Curriculum Vitae

Antonio Artés-Rodríguez

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1. Personal Data

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2. Academic Background

- PhD in Telecommunication Engineering, Universidad Politécnica de Madrid, 1992

- Telecommunication Engineer, Universidad Politécnica de Madrid, 1988

3. Academic Employment

– Full Professor, Universidad Carlos III de Madrid, May 2002 – present.

– Associate professor, Universidad Carlos III de Madrid, Oct 2000 – May 2002.

– Associate professor, Universidad de Alcalá, Jan 2000 – May 2002.

– Associate professor, Universidad Politécnica de Madrid, Aug 1994 – Jan 2000.

– Associate professor, Universidad de Vigo, Jan 1993 – Aug 1994.

– Assistant professor, Universidad de Vigo, Oct 1988 – Jan 1993.

– Visiting positions:

  - University of Cambridge Aug 2013 - Jan 2014.
  - Universidad Federal do Rio de Janeiro Jun 2013 - Jul 2013.
  - Technical University of Denmark, Apr 2013 - May 2013.
  - Cornell University, Jul 2003 – Oct 2003.
  - McMaster University, Jul 1997 - Sep 1997.

4. Publications

4.1. International Journals

1. A. Porras, I. Díaz Olivan, M. L. Barrigón, M. Moreno, A. Artés, M. M. Pérez Rodríguez, E. Baca; "Real-world feasibility and acceptability of real-time suicide risk monitoring via smartphones: A 6-month follow-up cohort". *Journal of Psychiatric Research*, Vol. 149, p. 145-154, 2022.

2. L. Romero-Medrano, P. Moreno-Muñoz, A. Artés; "Multinomial Sampling of Latent Variables for Hierarchical Change-Point Detection". *J Sign Process Syst*, p. 1-13, 2021.

3. J. López Moriñigo, M. L. Barrigón, A. Porras, A. Sanchez Escribano, P. J. Escobedo, V. G. Ruiz Ruano, L. Mata Iturralde, L. Muñoz, S. Sánchez Alonso, A. Artés, E. Baca; "Pending challenges to e-mental health in the COVID-19 era: Acceptability of a smartphone-based ecological momentary assessment application among patients with schizophrenia spectrum disorders". *European Psychiatry*, Vol. 64(S1), 2021.

4. J. Ryu, E. Sukei, A. Norbury, S. H. Liu, J. J. Campaña, E. Baca, A. Artés, M. M. Perez; "A Shift in Social Media App Usage During COVID-19 Lockdown and Clinical Anxiety Symptoms: A Machine-Learning Based Ecological Momentary Assessment Study". To appear in *JMIR*, 2021.

5. J. López Moriñigo, M. L. Barrigón, A. Porras, V. G. Ruiz Ruano, A. Sanchez Escribano, P. J. Escobedo, S. Sánchez Alonso, L. Mata Iturralde, L. Muñoz, A. Artés, A. S. David, E. Baca; "Use of Ecological

Momentary Assessment Through a Passive Samrtphone App (eB2) by Patients with schizophrenia: Acceptability Study". *JMIR*, Vol. 23(7), 2021.

6. A. Porras-Segovia, A. Cobo, I. Díaz, A. Artés, S. Berrouiguet, J. López, P. Courtet, M. L. Barrigón, M. A. Oquendo, E. Baca; "Disturbed sleep as a clinical marker of wish to die: A smartphone monitoring study over three months of observation". *Journal of Affective Disorders*, Vol. 286, p. 330-337, 2021.

7. P. Moreno, D. Ramirez, A. Artés; "Change-point detection in hierarchical circadian models". *Pattern Recognition*, vol. 113, 2021.

8. A. Cobo, A. Porras, M. M. Perez, A. Artés, M. L. Barrigón, P. Courtet, E. Baca; "Patients at high risk of suicide before and during a COVID-19 Lockdown: ecological momentary assessment study". *BJPshyc Open*, Vol. 7(3), e82, 2021.

9. E. Sukei, A. Norbury, M. M. Perez, P. Olmos, A. Artés; "Predicting emotional states using behavioral markers derived from passively sensed data: Data-driven machine learning approach". *Jmir Mhelath Uhealth*, Vol. 9(3), e24465, 2021.

10. J. López, D. Abad, A. Cobo, P. Courtet, M. L. Barrigón, A. Artés, E. Baca; "Psychiatric profiles of eHealth users evaluated using data mining techniques: Cohort study". *Jmir mental health*, 2021.

11. P. Bonilla, D. Ramírez, A. Porras, A. Artés; "Assessment of variability in irregularly sampled time series: Applications to mental healthcare". *Mathemathics*, Vol. 9(1), 71, 2021.

12. A. Norbury, S. Liu, J. J. Campaña, L. Romero, M. L. Barrigón, E. Smith, A. Artés, E. Baca, M. M. Perez: "Social media and smartphone app use predicts maintenance of physycal activity during covid-19 enforced isolation in psychiatric outpatients". *Molecular psychiatry*, 2020.

13. I. Peis, J. López, M. M. Perez, M. L. Barrigón, M. Ruiz, A. Artés, E. Baca; "Actigraphic recording of motor activity in depressed inpatients: a novel computational approach to prediction of clinical course and hospital discharge". *Scientific reports*, Vol. 10(1), 17286, 2020.

14. G. Rios, F. Moreno, N. Soto, P. Olmos, A. Artés, F. Fernandez, A. Arenal; "Hidden Markov Models for Activity Detection in Atrial fibrillation electrograms". *Computing Cardiology*, vol. 47, 2020.

15. P. E. Arenas, F. Aroca, I. Martinez, *et al.* "Universal mental health screening with focus on suicidal behaviour using smartphones in a Mexican rural community: protocol for the SMART-SCREEN population-based survey". *BMJ Open*, 2020.

16. D. Carreras, D. Delgado, E. Baca, A. Artés; "A probabilistic patient scheduling model with time variable Slots". *Computational and mathematical methods in medicine*, Vol. 2020, 9727096, 2020.

17. A. Porras, R. M. Molina, S. Berrouiguet, J. López, M. L. Barrigón, M. S. Pérez, J. Heliodoro, I. Díaz, S. de Leon, P. Courtet, A. Artés, E. Baca; "Smartphone-based ecological momentary assessment (EMA) in psychiatric patients and student controls: A real-world feasibility study". *J. Affect. Disord*, vol. 274, p. 733-741, 2020.

18. P. Carretero, J. J. Campaña, A. Artés; "Ecologucal Momentary assessment for monitoring risk of suicide behavior". *Topics in behavioral Neuroscience*, 2020.

19. G. Ríos, A. Artés, F. Fernandez, A. Arenal; "Real-time ventricular cancellation in unipolar atrial fibrillation electrograms". *Frontiers in bioengineering and biotechnology*, Vol. 8, 789, 2020.

20. J. D. López, V. González, A. Sánchez, M. L. Barrigón, L. Mata, L. Muñoz, S. Sánchez, A. Artés, A. S. David, E. Baca; "Study protocol of a randomised clinical trial testing whether metacognitive training can improve insight and clinical outcomes in schizophrenia".*BMC Psychiatry*, vol. 20, no 30, 2020.

21. F. Moreno, A. Porras, P. López, A. Artés, E. Baca; "Validation of Fitbit charge 2 and Fitbit Alta HR against polysomnography for assessing sleep in adults with obstructive sleep apnea". *J. Clin. Sleep Med.*, vol. 15, no 11, p. 1645-1653, 2019.

22. S. Berrouiguet, M. L. Barrigón, J. López, P. Courtet, A. Artés, E. Baca; "Combining mobile-health (mHealth) and artificial intelligence (AI) methods to avoid suicide attempts: the Smartcrises study protocol". *BMC Psychiatry*, vol. 19, no 277, 2019.

23. J. López, J. M. Leiva, F. Cegla, H. Blasco, R. García, A. Artés, C. Morant, P. Courtet, C. Blanco, F. Aroca, E. Baca; "Onset of schizophrenia diagnoses in a large clinical cohort". *Scientific Reports*, vol. 9, no 9865, 2019.

24. I. Peis, P. M. Olmos, C. Vera, M. L. Barrigón, P. Courtet, E. Baca, A. Artés; "Deep Sequential Models for Suicidal Ideation from Multiple Source Data". *IEEE J Biomed Health Inform*, vol. 23, no 6, p. 2286-2293, 2019.

25. P. Bonilla, D. Ramírez, A. Sedano, J. J. Campaña, E. Baca, P. Courtet, A. Artés; "Assessment of e-Social Activity in Psychiatric Patients". *IEEE J Biomed Health Inform*, vol. 23, no 6, p. 2247-2256, 2019.

26. D. Luengo, G.R. Ríos, V. Elvira, C. Sánchez and A. Artés; "Hierarchical Algorithms for Causality Retrieval in Atrial Fibrillation Intracavitary Electrograms". *IEEE J Biomed Health Inform*, vol. 23, no 1, p. 143-155, 2019.

27. S. Berrouiguet, D. Ramírez, M. L. Barrigón, P. Moreno, R. Carmona, E. Baca, A. Artés; "Combining continuous smartphone native sensors data capture and unsupervised data mining techniques for behavioral changes detection: The feasibility study of the Evidence Based Behavior (eB2) platform (Preprint)". *JMIR mHealth and uHealth*, vol. 6, no 12, 2018.

28. F. Hernando, D. Luengo, A. Artés; "Feature Extraction of Galvanic Skin Responses by Non-Negative Sparse Deconvolution". *IEEE J Biomed Health Inform*, vol. 22, no 5, pp. 1385-1394, 2018.

29. G. R. Ríos, A. Arenal, A. Artés; "Corrigendum: Real-Time Rotational Activity Detection in Atrial Fibrillation". *Front Physiol*, vol. 9, pp. 1260, 2018.

30. G.R. Ríos, A. Arenal, A. Artés; "Real-time Rotational Activity Detection in Atrial Fibrillation". *Front Physiol*, vol. 9, pp. 208, 2018.

31. M.L. Barrigón, S. Berrouiguet, J.J. Carballo, C. Bonal, P. Fernández, B. Pfang, D. Delgado, P. Courtet, F. Aroca, J. López, A. Artés, E. Baca, MEmind study group; "User profiles of an electronic mental health tool for ecological momentary assessment: MEmind". *Int J Methods Psychiatr Res*, 2017.

32. A. Nazábal, P. G. Moreno, A. Artés, Z. Ghahramani; "Human Activity Recognition by Combining a Small Number of Classifiers". *IEEE J Biomed Health Inform*, vol. 20 (Sep), pp. 1342-1351, 2016.

33. P. G. Moreno, A. Artés, Y. W. Teh, F. Pérez-Cruz; "Bayesian Nonparametric Crowdsourcing". *J Mach Learn Res*, vol. 16 (Aug), pp. 1607-1627, 2015.

34. D. Luengo, S. Monzón, T. Triganoz, J. Via, A. Artés; "Blind Analysis of Atrial Fibrillation Electrograms: Sparsity-Aware Formulation". *Integr Comput-Aid E*, vol. 22, pp. 71-85, Jan 2015.

35. J. Montoya, A. Artés, M. Pontil, L.K. Hansen; "A Regularized Matrix Factorization Approach to Induce Structured Sparse-Low-Rank Solutions in the EGG Inverse Problem". *Eurasip JASP*, vol. 97, pp. 1-13, Jul 2014.

36. N. O'Mahony, B. Florentino, J.J. Carballo, E. Baca, A. Artés; "Objective Diagnosis of ADHD using IMUs". *Med Eng Phys*, vol. 36, pp. 922-926, May 2014.

37. R. Santiago, F. Pérez-Cruz, M.G. Madden, A. Artés; "An Automated Screening System for Tuberculosis". *IEEE J Biomed Health Inform*, vol. 18, pp. 885-862, May 2014.

38. J. Piñeiro, M. Blanco, F. Cruz, A. Artés; "Target Detection for Low Cost Uncooled MWIR Cameras based on Empirical Mode Decomposition". *Infrared Phys Technol*, vol. 63, pp. 222-231, Feb 2014.

39. E. Serrano, J. López, J.M. Leiva, H. Blasco. R. García, A. Artés, C. Morant, C. Blanco, P. Courtet, E. Baca, ; "1533 - A Naturalistic Study of the Diagnostic Evolution of Schizophrenia". *European Psychiatry*, vol. 28, 2013.

40. J. M. Leiva, A. Artés; "Information-Theoretic Linear Feature Extraction based on Kernel Density Estimators: a Review". *IEEE T Syst Man Cy C*, vol. 42, no. 6, pp. 1180-1189, Nov 2012.

41. M. A. Oquendo, E. Baca, A. Artés, F. Pérez-Cruz, H.C. Galfalvy, H. Blasco, D. Madigan, N. Duan; "Machine Learning and Data Mining: Strategies for Hypothesis Generation". *Molecular Psychiatry*, vol. 17, pp. 956-959, Oct 2012.

42. J. M. Leiva, A. Artés; "Algorithms for Maximum-Likelihood Bandwidth Selection in Kernel Density Estimators". *Pattern Recognit Lett*, vol. 33, pp. 1717-1724, Oct 2012.

43. D. Luengo, S. Monzón, A. Artés; "Novel Fast Random Search Clustering Algorithm for Mixing Matrix Identification in MIMO Linear Blind Inverse Problems with Sparse Inputs". *Neurocomputing*, vol. 87, pp. 62-78, Jun 2012.

44. J. López, E. Baca, J. M. Leiva, H. Blasco, R. García, A. Artés, C. Morant, C. Blanco; "P-1266 - Dimensional schizophrenia: not an easy transition". *European Psychiatry*, vol. 27, S1, 2012.

45. D. Delgado, H. Blasco, A. Alegría, T. Legido, A. Artés, E. Baca; "Improving the accuracy of suicide attempter classification". *Artif Intell Med*, vol. 52, pp. 165-168, Jul 2011.

46. J. López, M. M. Pérez, M. de Prado, R. Santiago. J. M. Leiva, P. Freed, A. L. Alegría, J. Saiz, A. Artés, M. Oquendo, E. Baca, P. Cortet, F. Jollant, I. Jaussent, S. Guillaume, A. Malafosse; "Distinguishing the relevant features of frequent suicide attempters". *J Psychiatr Res*, vol. 45, pp. 619-625, May 2011.

47. D. Delgado, D. Aguado, J. López, C. Santacruz, A. Artés; "Improving sale performance prediction using support vector machines". *Expert Syst Appl*, vol. 38, pp. 5129-5132, May 2011.

48. R. Santiago, F. Pérez, A. Artés; "Extended input space Support Vector Machines". *IEEE Trans. Neural Netw*, vol. 22, pp. 158-163, Jan 2011.

49. D. Delgado, D. Aguado, F. Sukno, C. SantaCruz, A. Artés; "Individual identification using personality traits". *J Netw Comput Appl*, vol. 33, pp. 293-299, May 2010.

50. J.J. Carballo, E. Baca, C. Blanco, M. M. Pérez, M. A. Arriero, A. Artés, M. Rynn, D. Schaffer, M. Oquendo; "Stability of childhood anxiety disorder diagnoses: a follow-up naturalistic study in psychiatric care". *Eur Child Adoles Psy*, vol. 19, pp. 395-403, Apr 2010.

51. E. Baca, C. Vaquero, M. M. Pérez, M. Gratacós, M. Bayés, R. Santiago, J. M. Leiva, M. de Prado, A. Artés, A. Ceverino, C. Díaz, P. Fernández, J. Costas, J. Fernández, M. Díaz, J. de León, E. Baca, J. Saiz, J. J. Mann, R. V. Parsey, A. Carracedo, X. Estivill, M. Oquendo ; "Nucleotide Variation in Central Nervous System Genes Among Male Suicide Attempters". *Am. J. Med. Genet. Part B: Neuropsychiatric Genetics*, vol. 153B, pp. 208-213, Jan 2010.

52. M. Lázaro, M. Sánchez, A. Artés; "Optimal sensor selection in binary heterogeneous sensor networks". *IEEE Trans Signal Process*, vol. 57, pp. 1577-1587, Apr 2009.

53. J. López, H. Blasco, A. Artés, A. Llerena, J. Saiz, E. Baca; "The "Ramon y Cajal Hospital-Fundacion Jimenez Diaz" research group: filling the gap in mental disorders". *Eur J Psychiatry*, vol. 23(Supl)., 147-153, Jan 2009.

54. J. M. Leiva, S. Salcedo, A. Gallardo, A. Artés; "A simulated annealing approach to speaker segmentation in audio databases". *Eng Appl Artif Intell*, vol. 21, pp. 499-508, Jun 2008.

55. E. Baca, M. M. Pérez, I. Basurte, J. Quintero, J. Sevilla, M. Martínez, A. Artés, A.L. Fernández, M.A. Jiménez, J.L. González; " Patterns of mental health service utilization in a general hospital and outpatient mental health facilities: analysis of 365,262 psychiatric consultations". *Eur Arch Psy Clin N*, vol. 258, pp. 117-123, March 2008.

56. A. Artés; "Intelligent monitoring systems based on sensor networks with military, environmental, domotics, security and tracking applications". 2008.

57. A. Artés; "Automatization techniques for processing biomedical signals using machine learning methods". 2008

58. J. M. Leiva, A. Artés; "Maximization of Mutual Information for Supervised Linear Feature Extraction". *IEEE Trans Neural Netw*, vol. 18, pp. 1433-1441, Sep 2007.

59. E. Baca, M. M. Perez, D. Saiz, I. Basurte, J. Saiz, J. M. Leiva, M. de Prado, R. Santiago, A. Artés, J. de León; "Variables Associated with Familial Suicide Attempts in a Sample of Suicide Attempters". *Prog Neuro-Psychopharmacol Biol Psychiatry*, vol. 31, pp. 1312-1316, Aug 2007.

60. E. Baca, M. M. Perez, I. Basurte, J. López, A. L. Fernández, M. A. Jimenez, J. L. González, J. Saiz, J. M. Leiva; M. de Prado; R. Santiago, A. Artés, M. A. Oquendo, J. de León; "Diagnostic stability and evolution of bipolar disorder in clinical practice: A prospective cohort study". *Acta Psychiatr Scand*, vol. 117, pp. 473-480, June 2007.

61. G. Camps, E. Soria, J. Pérez, F. Pérez, A. Artés, V. Jiménez; "Therapeutic Drug Monitoring of Kidney Transplant Recipients using Profiled

Support Vector Machines". *IEEE T Syst Man Cy C*, vol. 37, pp. 359-372, May 2007.

62. A. Arenal, M. Ortiz, R. Peinado, J. L. Merino, A. Quesada, F. Atienza, A. García, J. Ormaetxe, E. Castellanos, J. C. Rodríguez, N. Pérez, J. García, L. Boluda, M. de Prado, A. Artés; "Differentiation of ventricular and supraventricular tachycardias based on the analysis of the first postpacing interval after sequential anti-tachycardia pacing in implantable cardioverter-defibrillator patients". *Heart Rhythm*, vol. 4, pp. 316-322, March 2007.

63. J. Míguez, A. Artés; "Particle Filtering Algorithms for Tracking a Maneuvering Target Using a Network of Wireless Dynamic Sensors". *Eurasip JASP*, vol. 2006, pp. 1-16, 2006.

64. E. Baca, M.M. Pérez, I. Basurte, J. Saiz, J.M. Leiva, M. de Prado, R. Santiago, A. Artés, J. de León; " Using Data Mining to Explore Complex Clinical Decisions: A Study of Hospitalization after a Suicide Attempt". *J Clin Psychiat*, vol. 67, pp. 1124-1132, Jul 2006.

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66. M. Lázaro, F. Pérez, A. Artés; "Learning a Function and Its Derivatives Forcing the Support Vector Expansion". *IEEE Signal Process Lett*, vol. 12, pp. 194-197, March 2005.

67. F. Pérez, C. Bousoño, C.J. Lin, A. Artés; "Convergence of the IRWLS Procedure to the Support Vector Machine Solution". *Neural Computation*, vol. 17, pp. 7-18, Jan 2005.

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69. A. Artés, J. L. F. V. Martin; "Special Issue on Learning: Advances in Multimedia Communications, Information Processing, and Education". *IEEE T Syst Man Cy C (Applications and Reviews)*, vol. 34, no. 4, pp. 381-382, Oct 2004.

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4.2.   Books

1. A. Artés, F. Pérez-González, J. Cid, R. López, C. Mosquera, F. Pérez-Cruz; "Comunicaciones Digitales". ISBN 978-84-8322-348-2. Pearson, 2007.

4.3.   Book chapters

1. S. Gong, A. Artés "Fast Background Elimination in Fluorescence Microbiology Images: Comparison of Four Algorithms" in *Artificial Intelligence Applications and Innovations*, Springer, 2011.

2. J. Míguez, L. Arnaiz, A. Artés "Monte Carlo Methods for Node Self-Localization and Nonlinear Target Tracking in Wireless Sensor Networks" in *Sensor and Data Fusion*, IntechOpen, 2009.

3. J. L. Rojo, A. García, A. Artés, A. Arenal; "Tachycardia Discrimination in Implantable Cardioverter Defibrilator Using Support Vector Machines and Bootstrap Resampling", in L. Wang, *Support Vector Machines: Theory and Applications*, Springer, 2005.

4. A. Artés; "Las tecnologías de la información y las comunicaciones en la decisión clínica", in L. Ruiz, *Claves para la gestión clínica*, McGraw-Hill, 2004.

5. A. Artés, F. García, J. F. Hernández-Gil; "Las redes de comunicaciones a principios del milenio", in A.R. Figueiras, *Una panorámica de las telecomunicaciones*, Prentice Hall, 2001.

4.4.   International Conferences

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126. A. Artés, F. J. González, E. Rodríguez, A. R. Figueiras; *"SADE: A DSP oriented CAMAD Tool for Digital Communications"*. First COST #229 Workshop on Adaptive Algorithms. Bayona, Spain, March 1991.

127. A. R. Figueiras, D. Docampo, J. R. Casar, A. Artés; *"Extensions and Improvements of Frequency-Domain Iterative Techniques for Harmonic Signal Extrapolation"*. EURASIP European Signal Processing Conference, EUSIPCO'90. Barcelona, Spain, Sep 1990.

128. A. Artés, F. J. González, E. Rodríguez, A. R. Figueiras; *"A New Educational Tool for Simulation of Digital Communication Systems"*. Third IEEE Int. Workshop on Computer-Aided Mod., Anal., and Design of Comm. Links and Networks. Torino, Italy, Sep 1990.

129. A. R. Figueiras, A. Artés, D. Docampo, J. R. Casar; *"Relaxed Wiener POCS Algorithms for Sinusoid Detection and Tracking"*. 1990 Bilkent Int. Conf. on New Trends in Communication, Control, and Signal Processing. Bilkent Univ., Ankara, Turkey, Jul 1990.

130. A. R. Figueiras, D. Docampo, J. R. Casar, A. Artés; *"On Using the Adaptive Delay Filter in Sparse Identification and Extensions to Sparse Deconvolution"*. IEEE Int. Conf. on Acoustics, Speech, and Signal Processing, ICASSP'90. Alburquerque, New Mexico, EEUU, April 1990.

131. A. R. Figueiras, J. R. Casar, D. Docampo, A. Artés; *"Iterative Bandwidth Reduction in Optimal Bandlimited Extrapolation"*. 1989 URSI Int. Symp. on Signals, Systems, and Electronics, ISSSE'89. Erlangen, Germany, Sep 1989.

132. A. Artés, A. R. Figueiras, D. Docampo, J. R. Casar; *"A Comparison Between Quadratic and Sign Adaptive Iterative Algorithms for Spiky Deconvolution"*. MELECOM'89. Lisboa, Portugal, April 1989.

133. A. R. Figueiras, J. R. Casar, D. Docampo, A. Artés; *Fast Nonlinear Iterative Algorithms for Harmonic Signal Extrapolation"*. Second IMA Conference on Mathematics and Signal Processing. Warwick, UK, Dec 1988.

4.5. Other Publications

- More than 50 technical reports corresponding to R&D projects and contracts.

5. R&D Projects and Contracts

5.1. International Projects, PI

1. *"Machine Learning Frontiers in Precision Medicine (H2020-MSCA-ITN-2018)"*. Innovative Training Networks, European Commission, 01/01/2019–31/12/2022.

2. *"ON-AIR"*. EU, EUREKA; 15/9/1995–14/9/2000.

5.2. International Projects

1. *"BAYTREE- Advanced Bayesian computation methods for modelling and inference in complex dynamical networks"*, OFFICE OF NAVAL RESEARCH GLOBAL, 01/03/2019-28/02/2022.

2. *"NICOP - a new sequential Monte Carlo framework for tracking of non-linear complex dynamical systems (NICOP -N62909-15-1-2011)"*. Office Of Naval Researh Global, 17/04/2015–16/04/2018.

3. *"Machine Learning for Personalized Medicine (FP7-PEOPLE-2012-ITN-316861)"*. Marie Curie Actions, FP7, European Commission, 1/1/2013–31/12/2016.

4. *"New Computational Methods for Inference in Complex Spatial Models (PHB2011-0038-PC)"* (Spain-Brasil joint actions). Ministerio de Educación, Cultura y Deportes, 1/1/2012–31/12/2013.

5. *"Analysis, Design and Optimization of Next Generation Wireless Communications Systems (PT2009-0115)"* (Spain-Portugal joint actions). Ministerio de Ciencia e Innovación, 1/1/2010–31/12/2012.

6. *"CReating Ubiquitous Intelligent Sensing Environments (CRUISE)"* (Network of Excellence on the application and communication aspects of wireless sensor networking). European Commission, 1/1/2006–31/12/2007.

7. *"An Intelligent Vision System for Automatic Inspection of Alimentary Systems"*. CE, BRITE-EURAM; 1/10/92–31/9/95.

5.3. International Contracts

1. *"Uncertainty propagation meeting space debris needs (T711-501GR)"*, EUROPEAN SPACE AGENCY (ESA), 04/03/2019-04/10/2020.

2. *"Using genetic techniques to optimize signal processing algorithms"*. Motorola, Inc., 10/3/1995 - 9/3/1996.

3. *"Digital Signal Processing and Simulation for Digital Communications"*. BNR-Northern Telecom; 1/1/1994 - 1/12/1994.

4. *"MULTICOM 2000"*. BNR-Northern Telecom; 1/7/1993 - 30/6/1994.

5.4. National Projects, PI

1. *"Creación de un algoritmo que caracterice el comportamiento humano mediante agregación de datos (Deep-DARWiN)"*, Fundación BBVA, 30/04/2019 – 30/05/2021.

2. *"Aprendizaje máquina y computación masiva para medicina personalizada y análisis cuantitativo del clima (CLARA)"*, Ministerio de Ciencia, Innovación y Universidades, 01/01/2019 – 31/12/2021.

3. *"Psiquiatría Computacional y Modelos Integrales de Comportamiento (PRACTICO-CM)"*. Convocatoria de Proyectos Sinérgicos Comunidad de Madrid, 01/01/2019–31/12/2021.

4. *"Microfundamentos del comportamiento: un enfoque basado en las TICs para entender el comportamiento humano y la interacción"*. Plan Nacional I+D+i, 1/1/2018–31/12/2019.

5. *"Métodos Computacionales Bayesianos Avanzados para Estimación, Predicción y Control en Sistemas Multisensoriales Complejos (ADVENTURE)"*. Plan Nacional I+D+i, 1/1/2016–31/12/2018.

6. *"Annomalous human behavIour Detection (AID)"*. Plan Nacional I+D+i, 1/9/2015–31/8/2017.

7. *"Distributed Learning, Communication, and Information Processing (DEIPRO)"*. Plan Nacional I+D+i, 1/1/2010–31/12/2012.

8. *"Monitorización inteligente (MONIN)"*. Plan Nacional I+D+i, 1/10/2006–31/12/2009.

9. *Consorcio para el Desarrollo de TEcnologías Avanzadas para la Medicina (CDTEAM)*. CDTI, CENIT program, main contractor: Suinsa Medical Systems S.A., 16/1/2006– 15/1/2010.

10. *"Procesamiento Multimedia Distribuido (PRO-MULTIDIS)"*. PRICIT, 1/1/2006–31/12/2009.

11. *"Detección en imágenes infrarrojas para aplicaciones de seguridad (DOI-RAS)"*. Plan Nacional de I+D+I, 1/12/2003–30/11/2006.

12. *"Tratamiento de señal para detección de puntos calientes (TIC2000-0380-C03-03)"*. Plan Nacional de I+D+I, 28/12/2000–27/12/03.

13. *"Aplicación de algoritmos basados en procesos naturales a la predicción, la decisión y la comunicación"*. CICYT, 1/8/96–31/7/99.

5.5. National Contracts, PI

1. *"Proyecto de desarrollo de las capacidades de medición de competencias de candidatos a través de la Gamificación y la Inteligencia Artificial"*. Job Search technologies, S.L., 1/1/2020 - 31/12/2020.

2. *"Supervisión del desarrollo de algoritmos para análisis de imagen multiespectral satelital"*. SKANSENSE, S.L.U., 1/7/2017–31/12/2016.

3. *"Aprendizaje profundo para la predicción de cambio de terminal de clientes"*. Telefónica, S.A., 7/7/2015–6/2/2016.

4. *"Diseño de Data Links VII"*. Indra Sistemas, 1/3/2015–31/3/2015.

5. *"Desarrollo de algoritmos de análisis de calidad de datos adquiridos en las inspecciones de tubos de generadores de vapor"*. Tecnatom, S.A., 1/11/2014–31/8/2015.

6. *"Diseño de Data Links VI"*. Indra Sistemas, 1/6/2014–31/12/2014.

7. *"Stress Level Assesment With Non-Intrusive Sensors"*. Airbus Group Defense & Space, 20/11/2013–20/11/2017.

8. *"Diseño de Data Links V"*. Indra Sistemas, 1/6/2013–31/5/2014.

9. *"Diseño de Data Links IV"*. Indra Sistemas, 1/6/2012–31/5/2013.

10. *"Informe sobre concurrencia de actividades"*. Exponential Wireless World, S.A., 25/1/2012 - 24/03/2012.

11. *"Diseño de Data Links III"*. Indra Sistemas, 1/6/2011–31/5/2012.

12. *"Diseño de Data Links II"*. Indra Sistemas, 1/6/2010–31/5/2011.

13. *"Diseño de Data Links"*. Indra Sistemas, 1/9/2009–31/5/2010.

14. *"Transmisión Progresiva de Imagen sobre Terminales Link16 MINDS-LVT"*. Indra Sistemas, 1/10/2008–30/4/2009.

15. *"Optimización del Preprocesado del sistema SIRIO"*. Centro de Investigación y Desarrollo de la Armada (CIDA), 24/7/2008–15/11/2009.

16. *"Terminal de Evaluación del Sistema "SIRIO": Investigación Algorítmica"*. Indra Sistemas, 1/1/2007–31/12/2007.

17. *"Informe sobre violación de patente por el producto AVANT5"*. Televes, S.A., 10/7/2007 - 10/9/2007.

18. (co-IP) *"Desarrollo de un Sistema de Cancelación de Realimentación para Reemisores Isofrecuencia de Televisión Digital Terrestre"*. Wish Soluciones, 15/9/2006–14/3/2008.

19. *"Realización de un Demostrador de Sistema de Búsqueda"*. Centro de Investigación y Desarrollo de la Armada (CIDA), 30/9/2006–30/6/2008.

20. *"Optimización de la Algoritmia Neuronal del Sistema SIRIO"*. Centro de Investigación y Desarrollo de la Armada (CIDA), 24/7/2006–30/6/2007.

21. *"Algoritmia de Caracterización de Escenarios"*. Indra Sistemas, 1/1/2006–31/12-2006.

22. *"Desarrollo del Terminal y de las Herramientas de Evaluación del Sistema Sirio. Investigación Algorítmica"*. Indra Sistemas, 1/1/2005–31/12/2005.

23. *"Algoritmos de Detección y Guiado; Integración y Pruebas del Prototipo GUIATER con el Sistema de Rotación de Imagen IR"*. Centro de Investigación y Desarrollo de la Armada (CIDA), 1/10/2005–1/12/2005.

24. *"Asesoramiento en el Programa Nacional de Extensión del Acceso a la Banda Ancha en Zonas Rurales y Aisladas"*. INGENIERÍA DE SISTEMAS PARA LA DEFENSA DE ESPAÑA, S.A, S.M.E, M.P., 1/7/2005 - 30/10/2005.

25. *"Desarrollo del Terminal y de las Herramientas de Evaluación del Sistema Sirio"*. Indra Sistemas, 13/10/2004–31/12/2004.

26. *"Evaluación de Proyectos de Investigación Científica, Desarrollo e Innovación Tecnológica"*. AENOR, 05/3/2003 - 31/12/2012.

27. *"Desarrollo de un Portal (PC, PDA) de Alarmas para Pacientes con Riesgo Cardiaco"*. Telefónica I+D, 1/5/2003–28/2/2004.

28. *"Asistencia técnica para la realización de algoritmos de detección IR para el guiado terminal de proyectiles"*.Centro de Investigación y Desarrollo de la Armada (CIDA), 28/7/2003–1/12/2004.

29. *"Asistencia técnica para la realización y evaluación del módulo de preprocesado del sistema SIRIO"*. Centro de Investigación y Desarrollo de la Armada (CIDA), 1/5/2003–31/3/2004.

30. *"Asistencia técnica para la realización del software del módulo de preprocesado del sistema SIRIO"*. Centro de Investigación y Desarrollo de la Armada (CIDA), 30/9/2002–30/4/2003.

31. *"Estudio y desarrollo de una cámara compacta IR basada en matrices de hasta 16x16 elementos de Seleniuro de Plomo"*. Centro de Investigación y Desarrollo de la Armada (CIDA); 1/6/2001–31/12/2002.

32. *"Definición y realización del módulo de preprocesado del sistema SIRIO"*. Centro de Investigación y Desarrollo de la Armada (CIDA); 1/6/2001–30/4/2002.

33. *"Análisis de viabilidad de algoritmia de sistemas IRST"*. Tecnobit S.L.; 30/3/2001–30/5/2001.

34. *"Codificador MPEG-4"*. Teldat S.A. and Procesamiento Digital y Sistemas S.L.; 18/1/2001–17/1/2002.

35. *"Tratamiento de la señal de una matriz de 256 detectores IR de PbSe"*. Centro de Investigación y Desarrollo de la Armada (CIDA); 1/4/2000–30/11/2000.

36. *"Placa procesadora basada en DSP para el tratamiento de la señal de una matriz multisensor IR de PbSe"*. Centro de Investigación y Desarrollo de la Armada (CIDA); 1/4/99–30/11/99.

37. *"Colaboración sobre el terminal MIDS"*. Tecnobit, S.A.; 1/4/99–31/12/2000.

38. *"Colaboración en el proyecto ON-AIR IV"*. Telefónica I+D, S.A.; 1/4/99–31/3/2000.

39. *"Colaboración en el proyecto ON-AIR III"*. Telefónica I+D, S.A.; 1/4/98– 31/3/99.

40. *"Tratamiento y extracción de la señal de una matriz multisensor"*. Centro de Investigación y Desarrollo de la Armada (CIDA); 1/12/97– 31/11/98.

41. *"Realización de un codificador software"*. Teldat, S.A.; 27/10/97–15/12/97.

42. *"Colaboración en el proyecto ON-AIR II"*. Telefónica I+D, S.A.; 2/7/97– 31/3/98.

43. *"Módulo para el tratamiento de señal de un array de sensores IR"*. Centro de Investigación y Desarrollo de la Armada (CIDA); 30/6/97– 31/11/97.

44. *"Desarrollo de un cancelador de eco eléctrico"*. CONCENTRONIC, S.A.; 6/3/96–31/12/96.

45. *"Colaboración en el proyecto ON-AIR"*. Telefónica I+D, 2/2/1996 - 1/2/1997.

46. *"Estudio y simulación paralelo de cuantificación neuronal"*. Cray Research, S.A.E., 20/6/1995 - 30/6/1996.

47. *"Tratamiento de señal de un sensor IR"*. Centro de Investigación y Desarrollo de la Armada (CIDA); 20/11/95–30/11/97.

48. *"Definición y puesta en marcha de un laboratorio de simulación de comunicaciones"*. Centro de Investigación y Desarrollo de la Armada (CIDA); 26/6/95– 25/2/97.

49. *"Diseño y realización de un demodulador QPSK para una estación receptora de televisión vía satélite"*. Televés, S.A.; 4/4/94–3/4/95.

50. *"Caracterización e igualación de canales en sistemas punto-multipunto"*. Alcatel Espacio S.A.; 1/3/94–31/11/94.

51. *"Diseño de un receptor digital para enlace de contribución de televisión de alta definición"*. Televés, S.A.; 1/6/92–30/12/93.

52. *"Análisis y simulación de procedimientos para igualación adaptativa en sistemas punto-multipunto"*. Telettra Espa na S.A.; 1/10/91–30/4/92.

5.6. National Projects

1. *"Conceptos y Aplicaciones de los Sistemas Inteligentes (CASI-CAM)"*. Regional Community of Madrid, 1/10/2014–30/9/2018.

2. *"Computational Inference in High Dimensional Random Complex Systems (COMPREHENSION)"*. Ministerio de Economía y Competitividad, 1/2/2013–31/1/2016.

3. *"Nuevos métodos computacionales para inferencia en modelos espaciales complejos"*. Ministerio de Educación, Cultura y Deporte , 1/1/2012–31/12/2013.

4. *"Advances in Learning, Communications, and Information Theory (ALCIT)"*. Ministerio de Economía y Competitividad, 1/2/2013–31/1/2016.

5. *"Foundations and Methodologies for Future Communications and Sensor Networks (COMONSENS)"*. Ministerio de Ciencia e Innovación, programa Consolider-Ingenio 2010, 1/10/2008–1/10/2013.

6. *"TIMI (Transporte Inter-Modal Inteligente)"*. CDTI, 1/9/2007–31/12/2010.

7. *"m:Ciudad"*. Ministerio de Industria, Turismo y Comercio, 1/7/2006–31/12/2007.

8. *"Nuevas técnicas de estimación basadas en Máquinas de Vectores Soporte para estimación de canales MIMO y series financieras"*. CAM, 1/10/2003–30-9-2004.

9. *"Intranets radio: optimización de la calidad de servicio"*. CAM, 1/1/2000–31/12/2002.

10. *"INTERMEDIACTOR: arquitectura multimedia inteligente para la gestión del ocio y la teleeducación"*. Plan Nacional de I+D+I (2000-2003); 28/12/2000–27/12/03.

11. *"Tratamiento y funciones inteligentes para terminales de comunicaciones"*, CICYT. 1/7/95-1/7/96.

12. *"Codificación y arquitecturas de receptores para comunicaciones móviles digitales"*. Xunta de Galicia; 1/6/94–3/5/96.

13. *"Terminal avanzado de banda ancha"*, Subproject 3. CICYT; 1/10/92–30/9/95.

14. *"Integración de métodos avanzados de tratamiento de señales y técnicas conexionistas aplicados a comunicaciones"*, Subproject 2, *"Simulación de esquemas en procesado de señales"*. Plan Nacional de I+D (PRONTIC); 1/1/92–31/12/94.

15. *"Tratamiento avanzado de la información"*, Subproject 3, *"Algorítmica para cancelación de ruido y extrapolación"*. Plan Nacional de I+D (PRONTIC); 15/11/88–15/11/91.

5.7. National Contracts

1. *"Desarrollo de Nuevos Sistemas de Codificación de Canal para Tecnología xDSL CSS-QAM"*. Semiconductores Investigación y Diseño, S.A (SIDSA), 26/3/2007–26/3/2008

2. *Codificador MPEG-4 (II)*. Procesamiento Digital y Sistemas S.L.; 1/2/2002–31/1/2003.

3. *"Diseño de un sistema de antenas adaptativas"*. AMPER Programas de Electrónica y Comunicaciones, S.A.; 1/9/1995–30/5/1998.

4. *"Desarrollo de un sistema de compresión irreversible de imágenes"*. Philips Sistemas Médicos, S.A.; 1/11/1994–31/10/1996.

5. *"Estudio de viabilidad técnico-económico para implantación en Galicia de sistemas de comunicaciones basadas en el uso del satélite"*. Secretaría Xeral de Comunicación de la Xunta de Galicia; 1/3/1993–28/2/1994.

6. *"Audio de calidad para un terminal de banda ancha"*. TID, S.A.; 1/10/92–31/9/1995.

7. *"Terminal multimedia de banda ancha (TEMA)"*. Telefónica I+D, 1/7/1992 - 31/7/1994.

8. *"Diseño de demodulador para enlace de contribución de televisión de alta definición"*. Televés, S.A., 1/6/1992 - 30/12/1993.

9. *"Análisis y simulación de procedimientos para igualación adaptativa en sistemas punto-multipunto"*. Telettra España, S.A., 1/10/1991 - 30/4/1992.

10. *"Mo/demodulación mediante DSP y arrays adaptativos para comunicaciones móviles"*. AMPER Programas de Electrónica, S.A.; 1/1/1991–31/5/1991.

11. *"Codificador LPC-12"*. TECNOBIT, S.A.; 16/5/1990–15/12/1990.

12. *"Diseño de un cuantificador vectorial para un codificador de predicción lineal y de un codificador estocástico para datos de fonía"*. AMPER, S.A.; 1/10/1989–30/7/1991.

13. *"Estudios y simulaciones para reducción de régimen binario en vocodificación"*. TECNOBIT, S.A.; 1/6/1989–30/11/1989.

14. *"Diseño de un demodulador para el terminal móvil del sistema PRO-DAT"*. PESA Electrónica, S.A.; 1/9/1988–31/8/1989.

6. Other Merits

- Referee for international journals:

  - IEEE Communications Magazine
  - IEEE Trans. on Neural Networks
  - IEEE Trans. on Signal Processing
  - IEEE Trans. on Circuits and Systems
  - IEEE Trans. on Vehicular Technologies
  - IEEE Trans. on Systems, Man, and Cybernetics – Part B
  - Signal Processing (EURASIP)
  - Neurocomputing
  - Journal of Machine Learning Research

- Referee for european and national R&D Programmes.

- General Chairman of the 2016 IEEE Statistical Signal Processing Int. Workshop.

- General Chairman of the Learning'04 Int. Workshop.

- Technical Chair of the Sixth Baiona Workshop on Signal Processing in Communications.

- Member of Sterring Committees, Technical Committes, Reviewer, and/or Session Chairman for international and national technical conferences.

- Advisor of 19 Ph.D. Theses and 36 undergraduate dissertations.

- 2 Patents.
  - P201731161. System and method for automatic detection of circular cardiac activations.
  - P9302130 "Receptor a ráfagas con demodulación diferencial".
- IEEE Senior Member

7. University Service

1. Rector's Delegate for on-line education, Universidad Carlos III de Madrid, Oct 2009 – Jan 2013.

2. Vicechancellor of Postgraduate Studies, Universidad Carlos III de Madrid, May 2007 – Oct 2009.

3. Head of Department, Dept. of Signal Theory and Communications, Universidad Carlos III de Madrid, Sep 2005 – May 2007.