datos, Modelado Avanzado, Optimización e Interpretabilidad*. Madrid Autonomous Region, 2025-2028
2. *New Solutions Based on Artificial Intelligence for Industrial Production Efficiency and Flexibility*. Ministry of Science and Innovation, Transmissions Program, 2024-2027
3. *Estimation of Distribution Algorithms in Machine Learning and Optimization*. Ministry of Science and Innovation, 2023-2026
4. *Community for Neuroscience and Neurotechnology*, Universidad Politécnica de Madrid, 2022-2024
5. *Convenio entre la Comunidad de Madrid y la Universidad Politécnica de Madrid para la Concesión Directa de una Subvención para el Apoyo al Desarrollo del Nodo ELLIS Mediante la Implantación de una Unidad ELLIS en la Comunidad de Madrid*, Madrid Autonomous Region, 2022-2023
6. *Bayesian Networks for Interpretable Machine Learning and Optimization (BAYES-INTERPRET)*, Ministry of Science and Innovation, 2022-2024
7. *MAIAR (MAterials Informatics & Advanced Robotics Lab) – Desarrollo de una Solución Flexible de Self-Driving Lab Basada en la Integración de Materials Informatics y Robótica Avanzada para el Diseño de Nuevos Productos con Baja Huella de Carbono*, Ministry of Economic Affairs and Digital Transformation, 2022-2024
8. *Plataforma Científico-Tecnológica para Alerta, Diagnóstico, Pronóstico, Terapia y Seguimiento de la Enfermedad COVID19 y Futuras Pandemias (COVIDTECH-CM)*, Madrid Autonomous Region, 2020-2023
9. *Investigación y Desarrollo de Metodología de la Inteligencia Artificial (ML) Orientado a Casos Industriales de Uso de Datos Continuos de Ultra-Alta Velocidad (DSTREAMS)*, Ministry of Science, Innovation and Universities, 2020-2024
10. *Bayesian Networks for Data Streams*. Ministry of Science, Innovation and Universities, 2020-2022. Project Leader
11. *IT Basket*. Madrid Autonomous Region, 2019-2020. Project CoLeader
12. *HBP - Human Brain Project. SGA3 Phase*. Horizon 2020, FET Flagship Initiative, VII Framework Program, European Commission, 2020-2023. Task leader
13. *Research Spanish Network “Therapeutic Applications of Systems Neuroscience to Central Nervous System Diseases” (Clisyne)*. Ministry of Science, Innovation and Universities, 2019-2021
14. *Research Spanish Network “Artificial Intelligence in Biomedicine”*. Ministry of Science, Innovation and Universities, 2019-2021
15. *Clasificadores Bayesianos Multidimensionales para la Interpretación de Emociones en Texto y Vídeo*, National Commission of Scientific and Technological Research (CONICYT), Chile, 2018-2019
16. *HBP - Human Brain Project. SGA2 Phase*. Horizon 2020, FET Flagship Initiative, VII Framework Program, European Commission, 2018-2020. Task leader
17. *Supercomputación para la Inteligencia Artificial*. Ministry of Economy, Industry and Competitiveness, 2018-2020
18. *Excellence Spanish Network “Big Data and Scalable Data Analysis”*. Ministry of Economy, Industry and Competitiveness, 2017-2019
19. *HBP - Human Brain Project. SGA1 Phase*. Horizon 2020, FET Flagship Initiative, European Commission, 2016-2018. Task leader

20. *Advances in Multidimensional Classification and Anomaly Detection with Bayesian Networks*. Ministry of Economy and Competitiveness, 2017-2019. Project Leader
21. *Excellence Spanish Network "Multimodal Interaction in Pattern Recognition and Computer Vision"*. Ministry of Economy and Competitiveness, 2015-2016
22. *Excellence Spanish Network "Big Data and Scalable Data Analysis"*. Ministry of Economy and Competitiveness, 2015-2017
23. *Bayesian Network Learning with non-Directional and Directional Variables for Association Discovery, Multi-Target Prediction and Clustering*. Ministry of Economy and Competitiveness, 2014-2016. Project Leader
24. *Concepts and Applications of Intelligent Systems*. Madrid Autonomous Region, 2014-2016
25. *HBP - Human Brain Project. Rump Up Phase*. FET Flagship Initiative, European Commission, 2013-2016
26. *Spanish Network for the Advancement and Transference of Computational Intelligence*. Ministry of Economy and Competitiveness, 2012-2012
27. *Spanish Network on Data Mining and Machine Learning*. Ministry of Science and Innovation, 2010-2012
28. *HBP - Human Brain Project*. FET Flagship Initiative Preparatory Actions, European Commission, 2011-2011
29. *Data Mining with Probabilistic Graphical Models: New Algorithms and Applications*. Ministry of Science and Innovation, 2011-2013
30. *Follow-up Congress for Computer Technology Projects*, Ministry of Science and Innovation, 2010-2011
31. *Follow-up Congress for Computer Technology Projects*, Ministry of Science and Innovation, 2009-2010
32. *Intelligent Probabilistic System to Model Scientific Productivity in the Computer Science Area*, Ministry of Science and Innovation, 2009-2011
33. *Cajal Blue Brain Project*. Ministry of Science and Innovation, 2009-2019
34. *CENIT: Technologies for Rendering Services in Mobility in the Intelligent Future Universe*, Ministry of Science and Innovation, Center for the Industrial Technological Development, 2008-2012
35. *Incremental Learning of Bayesian Networks with Data Streams from Data Coming from Time-Varying Distributions with Applications to Spam Detection*. Ministry of Foreign Affairs and Cooperation, 2008-2009. Project Leader
36. *Assessing Quality of Individual Predictions in Medical Decision Support Systems*. National Institutes of Health, USA (1-R01-LM009520-01), 2007-2010
37. *CONSOLIDER: Multimodal Interaction in Pattern Recognition and Computer Vision*, Ministry of Education and Science, 2007-2012
38. *Follow-up Congress for Computer Technology Projects*, Ministry of Education and Science, 2008-2009
39. *Spanish Network on Computational Biomedicine*, Carlos III Institute of Health, 2007-2010
40. *Spanish Network on Data Mining and Machine Learning*. Ministry of Science and Technology, 2007-2007
41. *Application of Genomic and Proteomic to the Identification of Therapeutical Targets for Human Autoimmune Systematic Diseases*, Basque Government, 2005-2007
42. *Biomedical Informatics*, University of the Basque Country, 2005-2006

43. *Coordination and Articulation of Research, Development and Innovation based on Soft Computing*, Ministry of Education and Science, 2005-2006
44. *Computational Intelligence with Bayesian Networks, Gaussian Networks and Kikuchi Approximations*, Ministry of Education and Science, 2006-2008
45. *Spanish Network on Probabilistic Graphical Models and Applications*, Ministry of Education and Science, 2005-2006
46. *Methodological Advances and Applications of Estimation of Distribution Algorithms*, Basque Government, 2004-2005
47. *Spanish Net on Data Mining and Machine Learning*, Ministry of Science and Technology, 2005-2005
48. *Spanish Net on Pattern Recognition and Applications*, Ministry of Science and Technology, 2004-2005
49. *Scores for the Selection of Relevant Genes in DNA Microarrays*. Diputación Foral de Gipuzkoa, 2004-2004
50. *Grant for Research Groups*, University of the Basque Country, 2003-2005.
51. *Knowledge Discovery and Analysis in Genomic and Proteomic for the Development of Products and Services in Health and Life Quality*, Basque Government, 2003-2005
52. *Spanish Net on Data Mining and Machine Learning*, Ministry of Science and Technology, 2003-2004
53. *Spanish Net on Metaheuristics on Optimization*, Ministry of Science and Technology, 2003-2004
54. *Genetic Networks: Modelling the Interaction Between Genes by Means of Bayesian and Gaussian Networks*, Diputación Foral de Gipuzkoa, 2003-2003
55. *Application of Genomic and Proteomic to the Identification of Therapeutic Dianas in Human Autoimmun Diseases*, Basque Government, 2002-2004
56. *Modelling Gene Interaction by Means of Bayesian and Gaussian Networks*, Ministry of Health and Consum, 2002-2004
57. *Learning of Probabilistic Graphical Models. Application to the Clustering of Data from Microarrays*, Ministry of Science and Technology, 2002-2004
58. *Grant to Research Groups*, University of the Basque Country. 2001-2003
59. *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
60. *Automatic Generation of Cases for the Validation and Verification of Software by Means of Advanced Optimization Techniques*, Basque Government, 2001-2002
61. *Development of a System for the Meteorological Prediction*, Basque Government, 2001-2001
62. *Recognition of Internal Structures of the Brain with the Help of and Anatomical Atlas and Methodology Based on Graphs and Bayesian Networks*. Ministry of Education and Science, 2000-2001
63. *Estimation of Distribution Algorithms in Combinatorial Optimization Problems*, University of the Basque Country, 2000-2000
64. *A Parallel Approach to Combinatorial Optimization*, Basque Government, 1999-2000
65. *Automatic Updating of Postal Codes Using Heuristics Applied to Machine Learning and Pattern Recognition*, Diputación Foral of Guipuzcoa, Spain, 1998-1998
66. *Development of Software for Probabilistic Graphical Models*, Ministry of Education and Science, 1997-2000

67. *Genetic Algorithms for the Induction of Intelligent Systems with Applications to Oncological Records in the Basque Country*, Basque Government, 1997-1999
68. *Solving the Vehicle Routing Problem with Combinatorial Optimization Heuristics*. Diputación Foral of Guipuzcoa, Spain, 1997-1997
69. *Predicting Enterprise Bankrupt Using Statistical and Artificial Intelligence Based Classification Techniques*, Diputación Foral of Guipuzcoa, Spain, 1997-1997
70. *Structural Learning of Bayesian Networks for Classification*, University of the Basque Country, 1997-1997
71. *Cluster Analysis Applied to Market Segmentation*, Diputación Foral of Guipuzcoa, Spain, 1996-1996
72. *Comparison Between Statistical and Artificial Intelligence Methods for the Prediction of the Survival in Breast Cancer*, Diputación Foral of Guipuzcoa, Spain, 1996-1996
73. *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
74. *Stochastic Methods and Models for Controlling Autonomous Systems: Stochastic Neural Networks, Bayesian Networks and Evolutionary Algorithms*, Basque Government, 1995-1996
75. *High Order Boltzman Machines for the Recognition of Optical Characters*, University of the Basque Country, 1995-1995
76. *Development, Implementation, and Validation of an Algorithm for Learning Bayesian Networks from Data*, Spanish Ministry of Health, 1994-1994
77. *Simulation and Structural Learning of Probabilistic Causal Networks. Application to Pediatrics*, Diputación Foral of Guipuzcoa, Spain, 1994-1994
78. *Probabilistic Causal Networks and Sampling Methods Applied to Medical Domains*, Diputación Foral of Guipuzcoa, Spain, 1994-1994
79. *Stochastic Methods for Classification and Learning: Neural Networks, Bayesian Networks and Classification Trees*, Basque Government, 1993-1994

#### PRIVATE PROJECTS

1. Etxe-Tar S.A. *Investigación fundamental en la interacción ultrarrápida láser/materia prima para la obtención de altas prestaciones en componentes críticos de alto valor añadido con tecnología aditiva 360º DED-LMD (UMATERIAL)*, 2025-2027
2. REPSOL S.A. *Specific Collaboration Agreement Number 8: Multiobjective Experimental Design*, February-December 2024
3. REPSOL S.A. *Specific Collaboration Agreement Number 7: USET Unconventional Fields*, February-December 2024
4. ArcelorMittal. *Induce draft fans anomaly detection*, February-July 2024
5. Etxe-Tar S.A. *Investigación del proceso de mecanizado y corte láser de piezas esbeltas de Aluminio para el sector de la movilidad sostenible y desarrollo de la nueva solución de manufactura híbrida y digital del futuro (Al2Future)*, 2023-2025
6. REPSOL S.A. *Specific Collaboration Agreement Number 5: Induced Seismicity*, 2022-2023
7. Titanium Industrial Security. *Network SLIcing SEcurity for next generation communications (SLI-SE)*. 2021-2024
8. REPSOL S.A. *Specific Collaboration Agreement Number 4: Bayesian Approach for AI*, 2021-2022

9. Aingura IIoT. *Desarrollo de un sistema diagnóstico basado en Machine Learning para la detección en tiempo real de degradación temprana en el proceso de fabricación de medicamentos (MLpharma)*, 2021-2022
10. Idealista. *Herramienta de optimización de carteras en mercados inmobiliarios*, 2021-2022
11. Aingura IIoT. *MANtenimiento Predictivo FEderado e Inteligente de CRUZamientos (MANFECRUZ)*, 2021-2023
12. Adif (Competitive public tender). *Federated Artificial Intelligence for Comprehensive Infrastructure Maintenance (FAI4CIM)*, 2021-2023
13. Aingura IIoT. *Investigación y desarrollo de un sistema basado en Machine Learning para la caracterización y monitorización de puentes en tiempo real (ML4bridges)*, 2021-2023
14. IkerGune AIE. *Nueva sonda de ciberseguridad para la detección, gestión y respuesta de brechas de seguridad, ataques o anomalías en redes industriales (INMAP-R2)*, 2021-2021
15. REPSOL S.A. *Specific Collaboration Agreement Number 3: Batch Reinforcement Learning*, 2020-2021
16. (Competitive: ratio 4/150) Grant of Fundación BBVA to Research Groups on the topic of Big Data and Artificial Intelligence with project *Outcome prediction and treatment efficiency in patients hospitalized with COVID-19 in Madrid: A Bayesian network approach*, 2020-2022
17. (Competitive: ratio 5/93) Grant of Fundación BBVA to Research Groups on the topic of Big Data with project *Score-based nonstationary temporal Bayesian networks. Applications in climate and neuroscience (BAYES-CLIMA-NEURO)*, 2020-2022
18. REPSOL S.A. *Specific Collaboration Agreement Number 2: Artificial intelligence and data science to analyze complex problems*, 2019-2020
19. REPSOL S.A. *Specific Collaboration Agreement Number 1*, 2018-2019
20. OLOCIP 11 S.L. *Probabilistic models for football predictions*, 2018
21. Etxe-Tar S.A. and Aingura IIoT S.L.U. Subcontracting within project *Nueva infraestructura IoT industrial para la fábrica que aprende (LEARNIIoT)*, granted by Centro para el Desarrollo Tecnológico Industrial (CDTI) of the Ministry of Economy and Competitiveness within Proyectos de Investigación y Desarrollo Individuales Program, 2018-2020
22. Etxe-Tar S.A. *Gestión energética avanzada para máquina herramienta de nueva generación (EMON)*, 2017-2017
23. Etxe-Tar S.A. Subcontracting within project *Investigación en sistemas ciber-físicos para la detección de anomalías mediante modelos probabilísticos dinámicos en nuevos procesos de tratamiento térmico medioambientalmente sostenibles (TERMPROB)*, granted by Centro para el Desarrollo Tecnológico Industrial (CDTI) of the Ministry of Economy and Competitiveness within Proyectos de Investigación y Desarrollo Individuales Program, 2016-2018
24. (Competitive) Grant of Fundación BBVA to Research Groups on the topic of Big Data with project *Multi-view clustering with Bayesian networks*, 2016-2018
25. OLOCIP 11 S.L. *Development of a computer program for prediction and analysis in sports using artificial intelligence*, 2016-2017
26. Etxe-Tar S.A. Subcontracting within project *Desarrollo de bienes de equipo avanzados para la cadena de valor manufacturera basados en nuevos conceptos para la ayuda a la toma de decisiones orientada a la generación de servicios de alto valor añadido para la recuperación de la competitividad de la industria española (CARES)*, TIC-20150093, granted by Centro para el Desarrollo Tecnológico Industrial (CDTI) of the Ministry of Economy and Competitiveness within Programa Estratégico de Consorcios de Investigación Empresarial Nacional (CIEN), 2015-2019

27. Gaindu S.L. Subcontracting within project *Desarrollo de bienes de equipo avanzados para la cadena de valor manufacturera basados en nuevos conceptos para la ayuda a la toma de decisiones orientada a la generación de servicios de alto valor añadido para la recuperación de la competitividad de la industria española (CARES)*, TIC-20150093, granted by Centro para el Desarrollo Tecnológico Industrial (CDTI) of the Ministry of Economy and Competitiveness within Programa Estratégico de Consorcios de Investigación Empresarial Nacional (CIEN), 2015-2019
28. Abbott Products Operations AG. *Probabilistic Mapping of PDQ-39 (or PDQ-8) to the EQ-5D Utility Index Based on Multi-Dimensional Bayesian Network Classifiers*, 2011
29. Atos Origin (P10-1015-100). *Dynamic Probabilistic Graphical Models and their Applications*, 2009-2011
30. Produban (Banco Santander). *Minería de Datos y Geomarketing sobre Datos Financiero/Bancarios*, 2009-2010
31. Panda Security. *Adaptación Dinámica del Cambio en Sistemas de Aprendizaje. Problemática Drift*, 2009
32. Fundación Gaiker Centro Tecnológico. *Análisis Bioinformático de Microarrays*, 2006
33. 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
34. Panda Software S. L. *Asesoría Técnica en Minería de Datos y Reconocimiento de Patrones*, 2005
35. Panda Software S. L. *Análisis Estadístico*, 2004
36. Arvin Meritor. *Clustering Individuals on Tribologic and CAE Data*, 2003
37. MINORPLANET SYSTEMS S.A. *EVAOPTIM*, 2001
38. Vda. de Loinaz y Sobrinos de Mercader. *Desarrollo de Software para la Optimización de la Distribución de Combustibles*, 1997
39. 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
40. Prospektiker Erakundea. *Proyecto Habitat*, 1994
41. Asociación Proyecto Hombre. *Encuesta al Residente: Tipologías, Redes Bayesianas, Árboles de Clasificación*, 1994
42. Prospektiker Erakundea. *Vivienda. Iberdrola. Valencia*, 1993
43. 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
44. Prospektiker Erakundea. *Estudio Prospectivo y Estratégico del Consumo de Energía Eléctrica en la C.A.E. en la Perspectiva del Año 2005*, 1992
45. Asociación Proyecto Hombre. *Encuesta al Residente. Aplicación de Técnicas Multivariantes: Tipologías*, 1992
46. Siadeco. *Encuesta Dirigida a los Alumnos de 2º, 5º y 8º de E.G.B. del Modelo D*, 1992
47. 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
48. Asociación Vasca de Enfermería. *Actitud de la Mujer ante la Autoexploración de Mamas y Genitales*, 1991
49. Siadeco. *Encuesta Realizada en Iparralde sobre el Euskara y el Francés*, 1991
50. Laboratorio de Sociología Jurídica. *Relación Administración de Justicia - Ciudadano*, 1990

51. Laboratorio de Sociología Jurídica. *El Ciudadano como Justiciable*, 1990
52. Laboratorio de Sociología Jurídica. *Encuesta de Personas con Experiencias en Juicios Civiles o Laborales*, 1990
53. Prospektiker Erakundea. *Estructura y Evolución de las Ocupaciones*, 1989
54. Prospektiker Erakundea. *Alumnos de Formación Profesional en Alternancia*, 1989
55. Siadeco. *La Problemática de la Mujer en Donostia*, 1988
56. Siadeco. *Irakaskuntza eta Berorren Etorkizuna Lea-Artibaiko Bailaran: Hizkuntz-plangintzarako Oinarriak*, 1988
57. Prospektiker Erakundea. *Estudio de las Necesidades de Formación Ocupacional a los Años 1989, 1990, 1991*, 1988
58. Siadeco. *El Euskara y el Mundo del Niño en Eibar*, 1987

## D. TEACHING AND SUPERVISION

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### UNDERGRADUATE COURSES

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

### MASTER COURSES

Data Mining: Methods and Techniques, Bayesian Networks, Bayesian Reasoning with Graphical Models, Machine Learning, Estimation of Distribution Algorithms

### 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

### SUMMER SCHOOLS

Madrid UPM Advanced Statistics and Data Mining Summer School (a worldwide top ten maths and stats summer school according to INOMICS, with 15 editions since 2006), Coordinator and Instructor

### SUPERVISED PH. D. THESES

1. C. Villa-Blanco (2024). *Feature Subset Selection and Multi-dimensional Continuous-Time Bayesian Network Classifiers for Streaming Data*. Ph.D. in Computer Science. Technical University of Madrid
2. D. Quesada (2023). *Multivariate Time-Series Modelling and Forecasting with High-Order Dynamic Bayesian Networks Applied in Industrial Settings*. Ph.D. in Computer Science. Technical University of Madrid
3. C.E. Puerto-Santana (2023). *Asymmetric Hidden Markov Models and Extensions Applied to Industry*. Ph.D. in Computer Science. Technical University of Madrid
4. D. Atienza (2022). *Nonparametric Models and Bayesian Networks. Applications to Anomaly Detection*. Ph.D. in Computer Science. Technical University of Madrid
5. F. Rodríguez (2021). *Multidimensional Clustering with Bayesian Networks*. Ph.D. in Computer Science. Technical University of Madrid
6. I. Córdoba (2020). *Unifying Methodologies for Graphical Models with Gaussian Parametrization*. Ph.D. in Computer Science. Technical University of Madrid
7. S. Luengo-Sanchez (2019). *Clustering Based on Bayesian Networks with Gaussian and Angular Predictors. Applications in Neuroscience*. Ph.D. in Computer Science. Technical University of Madrid
8. P. Fernández-González (2019). *Developments in Probabilistic Graphical Models, Circular Distributions and Theory of Random Forests with Applications in Neuroscience*. Ph.D. in Computer Science. Technical University of Madrid
9. M. Benjumeda (2019). *Learning Tractable Bayesian Networks*. Ph.D. in Computer Science. Technical University of Madrid
10. J. Diaz-Rozo (2019). *Clustering Probabilístico Dinámico para la Búsqueda de Patrones de Degradación de Elementos de Máquina en el Ámbito del Industrie 4.0*. Ph.D. in Computer Science. Technical University of Madrid

11. B. Mihaljević (2018). *Contributions to Bayesian Network Classifiers and Interneuron Classification*. Ph.D. in Computer Science. Technical University of Madrid
12. G. Varando (2018). *Theoretical Studies on Bayesian Network Classifiers*. Ph.D. in Computer Science. Technical University of Madrid
13. I. Leguey (2018). *Directional-linear Bayesian Networks and Applications in Neuroscience*. Ph.D. in Computer Science. Technical University of Madrid
14. L. Anton-Sanchez (2017). *Statistical and Optimization Methods for Spatial Data Analysis Applied to Neuroscience*. Ph.D. in Computer Science. Technical University of Madrid
15. A. Ibañez (2015). *Machine Learning in Scientometrics*. Ph.D. in Computer Science. Technical University of Madrid
16. P.L. López-Cruz (2013). *Contributions to Bayesian Networks Learning with Applications to Neuroscience*. Ph.D. in Computer Science. Technical University of Madrid. Awarded with the best Ph.D. thesis in the Technical University of Madrid
17. H. Karshenas (2013). *Regularized Model learning in EDA-s for Continuous and Multi-objective Optimization*. Ph.D. in Computer Science. Technical University of Madrid
18. H. Borchani (2013). *Multi-dimensional Classification using Bayesian Networks for Stationary and Evolving Streaming Data*. Ph.D. in Computer Science. Technical University of Madrid
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83. Journal of Process Control
84. Journal of Statistical Distributions and Applications

85. Machine Learning
86. Machine Learning and Knowledge Extraction
87. Mathematical Problems in Engineering
88. Medical, Biological Engineering and Computing
89. Movement Disorders
90. Nature Communications
91. Nature Parkinson's Disease
92. Networks and Heterogeneous Media
93. Neural Computing and Applications
94. Neurocomputing
95. Neuroinformatics
96. Open Mathematics
97. Pattern Analysis and Applications
98. Pattern Recognition
99. Pattern Recognition Letters
100. PLoS One
101. Probability in the Engineering and Informational Sciences
102. Proceedings of the National Academy of Science
103. Progress in Artificial Intelligence
104. Scientific Reports
105. Simulation and Computation
106. Soft Computing
107. Statistica Sinica
108. Swarm and Evolutionary Computation
109. The Computer Journal
110. The Patient: Patient-Centered Outcomes Research
111. The Scientific World Journal
112. WIREs Data Mining and Knowledge Discovery
113. Zentralblatt MATH

#### PLENARY TALKS IN CONFERENCES

1. Workshop on 30 Years of EDAs at the Parallel Problem Solving from Nature, Hagenberg (2024)
2. Joint Workshops on XAI Methods, Challenges and Applications (XAI3) at ECAI 2023, Krakow (2023)
3. 2022 International Symposium on New Trends in Computational Intelligence, Qingdao (2022)
4. The Leading European Event on Bio-Inspired Computation, Madrid (2022)

5. 3rd International Symposium on New Trend in Computational Intelligence, Qingdao (2021)
6. 2nd International Conference on Machine Learning and Intelligent Systems, Seoul (2020)
7. IEEE International Conference on Computational Intelligence in Bioinformatics and Computational Biology, Santiago de Chile (2020)
8. 19th Mexican International Conference on Artificial Intelligence, Mexico City (2020)
9. 10th International Conference on Cloud Computing, Data Science and Engineering. Confluence-2020, New Delhi (2020)
10. Global Innovation Day at the Week of Science, Bilbao (2019)
11. 1st IPARCOS Workshop on Machine Learning and Applications to Physics, Madrid (2019)
12. 14th International Conference on Hybrid Artificial Intelligence Systems, León (2019)
13. International Conference on Frontiers of Artificial Intelligence and Machine Learning, Rome (2019)
14. The Brain Conferences. The Necessity of Cell Types for Brain Function, Copenhagen (2018)
15. XVIII Conferencia de la Asociación Española para la Inteligencia Artificial, Granada (2018)
16. 3rd International Conference on Big Data Analytics, Data Mining and Computational Intelligence, Madrid (2018)
17. HBP and Neuroscience Spanish Open Forum, Madrid (2017)
18. CORBI Foundation. Data Summit, A Coruña (2017)
19. XXIV Jornadas de Classificação e Análise de Dados, Porto (2017)
20. International Workshop on Advances and Applications of Data Science and Engineering, Madrid (2016)
21. International Symposium on Computer-Based Medical Systems (CBMS), Porto (2013)
22. A Bridge Between Probability, Set Oriented Numerics, and Evolutionary Computation (EVOLVE), Mexico City (2012)
23. Sixth European Workshop on Probabilistic Graphical Models in Europe (PGM), Granada (2012)
24. A Bridge Between Probability, Set Oriented Numerics and Evolutionary Computation, (EVOLVE), Mexico (2012)
25. IEEE World Congress on Computational Intelligence (WCCI), Barcelona (2010)
26. Simposio Argentino de Inteligencia Artificial (ASAI), Buenos Aires (2010)
27. Tercer Congreso Internacional de Computación Evolutiva, Aguascalientes (2007)
28. Mini Euro Conference on Variable Neighborhood Search, Tenerife (2005)
29. X Conference of the Spanish Artificial Intelligence Association, Donostia-San Sebastián (2003)
30. International Summer School on Metaheuristics, Tenerife (2003)
31. Mexican Conference on Artificial Intelligence, Merida (2002)
32. Intelligent Data Analysis in Medicine and Pharmacology in the European Conference on Artificial Intelligence (ECAI2002), Lyon (2002)

#### ORGANIZER OF CONGRESS AND SCIENTIFIC EVENTS

1. *Program Chair of the European Conference on Machine Learning 2025, ECML2025*, Porto (2025)

2. *Co-Chair on the IEEE Symposium on Explainable, Responsible, and Trustworthy Computational Intelligence, IEEE CITREx*, Trondheim (2025)
3. *Session Advances in Machine Learning and Data-Driven System Identification Techniques for Structural Health Monitoring* within 12th International Conference on Bridge Maintenance, Safety and Management (IABMAS-2024), Copenhagen (2024)
4. *Responsible of the Lunch with an EurAI Fellow, ECAI2024*, Santiago de Compostela (2024)
5. *Organizer of the XAI-Healthcare 2023, AIME2023*, Portoroz (2023)
6. *Responsible of the Lunch with an EurAI Fellow, ECAI2020*, Santiago de Compostela (2020)
7. *Co-Chair of the Track on Estimation of Distribution Algorithms, GECCO2015*, Madrid, (2015)
8. *Co-Chair of the Track on Estimation of Distribution Algorithms, GECCO2014*, Vancouver, (2014)
9. *Co-Chair of the Special Session on Evolutionary Algorithms with Statistical and Machine Learning Techniques at the Congress on Evolutionary Conference, CEC2013*, Cancun, (2013)
10. *Co-Chair of the Congress on Evolutionary Conference, CEC2010*, Barcelona, (2010)
11. *IX Jornada de Seguimiento de Proyectos en Tecnologías Informáticas*, Madrid (2010)
12. *VIII Jornada de Seguimiento de Proyectos en Tecnologías Informáticas*, Madrid (2009)
13. *VII Jornada de Seguimiento de Proyectos en Tecnologías Informáticas*, Zaragoza (2007)
14. *Intelligent Data Analysis 2005*, Madrid (2005)
15. *14<sup>th</sup> European Conference on Machine Learning – 7<sup>th</sup> European Conference on Principles and Practice of Knowledge Discovery. Workshop on Probabilistic Graphical Models for Classification*, Cavtat–Dubrovnik (2003)
16. *International Symposium on Adaptive Systems: Evolutionary Computation and Probabilistic Graphical Models*, La Habana (2001)

#### PROGRAM COMMITTEE MEMBER

1. European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases, (ECML-PKDD2025), Porto, 2025
2. Artificial Intelligence in Medicine, (AIME2025), Pavia, 2025
3. IEEE Symposium on Explainable, Responsible, and Trustworthy Computational Intelligence, IEEE CITREx, Trondheim 2025
4. International Conference on Probabilistic Graphical Models (PGM 2024), Nijmegen 2022
5. 39th Conference on Uncertainty in Artificial Intelligence (UAI2023), Pittsburgh, 2023
6. 10th IEEE International Conference on Data Science and Advanced Analytics (DSAA2023), Thessaloniki, 2023
7. 26th European Conference on Artificial Intelligence, (ECAI2023), Kraków, 2023
8. 19th Conference on Artificial Intelligence in Medicine (AIME 2023), Portoroz (2023)
9. 18th Conference on Artificial Intelligence in Medicine (AIME 2022), Halifax (2022)
10. International Conference on Probabilistic Graphical Models (PGM 2022), Almeria 2022
11. First International Conference on Artificial Intelligence and Sustainable Computing for Smart Cities (AIS2C2), Noida 2021

12. 29th ACM International Conference on Information and Knowledge Management (CIKM 2020), Galway 2020
13. International Conference on Probabilistic Graphical Models (PGM 2020), Aalborg 2020
14. 18th Conference on Artificial Intelligence in Medicine (AIME 2020), Minneapolis (2020)
15. 24th European Conference on Artificial Intelligence, (ECAI2020), Santiago de Compostela, 2020
16. The 22nd International Conference on Discovery Science, (DS-2019), Split, 2019
17. 10th International Conference on Computing and Informatics in Northern Chile, (INFONOR2019), Antofagasta, 2019
18. European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases, (ECML/PKDD 2019), Würzburg, 2019
19. International Joint Conference on Artificial Intelligence, (IJCAI2019), Macao, 2019
20. 17th Conference on Artificial Intelligence in Medicine (AIME 2019), Poznan (2019)
21. AutoML Workshop at the International Conference in Machine Learning, Stockholm (2018)
22. European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases, (ECML/PKDD 2018), Dublin, 2018
23. XVII Spanish Conference on Artificial Intelligence (CAEPIA 2018), Granada 2018
24. International Conference on Probabilistic Graphical Models (PGM 2018), Praga 2018
25. Thirty-Second Conference on American Artificial Intelligence (AAAI 2018), New Orleans
26. I Workshop on Data and Knowledge Engineering (WDKE 2017), Arica
27. XII Congreso Español de Metaheurísticas, Algoritmos Evolutivos y Bioinspirados (MIC 2017), ???
28. Precision Healthcare through Informatics (Medinfo 2017), Xiamen
29. 4th International Conference on Data Science and Advances Analytics (DSAA 2017), Tokyo
30. 16th Conference on Artificial Intelligence in Medicine (AIME 2017), Vienna 2017
31. Workshop on Data Science for Social Good (SoGood 2016), Riva del Garda 2016
32. European Conference on Artificial Intelligence (Area Chair) (ECAI 2016), The Hague 2016
33. XVII Spanish Conference on Artificial Intelligence (CAEPIA 2016), Salamanca 2016
34. International Conference on Probabilistic Graphical Models (PGM 2016), Lugano 2016
35. 15th Ibero-American Conference on Artificial Intelligence (IBERAMIA 2016), San José de Costa Rica, 2016
36. IEEE Congress on evolutionary Computation (CEC2016), Vancouver 2016
37. International Work-Conference on Bioinformatics and Biomedical Engineering, IWBBIO2015, Granada, 2015
38. XVI Spanish Conference in Artificial Intelligence (CAEPIA2015), Albacete 2015
39. 16th Simposio Argentino de Inteligencia Artificial (ASAI 2015), Rosario, 2015
40. European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases, (ECML/PKDD 2015), Porto, 2015
41. 15th Conference on Artificial Intelligence in Medicine (AIME2015), Pavia, 2015

42. International Joint Conference on Artificial Intelligence, (IJCAI2015), Buenos Aires, 2015
43. European Conference on Symbolic and Quantitative Approaches to Reasoning with Uncertainty, (ECSQARU2015), Compiègne, 2015
44. European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases, (ECML/PKDD 2014), Nancy, 2014
45. The Seventh European Workshop on Probabilistic Graphical Models, (PGM2014), Utrecht, 2014
46. European Conference on Symbolic and Quantitative Approaches to Reasoning with Uncertainty, (ECSQARU2013), Utrecht, 2015
47. International Joint Conference on Artificial Intelligence, (IJCAI2013), Beijing, 2013
48. 14th Conference on Artificial Intelligence in Medicine (AIME2013), Murcia, 2013
49. International Work-Conference on Bioinformatics and Biomedical Engineering, (IWBBIO2013), Granada, 2013
50. XV Conferencia de la Asociación Española para Inteligencia Artificial (CAEPIA'13), Madrid, 2013
51. 27th Conference on Uncertainty in Artificial Intelligence (UAI-2012), Catalina Island, 2012
52. Prestigious Applications of Intelligent Systems in the European Conference on Artificial Intelligence (ECAI2012), Montpellier, 2012
53. IEEE World Congress on Computational Intelligence (WCCI2012), Brisbane, 2012
54. Genetic and Evolutionary Conference (GECCO2012), Atlanta, 2012
55. First International Conference on Pattern Recognition Applications and Methods (ICPRAM2012), Algarve, 2012
56. Sixth European Workshop on Probabilistic Graphical Models (PGM'12), Granada, 2012
57. Conferencia de la Asociación Española de Inteligencia Artificial, CAEPIA2011, San Cristóbal de La Laguna, 2011
58. Probabilistic Problem Solving in Biomedicine in the 13th Conference on Artificial Intelligence in Medicine (AIME2011), Bled, 2011
59. Genetic and Evolutionary Conference (GECCO2011), Dublin, 2011
60. 26th Conference on Uncertainty in Artificial Intelligence (UAI-2011), Barcelona, 2011
61. IEEE Congress on Evolutionary Computation (CEC2011), New Orleans, 2011
62. Intelligent Data Analysis Conference, IDA2011, Porto, 2011
63. International Joint Conference on Artificial Intelligence, IJCAI2011, Barcelona, 2011
64. 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
65. 26th Conference on Uncertainty in Artificial Intelligence (UAI-2010), Catalina Island, 2010
66. Fifth European Workshop on Probabilistic Graphical Models (PGM'10), Helsinki, 2010
67. 13th International Conference on Discovery Science (DS-2010), Canberra, 2010
68. ASAI 2010 Simposio Argentino de Inteligencia Artificial, Buenos Aires, 2010
69. 27th International Conference on Machine Learning, ICML2010, Haifa, 2010 Intelligent Data Analysis, IDA2010, Tucson, 2010

70. 13th International Conference on Information Processing and management of Uncertainty in Knowledge-Based Systems, Dortmund, 2010
71. European Conference on Machine Learning, ECML2010, Barcelona, 2010
72. 20th Brazilian Symposium on Artificial Intelligence, SBIA2010, Sao Bernardo do Campo, 2010
73. Congreso Español sobre Metaheurísticas, Algoritmos Evolutivos y Bioinspirados, MAEB2010, Valencia, 2010
74. 14th Pacific-Asia Conference on Knowledge Discovery and Data Mining, PAKDD2010, Hyderabad, 2010
75. Congress on Evolutionary Computation, CEC2010, Barcelona, 2010
76. 12th Conference on Artificial Intelligence in Medicine, AIME2009, Verona, 2009
77. Congress on Evolutionary Computation, CEC2009, Trondheim, 2009
78. 22nd International Florida Artificial Intelligence Research Society Conference, FLAIRS-22, Sanibel Island, 2009
79. Genetic and Evolutionary Computation Conference, GECCO2009, Montreal, 2009
80. Conferencia de la Asociación Española de Inteligencia Artificial, CAEPIA2009, Sevilla, 2009
81. Discovery Science, DS2009, Porto, 2009
82. Mexican International Conference on Artificial Intelligence, MICAI2009, Guanajuato, 2009
83. International Conference on Adaptive and Natural Computing Algorithms, ICANNGA2009, Kuopio, 2009
84. Intelligent Data Analysis, IDA2009, Lyon, 2009
85. European Conference on Symbolic and Quantitative Approaches to Reasoning with Uncertainty, ECSQARU2009, Verona, 2009
86. Congreso Español sobre Metaheurísticas, Algoritmos Evolutivos y Bioinspirados, MAEB2009, Málaga, 2009
87. Asian Conference on Machine Learning, ACML2009, Nanjing, 2009
88. International Joint Conference on Artificial Intelligence, IJCAI2009, Pasadena, 2009
89. Genetic and Evolutionary Computation Conference, GECCO2008, Atlanta, 2008
90. IEEE World Congress on Computational Intelligence, WCCI2008, Hong Kong, 2008
91. IV International Symposium on Applications of Modelling as an Innovative Technology in the Agri-Food Chain, MODEL-IT2008, Madrid, 2008
92. 8th International Conference on Hybrid Intelligent Systems, HIS2008, Barcelona, 2008
93. International Conference on Machine Learning, ICML2008, Helsinki, 2008
94. European Conference on Artificial Intelligence, ECAI2008, Patras, 2008
95. Parallel Problem Solving from Nature, PPSN2008, Dortmund, 2008
96. Probabilistic Graphical Models, PGM2008, Hirtshals, 2008
97. International Conference on Adaptive and Natural Computing Algorithms, ICANNGA2009, Kuopio, 2009
98. Intelligent Data Analysis in Medicine and Pharmacology, IDAMAP2008, Washington, 2008

99. Feature Selection in Data Mining and Knowledge Discovery, FSDM2008, Antwerp, 2008
100. Artificial Intelligence in Medicine, AIME2007, Amsterdam, 2007
101. International Conference on Artificial Intelligence and Applications, AIA 2007, Innsbruck, 2007
102. International Conference on Adaptive and Natural Computing Algorithms, ICANNGA 2007, Warsaw, 2007
103. European Conference on Symbolic and Quantitative Approaches to Reasoning and Uncertainty, ECS-QARU2007, Hammamet, 2007
104. International Conference on Natural Computation, ICNC2007, Haikon, 2007
105. Conferencia de la Asociación Española para la Inteligencia Artificial, Salamanca, 2007
106. European Conference on Machine Learning (Area Chair), ECML-PKDD2007, Warsaw, 2007
107. Intelligent Data Analysis in bioMedicine and Pharmacology, Amsterdam, 2007
108. Genetic Algorithms and Evolutionary Computation, GECCO2007, Londres, 2007
109. Data Warehousing and OLAP, DAWAK2007, Regensburg, 2007
110. Uncertainty in Artificial Intelligence, UAI2007, Vancouver, 2007
111. Intelligent Data Analysis, IDA2007, Ljubljana, 2007
112. IEEE Congress on Evolutionary Computation, CEC2007, Singapore, 2007
113. Jornadas de Algoritmos Evolutivos y Metaheurísticas, JAEM2007, Zaragoza, 2007
114. Intelligent Data Analysis in Biomedicine and Pharmacology, IDAMAP2006, Verona, 2006
115. Genetic and Evolutionary Computation Conference, GECCO2006, Seattle, 2006
116. Congress on Evolutionary Computation, CEC2006, Vancouver, 2006
117. European Conference on Artificial Intelligence, ECAI2006, Italia, 2006
118. Data Warehousing and Knowledge Discovery, DaWaK2006, Krakow, 2006
119. European Conference on Machine Learning, ECML-PKDD2006, Berlin, 2006
120. Probabilistic Graphical Models, PGM2006, Praga, 2006
121. 7th International Symposium on Biological and Medical Data Analysis, Thessaloniki, 2006
122. Non-Darwinian Evolutionary Computation Special Track at the 18th International Conference on Tools with Artificial Intelligence, ICTAI 2006, Washington, 2006
123. European Conference on Machine Learning (Area Chair), ECML-PKDD2005, Porto, 2005
124. Mini Euro Conference on Variable Neighborhood Search, Tenerife, 2005
125. International Symposium on Biological and Medical Data Analysis, ISBMDA2005, Aveiro, 2005
126. Cuarto Congreso Español de Metaheurísticas, Algoritmos Evolutivos y Bioinspirados, Granada, 2005
127. Conference on Evolutionary Computation, CEC2005, Edinburgh, 2005
128. Genetic and Evolutionary Computation, GECCO2005, Washington, 2005
129. International Conference on Machine Learning. Workshop on Ontology Learning, ICML2005, Bonn, 2005
130. Mexican International Conference on Artificial Intelligence, MICAI2005, Monterrey, 2005

131. 7th International Conference on Adaptive and Natural Computing Algorithms, ICANNGA2005, Coimbra, 2005
132. Segundo Congreso Mexicano de Computación Evolutiva, COMCEV2005, AguasCalientes, 2005
133. Intelligent Data Analysis, Madrid, 2005
134. International Symposium on Biological and Medical Data Analysis, ISBMDA2005, Aveiro, 2005
135. Cuarto Congreso Español de Metaheurísticas, Algoritmos Evolutivos y Bioinspirados, MAEB2005, Granada, 2005
136. International Conference on Machine Intelligence, ICMI2005, Tunes, 2005
137. Mini Euro Conference on Variable Neighborhood Search, Tenerife, 2005
138. European Conference on Symbolic and Quantitative Approach to Reasoning and Uncertainty, ECS-QARU2005, Barcelona, 2005
139. European Conference on Computational Biology, ECCB2005, Madrid, 2005
140. Fifth International Conference on Artificial Neural Nets and Genetic Algorithms, ICANNGA2005, Coimbra, 2005
141. V Annual Spanish Bioinformatics Conference, Barcelona, 2004
142. Uncertainty in Artificial Intelligence, UAI2004, Banff, 2004
143. First Iberoamerican Workshop on Machine Learning for Scientific Data Analysis, Puebla, 2004
144. Iberoamerican Conference on Artificial Intelligence, IBEARMIA2004, Puebla, 2004
145. Information Processing and Management Uncertainty, IPMU2004, Perugia, 2004
146. PPSNVIII Parallel Problem Solving From Nature, Birmingham, 2004
147. European Conference on Artificial Intelligence, ECAI2004, Valencia, 2004
148. Tercer Congreso Español de Metaheurísticas, Algoritmos Evolutivos y Bioinspirados, Cordoba, 2004
149. Genetic and Evolutionary Conference, GECCO2004, Seattle, 2004
150. Second European Workshop on Probabilistic Graphical Models, PGM2004, Leiden, 2004
151. Mexican International Conference on Artificial Intelligence, MICAI2004, Morelia, 2004
152. International Symposium on Medical Data Analysis, ISMDA2003, Berlin, 2003
153. International Joint Conference on Artificial Intelligence, IJCAI2003, Acapulco, 2003
154. Genetic and Evolutionary Conference, GECCO2003, Chicago, 2003
155. 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
156. Segundo Congreso Español de Metaheurísticas, Algoritmos Evolutivos y Bioinspirados, Gijón, 2003
157. Primer Congreso Mexicano de Computación Evolutiva, COMCEV2003, Guanajuato, 2003
158. Fifth International Conference on Artificial Neural Nets and Genetic Algorithms, ICANNGA2003, Rhoen, 2003
159. First European Workshop on Probabilistic Graphical Models, PGM2002, Cuenca, 2002
160. PPSNVII Parallel Problem Solving From Nature, Granada, 2002

161. 15th European Conference on Artificial Intelligence. Workshop of Intelligent Data Analysis in Medicine and Pharmacology, IDAMAP2002, Lyon, 2002
162. Mexican International Conference on Artificial Intelligence, MICAI2002, Mérida, 2002
163. Congreso Español de Algoritmos Evolutivos y Bioinspirados, Mérida, 2002
164. Optimization by Building and Using Probabilistic Models, GECCO2001, San Francisco, 2001
165. Fourteenth European Conference on Artificial Intelligence in Medicine. Workshop on Bayesian Models in Medicine, Cascais, 2001
166. International Symposium on Medical Data Analysis, ISMDA2001, Madrid, 2001
167. International Symposium on Adaptive Systems, La Habana, 2001
168. International Conference in Machine Learning, ICML2001, Seattle, 2001
169. IX Conferencia de la Asociación Española de Inteligencia Artificial, CAEPIA2001, Gijón, 2001
170. IX Symposium Nacional de Reconocimiento de Formas y Análisis de Imágenes, Castellón de la Plana, 2001
171. International Conference on Artificial Neural Nets and Genetic Algorithms, ICANNGA2001, Praga, 2001
172. Optimization by Building and Using Probabilistic Models, GECCO2000, Las Vegas, 2000
173. International Symposium on Medical Data Analysis, ISMDA2000, Frankfurt, 2000
174. Fourteenth European Conference on Artificial Intelligence, ECAI2000, Berlin, 2000
175. 8th International Conference on Information Processing and Management of Uncertainty in Knowledge Based Systems, Madrid, 2000
176. VIII Conferencia de la Asociación Española para la Inteligencia Artificial, Murcia, 1999
177. Fourth International Conference on Artificial Neural Nets and Genetic Algorithms, Portorož, 1999
178. IV Jornadas de Informática, Las Palmas de Gran Canaria, 1998
179. Third International Conference on Artificial Neural Nets and Genetic Algorithms, Norwich, 1997

#### SESSION CHAIR OF CONFERENCES

1. Image Analysis in *21st International Conference on Artificial Intelligence in Medicine*, Portoroz (2023)
2. Foundations II in *11th International Conference on Probabilistic Graphical Models*, Almería (2022)
3. Learning and Classifiers in *10th International Conference on Probabilistic Graphical Models*, Aalborg (2020)
4. Uncertainty in Artificial Intelligence in *XVIII Conferencia de la Asociación Española para la Inteligencia Artificial*, Granada 2018
5. Estimation in *9th International Conference on Probabilistic Graphical Models*, Lugano (2016)
6. Estimation of Distribution Algorithms in *Genetic and Evolutionary Computation Conference*, Madrid (2015)
7. Memetic, Multimeme, and Hybrid Algorithms in *Congress on Evolutionary Computation*, Barcelona (2010)
8. Applications in the *Fifth European Workshop on Probabilistic Graphical Models*, Helsinki (2010)

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

#### TUTORIALS

1. 19th Mexican International Conference on Artificial Intelligence, Mexico City (2020)
2. XXIV Jornadas de Classificação e Análise de Dados, Porto (2017)
3. 14th Conference on Artificial Intelligence in Medicine, Murcia (2013)
4. XIV Conference of the Spanish Artificial Intelligence Association, Tenerife (2011)
5. Discovery Science, Porto (2009)
6. Conferencia Española de Informática, Valencia (2010)
7. Congress on Evolutionary Computation, Edinburgh 2005
8. Congress on Evolutionary Computation, Canberra 2003
9. VIII Iberoamerican Conference on Artificial Intelligence, Seville 2002
10. Parallel Problem Solving from Nature VII, Granada (2002)
11. Mexican International Conference on Artificial Intelligence, Merida (2002)
12. IX Conference of the Spanish Artificial Intelligence Association, Gijón (2001)
13. International Symposium on Adaptive Systems. Evolutionary Computation and Probabilistic Graphical Models, Havana (2001)
14. Parallel Problem Solving from Nature VI, Paris (2000)

#### MEMBER OF COMMITTEES-PANELS EVALUATING GRANTS, PROJECTS AND RESEARCH CAREERS

1. *Norwegian Centres of Excellence*, Oslo
2. *Universidad de la República*, Montevideo
3. *European Research Council*, Brussels
4. *Research Assessment University of Helsinki*, Helsinki
5. *Medical Research Council*, London

6. *Danish Agency for Science and Higher Education*, Odense
7. *Agencia de Calidad del Sistema Universitario Vasco (UNIBASQ)*, Vitoria-Gasteiz
8. *Comisión Nacional de Investigación Científica y Tecnológica Chile*, Santiago de Chile
9. *Grants Program of the Obra Social la Caixa*, Barcelona
10. *Agència de Gestió d'Ajuts Universitaris i de Recerca (AGUAR)*, Barcelona
11. *INESC TEC Scientific Advisory Board*, Porto
12. *The Wellcome Trust*, London
13. *The Research Foundation - Flanders (FWO)*, Flanders
14. *The Dutch Technology Foundation (STW)*, Utrecht
15. *The Israel Science Foundation*, Jerusalem
16. *Swiss National Science Foundation*, Berna
17. *Croatian Science Foundation*, Zagreb
18. *para a Ciência e a Tecnologia*, Lisboa
19. *Fundação para a Ciência e a Tecnologia*, Lisboa
20. *Fonds de la Recherche Scientifique*, Paris
21. *Fonds de la Recherche Scientifique - FNRS, Agence de Financement de la Recherche pour la Belgique Francophone*, Bruselas
22. *ICREA Academia*, Barcelona
23. *ICREA Promotion*, Barcelona
24. *Junta de Andalucía*, Córdoba
25. *Agencia para la Calidad del Sistema Universitario de Castilla y León*, Valladolid
26. *Gobierno de Castilla y León*, Valladolid
27. *Gobierno de Aragón*, Zaragoza
28. *Generalitat Valenciana*, Valencia
29. *Ruder Bošković*, Zagreb
30. *Austrian Science Fund*, Vienna
31. *Comité de Evaluadores de Proyectos en Tecnologías de la Información*, Spanish Ministry of Science and Technology, Madrid
32. *Comité de Expertos de la Agencia Nacional de Evaluación y Prospectiva*, Spanish Ministry of Science and Technology, Madrid
33. *European Coordinating Committee for Artificial Intelligence*, European Conference on Artificial Intelligence, Edinburgh
34. *Fundación Séneca*, Murcia
35. *Agencia Nacional de Evaluación y Prospectiva*, Madrid
36. *Council of Physical Sciences of NWO (Computer Science)*, Netherlands Organization for Scientific Research, La Haya
37. *College of Science and Engineering at the City University of Hong Kong*, Hong Kong

38. *University of Helsinki*, Helsinki
39. *University of Windsor*, Ontario

#### DISSEMINATION ACTIVITIES

- *Newspapers*: El Diario Vasco, El Correo Innova+, ABC, Expansión, Retina, AS, El País, La Vanguardia
- *Magazines*: Elhuyar Zientzia eta Teknologia, Pil-pilean
- *Radio*: Radio3 (RNE), Radio Extremadura, Onda Cero, Instituto Mexicano de la Radio
- *Television*: Televisión Española, IBE La Televisión Iberoamericana, beIn La Liga
- *Digital Media*: El Pais Digital, madri+d, Canal UPM, ABC, Daily News, Diario Digital de Asturias, Sciences Avenir, Science Daily, El Correo Digital, Plataforma SINC, Andalucía Investiga, Matepedia, Matematicalia, Astekari Digitala, Terra Noticias, Catalunya, Vanguardista, La Universidad Responde (CRUE), Pfizer, Vademecum, DiarioFarma, Infosalus, Siglo XXI, IM Médico Hospitalario, Medicina21, Anisalud, Farmanews, Sociedad Española de Informática de la Salud

#### SOFTWARE REGISTRATION

1. *Elvira: Entorno para el desarrollo de modelos gráficos probabilísticos (programa de ordenador)*. A. Cano, S. Moral, M. Gómez, J.F. Huete, A. Salmerón, J. del Sagrado, J.A. Gámez, J.M. Puerta, F.J. Díez, C. Lacave, P. Larrañaga, B. Sierra, J.A. Lozano, I. Inza, S. Acid, L.M. de Campos, J.M. Fernández. Registro de la Propiedad Industrial de la Junta de Andalucía 2002-0420031059

#### PATENTS

1. *European Patent application: A Computer Implemented Method and System for Health Monitoring of Structures*. J. Díaz-Rozo, C. Puerto-Santana, C. Ocampo-Martínez, C. Bielza, P. Larrañaga. European Patent EP 24382271.5. Grant application date: 13-3-2024
2. *Methods and Kits for the Diagnosis and the Staging of Colorectal Cancer*. A. García, B. Suarez, M. Betanzos, G. López, R. Armañanzas, I. Inza, P. Larrañaga. WO-2010-034794
3. *Test Predictor de Supervivencia Global de Adenocarcinoma de Pulmón*. R. García, J. M. Paramio, P. Larrañaga, C. Bielza. P-2010-31626

#### MANAGING

- Member of the Group of Experts collaborating with the Spanish Ministry of Science, Innovation and Universities in the Spanish Strategy on Artificial Intelligence, 2019
- Member of the Committee for the Evaluation of the Research Activities of the University Professors, Spanish Ministry of Education (2010–2011)
- Expert Manager of Computer Technology area, Deputy Directorate of research projects, of the Spanish Ministry of Science and Innovation (2007–2010)
- Academic Secretary of the Computer Science School of the University of the Basque Country (1988–1991)

#### PERSONAL HONORS

- *Fellow of Industry Academy within the International Artificial Intelligence Industry Alliance*, Hong Kong (2024)
- *IEEE Fellow*, New York (2023)
- *ELLIS Fellow*, Tübingen (2023)
- *Sigma Xi Membership, The Scientific Research Honor Society*, North Carolina (2023)
- *Member of Jakiunde, Academy for the Science, the Arts, and Letters of the Basque Country*, Bergara (2022)

- *Fellow of the Asia-Pacific Artificial Intelligence Association*, Hong Kong (2021)
- *Fellow of the Academia Europaea*, London (2018)
- *Fellow of the European Association for Artificial Intelligence*, EuroAi Fellow, Montpellier (2012)

#### PERSONAL AWARDS

- *Award of the Universidad Politécnica de Madrid to the Incorporation of Research Excellence*, Madrid (2019)
- *Prize of the Spanish Association for Artificial Intelligence*, Granada (2018)
- *Spanish National Prize in Computer Science*, Arimel Award, Madrid (2013)
- *Best PhD Thesis in Engineering in the University of the Basque Country*, Bilbao (1996)