CV . MIGUEL ANGEL MAÑANAS VILLANUEVA

Situación Profesional Actual

Universidad: Universidad Politécnica de Cataluña
Centro: Centro de Investigación en Ingeniería Biomédica (**CREB**).)
Dept.: Ingeniería de Sistemas y Automática
Categoría Profesional: TU

Otro Clave

- Fundador y Líder del grupo de investigación **BIOART** (BIOsignal Analysis for Rehabilitation and Therapy Group), reconocido como Grupo de Investigación Consolidado.
- **Investigador Principal (IP)** en dos proyectos Horizon-Europe (HybridNeuro y SASICU).
- Coordinador del **Máster en Neuroingeniería y Rehabilitación**.

Trayectoria académica

Grado	Centro	Fecha
Ingeniero de Telecomunicación	Escuela de Ingeniería de Telecomunicación de Barcelona (Universitat Politècnica de Catalunya, UPC)	Octubre 1993
Postgrado "Formación para la docencia de Profesores Universitarios"	Instituto de Ciencias de la Educación (Universitat Politècnica de Catalunya, UPC)	Junio 1996
Doctor Ingeniero Telecomunicaciones	Programa de Ingeniería Biomédica (Universitat Politècnica de Catalunya, UPC)	Noviembre 1999

Experiencia profesional adicional

Posicion	Institución	Fechas
Becario de Posgrado (centro de transferencia de tecnología)	Instituto de Cibernética (Universitat Politècnica de Catalunya - Consejo Superior de Investigaciones Científicas, UPC-CSIC)	Oct 93-Oct 94
Profesor Ayudante (tiempo completo)	Departamento de Ingeniería de Sistemas, Automática e Informática Industrial (UPC)	Nov 94-May 01

Resumen trayectoria profesional y académica

JCR articulos y revistas (SCOPUS)
Número tesis doctorales dirigidas: 8 (4 since 2017) Número capítulos libros: 9 desde 2017
Número de artículos indexados en JCR Q1: 41 de 80
Número de artículos indexados en JCR Q2: 30 de 80
Número de citas: 1871 Indice H 22
Código: 0000-0001-9836-6083

Es profesor asociado en el Centro de Investigación en Ingeniería Biomédica (CREB) de la **Universitat Politècnica de Catalunya** (UPC). Es el fundador y líder del grupo multidisciplinar **BIOsignal Analysis for Rehabilitation and Therapy Group (BIOART)**, compuesto por ingenieros y médicos, con la acreditación de Grupo de Investigación Consolidado reconocido por la Generalitat de Catalunya. El grupo BIOART está enfocado en la rehabilitación y su principal campo es la evaluación no invasiva muscular, cerebral y respiratoria.

Es coautor de **90 artículos en revistas indexadas** (**48 en Q1 y 35 en Q2**) y más de **200 comunicaciones científicas** revisadas por pares en congresos, y coautor de **8 capítulos de libros** desde 2017 en editoriales como IOP, CRC y Springer. También ha sido coinventor de **cuatro patentes** (dos de ellas ya concedidas en Europa, EE. UU., China y Japón). La mayoría de los artículos están asociados a estudios en colaboración con hospitales y grupos de investigación internacionales. También es revisor de muchas revistas internacionales y editor de la revista indexada en JCR "**Revista Iberoamericana de Automática e Informática Industrial**". Según Google Scholar, su investigación tiene un alto impacto con **2200/3600 citas** (en Scopus y Google Scholar, respectivamente) y un **índice h de 24/31**, también respectivamente. El nivel de internacionalidad es del **63%** según Scopus.

Ha sido **Investigador Principal** de **40 proyectos** (**26 en los últimos 10 años**), incluyendo **8 proyectos consecutivos MINECO/MICINN (2008-26)** a través del "Plan Español de Investigación Científica y Técnica y de Innovación" con financiación creciente. Estos 40 proyectos se han distribuido en **26 de financiación pública** (10 internacionales y 16 nacionales) y **12 de financiación privada** (6 de ellos fueron proyectos competitivos). Los fondos públicos proceden principalmente de gobiernos regionales y nacionales y de la CE, y la financiación privada de BBVA y Mapfre. Actualmente es el IP de un proyecto de la Marató de tres años sobre la esquizofrenia. Todos los estudios de investigación se han llevado a cabo con la colaboración de muchos hospitales: Hospital Clínic, Hospital Sant Pau, Hospital del Mar, Hospital Vall d'Hebron, Institut Guttmann, Mutua Egarsat, Sant Joan de Déu, Hospital de Valladolid, Hospital Utrecht, Hospital Erasmus, Hospital de Viena, Amsterdam Medical Center, Hospital de Kuopio, etc.

Ha sido el **Coordinador de Proyecto del Proyecto Europeo WOMEN-UP** (women-up.eu) en el marco del Programa H2020 durante 2015-20. El consorcio está compuesto por **8 socios** (dos empresas, tres hospitales, dos universidades y una asociación médica europea) de 6 países diferentes. El proyecto está financiado con más de **3,5 M€**. Se trata de una Acción de Investigación e Innovación que cubre todo el proceso hasta el mercado de un nuevo dispositivo médico basado en electromiografía: especificaciones del sistema, desarrollo electrónico y de software para un prototipo comercial, marca CE, ensayos clínicos aleatorizados en 3 hospitales europeos y estrategia comercial.

Actualmente, es el **IP por parte de la UPC en dos Proyectos Horizon-Europe**: el CSA HybridNeuro (información cerebral y muscular para la rehabilitación motora/cognitiva y trastornos neuromusculares) y SASICU (Mejora de los resultados de los pacientes en la UCI a través de la interoperabilidad de dispositivos médicos y un ecosistema de TI abierto y seguro) liderado por la empresa de ventilación mecánica Dräger y financiado con más de **8 M€** por el Programa Innovative Health Initiative. Ambos se desarrollan entre 2023-26.

Su trabajo se ha centrado en la **innovación desde 2018**, liderando varios proyectos de innovación durante los últimos años: LLAVOR, PRODUCTE, INNOTEC de la Generalitat de Catalunya, dos Proof of Concepts del Ministerio Español LACAIXAIMPULSE VALIDATE, etc., y participando en programas de aceleración/valorización como The Collider de Mobile World Capital, CRAASH de Biocat, EIT Health y CIMIT (Boston), Barcelona Technology Transfer Group Program y Marketing Assessment Program de las Escuelas de Negocios IESE y EADA, respectivamente, y BCN Activa. Está interesado en transferir sus tecnologías al mercado mediante licencias o con una futura *spin-off*.

Es considerado un **experto en su campo**, siendo revisor de la ANEP (Ministerio) y la AGAUR (Generalitat de Catalunya) y ha participado como miembro del Comité de Expertos del Ministerio en el campo de la Ingeniería Biomédica para la selección de Proyectos y becas JdC-RyC. Recibió varios **premios relevantes** durante los últimos 7 años: Premio Leonardo de la Fundación BBVA (2016) y Premios de Valorización de la Investigación como Mejor Proyecto de Transferencia de Tecnología y como Mejor Innovación o Patente por su aplicación al Mercado del Consejo Social de la UPC (2019 y 2021, respectivamente).

También es profesor del **Programa de Doctorado en Ingeniería Biomédica**, que cuenta con la Acreditación de Excelencia desde la primera convocatoria. Finalmente, ha sido el promotor y actualmente el **coordinador del Máster en Neuroingeniería y Rehabilitación (90 ECTS)**, lanzado en 2020 en colaboración con el Hospital de Neurorrehabilitación Institut Guttmann (UAB).

He is also a professor of Biomedical Engineering Doctorate Program which has the Excellence Accreditation since the first Call. Finally, he has been the promoter and currently the coordinator of the Master in Neuroengineering and Rehabilitation (90 ECTS) launched in 2020 in collaboration with the Neurorehabilitation Hospital Institut Guttmann (UAB).

Publicaciones(JCR-revistas indexadas)

1. Shirzadi, M, Rojas-Martínez, M, Alonso, JF, Serna, LY, Chaler, J, Mañanas, MA, Marateb, HR "AML-DECODER: Advanced Machine Learning for HD-sEMG Signal Classification-Decoding Lateral Epicondylitis in Forearm Muscles" *Diagnostics,* Position 59/329 Q1 Medicine, General & Internal, FI: 3 14(20):2255 (https://doi.org/10.3390/diagnostics14202255), 2024
2. Tost, A, Bachiller, A, Medina-Rivera, I, Romero, S, Serna, LY, Rojas-Martínez, M, García-Cazorla, A, Mañanas, MA "Repetitive active and passive cognitive stimulations induce EEG changes in patients with Rett syndrome" *Pediatric Research,* Position 25/186 Q1 Pediatrics, FI: 3,1 (https://doi.org/10.1038/s41390-024-03254-9), 2024
3. Marateb, HR, Mansourian, M, Koochekian, A, Shirzadi, M, Zamani, S, Mansourian, M, Mañanas, MA, Kelishadi, R. "Prevention of Cardiometabolic Syndrome in Children and Adolescents Using Machine Learning and Noninvasive Factors: The CASPIAN-V Study" *Information,* Position 126/250 Q3 Computer Science, Information Systems, FI: 2,4 15(9), 564 (https://doi.org/10.3390/info15090564), 2024
4. Mijancos-Martinez, G, Bachiller, A, Fernández-Linsenbarth, I, Romero, S, Serna, LY, Molina, V, Mañanas, MA "Individualized time windows enhance TMS-EEG signal characterization and improve assessment of cortical function in schizophrenia" *European Archives of Psychiatry And Clinical Neuroscience,* Position 70/280 Q1 Clinical Neurology, FI: 3,5 (https://doi.org/10.1007/s00406-024-01859-z), 2024
5. Tost, A, Romero, S, Alonso, JF, Bachiller, A, Serna, LY, Medina-Rivera, I, Garcia-Cazorla, A, Mananas, MA "EEG connectivity patterns in response to gaming and learning-based cognitive stimulations in Rett syndrome" *Research In Developmental Disabilities,* Position 2/62 Q1 Education, Special, FI: 2,9, Vol 150:104751 (https://doi.org/10.1016/j.ridd.2024.104751), 2024
6. Sarmiento, CA, Hernández, AM, Mañanas, MA, Serna, LY "A Dynamic Fitting Strategy for Physiological Models: A Case Study of a Cardiorespiratory Model for the Simulation of Incremental Aerobic Exercise", *Journal of Personalized Medicine*. Position 59/329 Q1 Medicine, General & Internal, FI: 3, 14(4), 406 (https://doi.org/10.3390/jpm14040406), 2024.
7. Marateb, HR, Norouzirad, M, Tavakolian, K, Aminorroaya, F, Mohebbian, M, Mañanas, MA, Romero, S, Sami, R, Mansourian, M. "Predicting COVID-19 Hospital Stays with Kolmogorov-Gabor Polynomials: Charting the Future of Care" *Information,* Position 126/250 Q3 Computer Science, Information Systems, FI: 2.4, 14(11), 590; (https://doi.org/10.3390/info14110590), 2023.
8. Shirzadi M, Marateb HR, Rojas-Martínez M, Mansourian M, Botter A, Vieira Dos Anjos F, Martins Vieira T, Mañanas MA. "A real-time and convex model for the estimation of muscle force from surface electromyographic signals in the upper and lower limbs." *Frontiers in Physiology,* Position 24/85 Q2 Medicine, General & Internal, FI: 3.6, 27(14):1098225. (DOI: 10.3389/fphys.2023.1098225), 2023.
9. Sarmiento CA, Serna LY, Hernández AM, Mañanas MÁ., "A Novel Strategy to Fit and Validate Physiological Models: A Case Study of a Cardiorespiratory Model for Simulation of Incremental Aerobic Exercise". *Diagnostics* (Basel), Position 59/329 Q1 Medicine, General & Internal, FI: 3.1, 13(5):908. (DOI: 10.3390/diagnostics13050908), 2023.
10. Marateb HR, Mansourian M, Mañanas MA., Correspondence on "Electrocardiographic findings and prognostic values in patients hospitalised with COVID-19 in the World Heart Federation Global Study" by Pinto-Filho et al., *Heart*; Position 38/222 Q1 Cardiac & Cardiovascular Systems, FI: 5.7, 109(5):413-414. (DOI: 10.1136/heartjnl-2022-322246), 2023.
11. Shirzadi M, Marateb HR, McGill KC, Muceli S, Mananas MA, Farina D. "An Accurate and Real-time Method for Resolving Superimposed Action Potentials in MultiUnit Recordings" *IEEE Transactions on BME*, Position 34/96 Q2 Engineering Biomedical, FI: 4.6, (DOI: 10.1109/TBME.2022.3192119) , 2023
12. Borràs M, Romero S, Alonso JF, Bachiller A, Serna LY, Migliorelli C, Mañanas MA. "Influence of the number of trials on evoked motor cortical activity in EEG recordings" *Journal of Neural Engineering*, Position 42/96 Q2 Engineering Biomedical, FI: 4, vol 19 (4), (DOI: 10.1088/1741-2552/ac86f5), 2022
13. Ghaderi P, Nosouhi M, Jordanic M, Marateb HR, Mañanas MA, Farina D. "Kernel Density Estimation of Electromyographic Signals and Ensemble Learning for Highly Accurate Classification of a Large Set of Hand/Wrist Motion" *Frontiers in Neuroscience*, Position 94/272 Q2 Neurosciences, FI: 4.3, 16:796711, (DOI: 10.3389/fnins.2022.796711), 2022

14. Migliorelli C, Medina-Rivera I, Bachiller A, Tost A, Alonso JF, López-Sala A, Armstrong J, O'Callahan MDM, Pineda M, Mañanas MA, Romero S, García-Cazorla Á. "Cognitive stimulation has potential for brain activation in individuals with Rett syndrome". *J Intellect Disabil Res*.; Position 1/43 Q1 Education, Special, FI: 3.6, 66(3):213-224. (DOI: 10.1111/jir.12902), 2022
15. Ona G., Sampedro F., Romero S., Valle M., Camacho V., Migliorelli C., Mañanas M.A., Antonijoan R.M., Puntes M., Coimbra J., Ballester M.R., Garrido M., Riba J. "The kappa opioid receptor and the sleep of reason: Cortico-subcortical imbalance following salvinorin-A" *International Journal of Neuropsychopharmacology*. Position 66/277 Q1 Pharmacology & Pharmacy, FI: 4.8, Online ahead of print (DOI: 10.1093/ijnp/pyab063), 2022
16. Marateb HR, Ziaie Nezhad F, Mohebian MR, Sami R, Haghjooy Javanmard S, Dehghan Niri F, Akafzadeh-Savari M, Mansourian M, Mañanas MA, Wolkewitz M, Binder H. "Automatic Classification Between COVID-19 and Non-COVID-19 Pneumonia Using Symptoms, Comorbidities, and Laboratory Findings: The Khorshid COVID Cohort Study". *Frontiers in Medicine*, Position 53/172 Q2 Medicine, General & Internal, FI: 5.058, Nov 18;8:768467. (DOI: 10.3389/fmed.2021.768467), 2021.
1. Migliorelli, C., Romero, S., Bachiller, A., Aparicio, J., Alonso, J.F., Mañanas, M.A., Antonio-Arce, V.S. "Improving the ripple classification in focal pediatric epilepsy: identifying pathological high-frequency oscillations by Gaussian mixture model clustering", *Journal of Neural Engineering*, Position 32/98 Q2 Engineering Biomedical, FI: 5.043, vol 18 (4), (DOI:10.1088/1741-2552/ac1d31), 2021
2. Sarmiento, C.A., Hernandez, A.M., Serna, L.Y., Mañanas, M.A. "An integrated mathematical model of the cardiovascular and respiratory response to exercise: Model-building and comparison with reported models", *American Journal of Physiology-Heart and Circulatory Physiology*, Position 13/81 Q1 Physiology, FI: 4.733, vol 320(4), (DOI: 10.1152/ajpheart.00074.2020), 2021
3. Tost, A., Migliorelli, C., Bachiller, A., Medina-Rivera, I., Romero, S., García-Cazorla, Á., Mañanas, M.A. "Choosing Strategies to Deal with Artifactual EEG Data in Children with Cognitive Impairment", Entropy, Position 37/85 Q2 Physics Multidisciplinary, FI: 2.524, vol 23(8), (DOI: 10.3390/e23081030), 2021
4. Marateb H.R., von Cube M., Sami R, Javanmard S.H., Mansourian M., Amra B, Soltaninejad F, Mortazavi M., Adibi P, Khademi N, Hosseini N.S., Toghyani A., Hassannejad R., Mañanas M.A., Binder H., Wolkewitz, M. "Absolute mortality risk assessment of COVID-19 patients: the Khorshid COVID Cohort (KCC) study", *BMC Medical Research Methodology*, Position 19/108 Q1 Health Care Sciences & Services, FI: 4.615, 21(1), 146, (DOI: 10.1186/s12874-021-01340-8), 2021
5. Marateb H.R., Tasdighi Z, Mohebian M.R., Naghavi A., Hess M., Motlagh M.E., Heshmat R., Mansourian M., Mañanas M.A., Binder H., Kelishadi R. "Classification of psychiatric symptoms using deep interaction networks: the CASPIAN-IV study", *Scientific Reports*, Position 17/73 Q1 Multidisciplinary Sciences, FI: 4.379, 11(1), 15706, (DOI: 10.1038/s41598-021-95208-y), 2021
6. Shirzadi, M., Marateb, H.R., McGill, K.C., Mañanas, M.A. "Rigorous performance assessment of the algorithms for resolving motor unit action potential superpositions", *Journal of Electromyography and Kinesiology*, Position 31/68 Q2 Rehabilitation, FI: 2.368, vol 56 (DOI: 10.1016/j.jelekin.2020.102510), 2021
7. Kastelein, A., Angles-Acedo, S., Tervo, J., Opmeer, B., Soler, V., Pages, A., Alonso, J.F., Zwolsman, S., Raatikainen, K., Mañanas, M.A., Airaksinen, O., Roovers, J., Espuna, M. "Serious game-enhanced biofeedback-supported remotely-supervised self-management versus pelvic physiotherapy for stress urinary incontinence - a multinational randomized controlled trial", *International Uroginecology Journal*, Position 38/83 Q2 Obstetrics & Gynecology,FI: 2.894,vol 31(SUPPL 1), 2020
8. Rojas-Martínez, M., Serna, L.Y., Jordanic, M., Marateb, H.R., Merletti, R., Mañanas, M.A. "High-density surface electromyography signals during isometric contractions of elbow muscles of healthy humans", *Scientific Data*, Position 11/73 Q1 Multidisciplinary Sciences, FI: 6.444, vol 7(1), (DOI: 10.1038/s41597-020-00717-6), 2020
9. Sami, R., Soltaninejad, F., Amra, B., Naderi, Z., Javanmard, S.H., Iraj, B., Ahmadi, S.H., Shayganfar, A., Dehghan, M., Khademi, N., Hosseini, N.S., Mortazavi, M., Mansourian, M., Mañanas, M.A., Marateb, H.R., Adibi, P. "A one-year hospital-based prospective COVID-19 open-cohort in the Eastern Mediterranean region: The Khorshid COVID Cohort (KCC) study", *Plos One*, Position 26/73 Q2 Multidisciplinary Science, FI: 3.24, vol 15(11), (DOI: 10.1371/journal.pone.0241537), 2020
10. Naghavi, A., Teismann, T., Asgari, Z., Mohebbian, M.R., Mansourian, M., Mañanas, M.A. "Accurate Diagnosis of Suicide Ideation/Behavior Using Robust Ensemble Machine Learning: A University Student Population in the Middle East and North Africa (MENA) Region", *Diagnostics*, Position 45/169 Q2 Medecine General & Internal, FI: 3.706, vol 10(11), (DOI: 10.3390/diagnostics10110956), 2020

11. Kisiel-Sajewicz, K., Marusiak, J., Jaskolska, A., Rojas-Martínez, M., Janecki, D., Chomiak, S., Kaminski, L., Mencel, J., Mañanas, M.A., Jaskolski, A. "High-density surface electromyography maps after computer-aided training in individual with congenital transverse deficiency: a case study", *BMC Musculoskeletal Disorders*, Position 41/82 Q2 Orthopedics, FI: 2.362, vol 21(1), (DOI: 10.1186/s12891-020-03694-4), 2020
12. Shakibaei, N., Hassannejad, R., Sarrafzadegan, N., Mohammadifard, N., Marateb, H.R., Mansourian, M., Mañanas, M.A. "Pathways leading to prevention of fatal and non-fatal cardiovascular disease: An interaction model on 15 years population-based cohort study", *Lipis in Health and Disease*, Position 148/298 Q2 Biochemistry & Molecular Biology, FI: 3.876, vol 19(1), (DOI: 10.1186/s12944-020-01375-8), 2020
13. Migliorelli, C.; Bachiller, A.; Alonso, J.F., Romero, S, Aparicio. J., Jacobs-Le Van, J., Mañanas, M.A., San Antonio-Arce, V. "SGM: a novel time-frequency algorithm based on unsupervised learning improves high-frequency oscillation detection in epilepsy." Journal of Neural Engineering, Position 20/90 Q1 Biomedical Engineering. FI: 5.379; 17(2) (DOI: 10.1088/1741-2552/ab8345), 2020.
14. Rojas, M.; Alonso, J.F.; Jordanic, M.; Mañanas, M.A.; Chaler J., "Analysis of muscle load-sharing in patients with lateral epicondylitis during endurance isokinetic contractions using non-linear prediction", *Frontiers in Physiology*, Position 20/81 Q1 Physiology, FI: 3.367, 10, pp. 1-14, (DOI: 10.3389/fphys.2019.01185), 2019.
15. Migliorelli, C.; Bachiller, A.; Andrade, A.G., Alonso, J.F. Mañanas, M.A. Borja, C., Gimenez, S.; Antonijoan, R.M. Varga, A.W., Osorio, R.S., Romero, S, "Alterations in EEG connectivity measures as an indicator of sleep depth" *Sleep*, Position 32/204. Q1 Clinical Neurology, FI: 4.805, 42(6), pp. zsz081, (DOI: 10.1093/sleep/zsz081), 2019
16. Muñoz, I.C., Hernández, A.M., Mañanas, M.A., "Estimation of work of breathing from respiratory muscle activity in spontaneous ventilation: A pilot study", *Applied Sciences-Basel,* Position 32/91 Q2 Engineering, Multidisciplinary, FI: 2.474, 9(10), pp. 1-18, (DOI: 10.3390/app9102007), 2019
17. Salazar, M.; Hernández, A.M.; Mañanas, M.A., Cortés, C., "Modeling of Heart Rate Variability and Respiratory Muscle Activity in Organophosphate Poisoned Patients", *Journal of Biomedical and Health Informatics*, Position 1/27. Q1 1st decile, Medical Informatics, FI: 5.223, 23(6), pp. 2455-2463, (DOI: 10.1109/JBHI.2019.2894758), 2019
18. Mohebian, M.R. Marateb, H.R., Karimimehr, S., Mañanas, M.A.,Kranjec, J., Holobar, A. "Non-invasive Decoding of the Motoneurons: A Guided Source Separation method based on Convolution Kernel Compensation with Clustered Initial Points". *Frontiers in computational neuroscience*, Position 16/59. Q2 Mathematical & Computational Biology, FI: 2.535, 13, 14-1-14-14, (DOI: 10.3389/fncom.2019.00014), 2019
19. Isfahani, M.; Zekri, M.; Marateb, H.R.; Mañanas, M.A "Fuzzy jump wavelet neural network based on rule induction for dynamic nonlinear system identification with real data applications". *PloS one*, Position 26/73. Q2 Multidisciplinary Sciences, FI: 2.740, 14(12), pp.1-26, (DOI: 10.1371/journal.pone.0224075), 2019
20. Molina, V., Bachiller, A., de Luis, R., Lubeiro, A., Poza, J., Hornero, R., Alonso J.F., Mañanas M.A., Marqués P., Romero, S., "Topography of activation deficits in schizophrenia during P300 task related to cognition and structural connectivity", *European Archives of Psychiatry and Clinical Neuroscience*, Position 67/204 Q2 Clinical Neurology, FI: 3.288, 269(4), ppp. 419–428, (DOI: 10.1007/s00406-018-0877-3), 2019
21. Muñoz, I.C., Hernández, A.M., Ortega, Y.M., Mañanas, M.A., "Respiratory muscular response to obstructive maneuvers in non-invasively ventilated healthy subjects", *Respiratory Physiology and Neurobiology,* Position 66/81 Q4 Physiology, FI: 1.582, 258, pp. 76-81, (DOI: 10.1016/j.resp.2018.06.002), 2018
22. Serna, L.; Mañanas, M.A.; Hernández, A.M.; Rabinovich, R.A, "An improved dynamic model for the respiratory response to exercise", *Frontiers in Physiology*, Position 25/81 Q2 Physiology. FI: 3.201, 9(69) pp: 1-16, (DOI: 10.3389/fphys.2018.00069), 2018
23. Marateb, H.R., Mohebian, M.R., Javanmard, S.H., Tavallaei, A.A., Tajadini, M.H., Heidari-Beni, M., Mañanas, M.A., Motlagh, M.E., Heshmat, R., Mansourian, M., Kelishadi, R. "Prediction of dyslipidemia using gene mutations, family history of diseases and anthropometric indicators in children and adolescents: The CASPIAN-III study", *Computational and Structural Biotechnology Journal*, Position 57/299 Q1 Biochemistry & Molecular Biology Physiology, FI: 4.720, 16 pp: 121-130, (DOI: 10.1016/j.csbj.2018.02.009), 2018
24. Sarrafzadegan, N.; Hassannejad, R.; Marateb, H.R.; Talaei, M.; Sadeghi, M.; Roohafza, H.; Masoudkabir, F.; OveisGharan, S.; Mañanas, M.A.; Mohebian, M.; Mansourian, M, "Correction: PARS risk charts: A 10-year study of risk assessment for cardiovascular diseases in Eastern Mediterranean Region", *PLoS one*, Position 24/69 Q2 Multidisciplinary Sciences,FI: 2.776, 13(1), p. 1, (DOI: 10.1371/journal.pone.0191379), 2018

25. Jordanić, M., Rojas-Martínez, M., Mañanas, M.A., Alonso, J., Marateb, H., "A Novel Spatial Feature for the Identification of Motor Tasks Using High-Density Electromyography", *Sensors*, Position 16/61 Q2 Instruments and Instrumentation, FI: 2.475, 17(7):1597 (24 pp), (DOI: 10.3390/s17071597), 2017
26. Salazar, M.B.; Hernández, A.M.; Mañanas, M.A., "Assessment of mechanically ventilated patients intoxicated with organophosphates by a novel surface electromyographic index", *Journal of critical care*, Position 16/33. Q2 Critical Care Medicine, FI: 2.872, 41, pp. 260-267, (DOI: 10.1016/j.jcrc.2017.05.022), 2017
27. Rojas, M.; Alonso, J.F.; Jordanic, M.; Romero, S.; Mañanas, M.A., "Identification of isometric and dynamic tasks of the upper limb based on high-density EMG", *Revista Iberoamericana de Automática e Informática Industrial*, Position 60/61 Q4 Automation & control systems, FI: 0.471, 14, pp. 406-411, (DOI: 10.1016/j.riai.2017.07.006), 2017
28. Barrios, L.; Minguillón, J.; Perales López, Francisco José; Ron, R.; Sole, J., Mañanas, M.A., "State of the Art in Neurotechnologies for Assistance and Rehabilitation in Spain: Support Technologies, Technology Transfer and Clinical Application", *Revista Iberoamericana de Automática e Informática Industrial*, Position 50/61 Q4 Automation & control systems, FI: 0.471, 14, pp. 1-7, (DOI: 10.1016/j.riai.2017.06.004), 2017
29. Karimimehr S., Marateb H.R., Muceli S., Mansourian M., Mañanas M.A., Farina D., "A real-time method for decoding the neural drive to muscles using single-channel intra-muscular EMG recordings", *International Journal of Neural Systems*, Position 13/132 Q1 Computer Science (1st decile), FI: 4.58, 17(6):1750025 (18 pp), (DOI: 10.1142/S0129065717500253), 2017
30. Ochoa, J.F.; Alonso, J. F.; Duqye, J.E.; Tobó, C.A.; Baena A; Lopera F.; Mañanas, M. A.; Hernández, A.M. "Precuneus Failures in Subjects of the PSEN1 E280A Family at Risk of Developing Alzheimer's Disease Detected Using Quantitative Electroencephalography", *Journal of Alzheimers Disease*. Position 96/261 Q2 Neurosciences, FI: 3.476, 58(4), pp: 1229-1244, (DOI: 10.3233/JAD-161291), 2017
31. Taut, D.; Pintea, S.; Roovers, J.; Mañanas, M.A.; Baban, A. "Play seriously: effectiveness of serious games and their features in motor rehabilitation. A meta-analysis", Neurorehabilitation. Position 21/69 Q2 Rehabilitation, FI: 1.779, 41(1), pp: 105-118, (DOI: 10.3233/NRE-171462), 2017
32. Ochoa, J.F.; Alonso, J. F.; Duqye, J.E.; Tobó, C.A.; Mañanas, M. A.; Lopera F.; Hernández, A.M. "Successful object encoding induces increased directed connectivity in presymptomatic early-onset Alzheimer's disease", *Journal of Alzheimers Disease*. Position 96/261 Q2 Neurosciences,. FI: 3.476, 55(3), pp: 1195-1205, (DOI: 10.3233/JAD-160803), 2017
33. Migliorelli, C., Alonso J.F., Romero S., Nowak R., Russi A., Mañanas M.A., "Automated detection of epileptic ripples in MEG using beamformer-based virtual sensors", *Journal of Neural Engineering*, Position 12/78 Q1 Biomedical Engineering. FI: 3.920, 14(4), pp: 046013 (14 pp), (DOI: 10.1088/1741-2552/aa684c), 2017
34. Giménez S.; Romero S.; Alonso J. F.; Mañanas M. A.; Pujol A.; Baxarias P.; Antonijoan R. M, "Monitoring sleep depth: analysis of bispectral index (BIS) based on polysomnographic recordings and sleep deprivation", *Journal of Clinical Monitoring and Computing*, Position 17/31 Q3 Anesthesiology. FI: 2.450, 31(1), pp. 103-110, (DOI: 10.1007/s10877-015-9805-5), 2017
35. Mohebian, MR., Marateb, HR, Mansourian, M, Mañanas, MA, Mokarian, F. "A Hybrid Computer-aided-diagnosis System for Prediction of Breast Cancer Recurrence (HPBCR) Using Optimized Ensemble Learning", *Computational and Structural Biotechnology Journal*, Position 68/293 Q1 Biochemistry & Molecular Biology. FI: 4.148, 15, pp: 75-85 (DOI: 10.1016/j.csbj.2016.11.004), 2017.
36. Marateb, HR, Farahi, M., Rojas-Martinez, M, Mañanas, M.A, Farina, D., "Detection of Multiple Innervation Zones from Multi-Channel Surface EMG Recordings with Low Signal-to-Noise Ratio Using Graph-Cut Segmentation", *PLoS One*, Position 15/64 Q1 Multidisciplinary Sciences. FI: 2.806, 11(12), pp: 1-23, (DOI: 10.1371/journal.pone.0167954), 2016.
37. Serna, L.Y., Mañanas, M.Á., Marín, J., Hernández, A.M., Benito, S, "Optimization techniques in respiratory control system models", *Applied Soft Computingl*, Position 14/105 Q1 Computer Science, Interdisciplinary Applications. FI: 3.541, 48, pp: 431-443, (DOI: 10.1016/j.asoc.2016.07.033), 2016.
38. Jordanic, M.; Rojas-Martínez, M.; Mañanas, M. A.; Alonso, J. F., "Spatial distribution of HD-EMG improves identification of task and force in patients with incomplete spinal cord injury", *Journal of NeuroEngineering and Rehabilitation*, Position 3/65 Q1 Rehabilitation (1st decile),. FI: 3.516, 13(1), pp: 41 (11 pp), (DOI: 10.1186/s12984-016-0151-8), 2016
39. Jordanic, M.; Rojas-Martínez, M.; Mañanas, M. A.; Alonso, J. F., "Prediction of isometric motor tasks and effort levels based on high density EMG in patients with incomplete spinal cord injury", *Journal of Neural Engineering*, Position 14/77 Q1 Biomedical Engineering. FI: 3.465, 13(4), pp: 046002 (13 pp), (DOI: 10/1088/1741-2560/13/4/046002), 2016

40. Serna Higuita, L.Y. ; Mananas, M.A. Mauricio Hernandez, A. ; Marina, J. ; Benito, S, "Novel Optimization of Work of Breathing during Increased Respiratory Efforts", *IEEE Systems Journal*, 4/83 Q1 1sr decile, Operations Research & Management Science, FI: 3.882, 10(3), 1003-1013, pp 1-11, (DOI: 10.1109/JSYST.2014.2323114) 2016.
41. Alonso, J. F.; Romero, S.; Mañanas, M. A.; Alcalá, M.; Antonijoan R. M.; Giménez, S., "Acute sleep deprivation induces a local increase on brain transfer information in the frontal cortex in a context of widespread decrease", *Sensors*, Position 10/58 Q1 Instruments and Instrumentation. FI: 2.677, 16, pp 540 (14 pp), (DOI: 10.3390/s16040540) 2016
42. Mañanas M. A.; Rojas-Martinez M, Alonso JF, "Towards the application of HD-EMG decomposition in clinical practice", *Clinical Neurophysiology*. Position 43/194 Q1 Clinical Neurology. FI: 3.866, 127, pp: 2534-2541, (DOI: 10.1016/j.clinph.2016.02.005) 2016
43. Alonso, J. F.; Romero, S.; Mañanas, M. A.; Riba, J. "Genotypes Do Not Confer Risk For Serotonergic Psychedelics Temporarily Modify Information Transfer in Humans", *International Journal of Neuropsychopharmacology*, Position 29/257 Q1 Pharmacology & Pharmacy. FI: 4.712, 19(3), (DOI: 10.3390/s16040540) 2016
44. Rabella M, Grasa E, Corripio I, Romero S, Mañanas MÀ, Antonijoan RM, Münte TF, Pérez V, Riba J, "Neurophysiological evidence of impaired self-monitoring in schizotypal personality disorder and its reversal by dopaminergic antagonism" *European Neuropsychopharmacology*. Position 40/257 Q1 Pharmacology and Pharmacy. FI: 4.239, 11, pp. 770-779, (DOI: 10.1093/ijnp/pyv099), 2016
45. Valle M.; Maqueda A. E.; Rabella M.; Rodríguez-Pujadas A.; Antonijoan R. M.; Romero S.; Alonso J. F.; Mañanas M. A.; Friedlander P.; Feilding A.; Riba J., "Inhibition of alpha oscillations through serotonin 2A receptor activation underlies the visual effects of ayahuasca in humans" *European Neuropsychopharmacology*. Position 40/257 Q1 Pharmacology and Pharmacy. FI: 4.239, 26, pp: 1161-1175, (DOI: 10.1016/j.euroneuro.2016.03.012), 2016
46. Migliorelli C, Alonso JF, Romero S, Mañanas MA, Nowak R, Russi A., "Influence of metallic artifact filtering on MEG signals for source localization during interictal epileptiform activity" *Journal of Neural Engineering*. Position 14/77 Q1 Biomedical Engineering. FI: 3.465, 13, pp: 026049 (12 pp), (DOI: 10.1088/1741-2560/13/2/026029), 2016
47. Bachiller A, Romero S, Molina V, Alonso JF, Mañanas MA, Poza J, Hornero R, "Auditory P3a and P3b neural generators in schizophrenia: An adaptive sLORETA P300 localization", *Schizophrenia Research*, Position 17/139 Q1 Psychiatry. FI: 4.453, 169, pp:318-25, (DOI: 10.1016/j.schres.2015.09.028), 2015
48. López-Góngora M, Escartín A, Martínez-Horta S, Fernández-Bobadilla R, Querol L, Romero S, Mañanas MA, Riba J. "Neurophysiological Evidence of Compensatory Brain Mechanisms in Early-Stage Multiple Sclerosis", *PLoS One*, Position 11/63 Q1 Multidisciplinary Sciences. FI: 3.057, 10(8), pp: e0136786 (15 pp), (DOI: 10.1371/journal.pone.0136786), 2015.
49. Alonso JF, Romero S, Mañanas MA, Riba J. "Serotonergic psychedelics temporarily modify information transfer in humans", Int J of Neuropsychopharmacology, Position 40/255, 18(8) Q1 Pharmacology & Pharmacy. FI: 4.333, (DOI: 10.1093/ijnp/pyv039) (9 pp), 2015.
50. Migliorelli C, Alonso JF, Romero S, Mañanas MA, Nowak R, Russi A. "Automatic BSS-based filtering of metallic interference in MEG recordings: definition and validation using simulated signals", *J Neural Eng.,* Position 10/76 Q1 Biomedical Engineering. FI: 3.493, 12, 046001 (12 pp), (DOI: 10.1093/ijnp/pyv039), 2015.
51. Alonso JF, Romero S, Mañanas MA, Rojas M, Riba J, Barbanoj MJ. "Evaluation of multiple comparison correction procedures in drug assessment studies using LORETA maps", *Med Biol Eng Comput.* Position 18/56 Q2 Mathematical & Computational Biology, Interdisciplinary Applications. FI: 1.797, 33-42, 53, 1011-1023 (DOI: 10.1007/s11517-015-1315-6), 2015
52. Alonso JF, Romero S, Ballester MR, Antonijoan RM, Mañanas MA. "Stress assessment based on EEG univariate features and functional connectivity measures". *Physiol Measurement*. Position 46/76 Q3 Biomedical Engineering. FI: 1.576, 36(7), 5918-5926, (DOI: 10.1088/0967-3334/36/7/1351), 2015.
53. Martínez-Horta S, Riba J, Fernández de Bobadilla R, Paganobarraga J, Pascual-Sedano B, Antonijoan RM, Romero S, Mañanas MA, García-Sánchez C, Kulisevsky J. "Apathy in Parkinson's disease: neurophysiological evidence of impaired incentive processing", *Journal of Neuroscience,* Position 25/252 Q1 Neuroscience (1st decil), FI: 6.344, *34(117), 5918-26,* (DOI: 10.1523/JNEUROSCI.0251-14.2014), *2014.*
54. Rojas M, Mañanas MA, Alonso JF, Merletti R, "Identification of Isometric Contractions Based on High Density EMG Maps"*, J. of Electromyography and Kynesiology*, Position 23/63 Q2 Rehahilitation. FI: 1.725, 23(11), 33-42, (DOI: 10.1016/j.jelekin.2012.06.009), 2013.

55. Unyo C, Chaler J, Rojas M, Pujol E, Muller B, Mañanas M.A., "A cross-sectional study comparing strength profile of dorsal and palmar flexor muscles of the wrist in epicondylitis and healthy men", *European Journal of Physical and Rehabilitation Medicine*, Position 14/63 Q1 Rehabilitation. FI: 1.946, 49(4), 507-15, (PMID: 23138675) 2013.

56. Rojas M, Mañanas MA, Alonso JF, "High-Density Surface EMG Maps from Upper-arm and Forearm Muscles", *Journal of NeuroEngineering and Rehabilitation,* Position 7/64 Q1 Rehabilitation (1st decil). FI: 2.567, pp. 1-17, 9, 85 (DOI: 10.1186/1743-0003-9-85), 2012.

57. Alonso, JF., Mañanas, MA, Romero S, Rojas-Martínez M, Riba J, "Cross-conditional entropy and coherence analysis on pharmaco-EEG changes induced by alprazolam", *Psychopharmacology,* Position 42/261 Q1 Pharmacology & Pharmacy. FI: 4.061, 221(3), 397-406, (DOI: 10.1007/s00213-011-2587-7), 2012.

58. Marateb, HR., Rojas, M., Mansourian, M., Merletti, R., Mañanas, M.A., "Outlier detection in high-density surface electromyographic signals", *Medical and Biological Engineering and Computing*, Position 29/100 Q2 Computer science, interdisciplinary applications. FI: 1.790, 50, 79-89, (DOI: 10.1007/s11517-011-0790-7), 2012.

59. Alonso, JF., Mañanas, MA, Rojas, M., Bruce, EN, "Coordination of respiratory muscles assessed by means of nonlinear forecasting of demodulated myographic signals", *Journal of Electromyography and Kinesiology*, Position 15/61 Q1 Rehabilitation, FI: 1.969, 21(6), 1064-1073, (DOI: 10.1016/j.jelekin.2011.07.004), 2011.

60. Alonso JF, Poza J, Mañanas MA, Romero S, Fernández A, Hornero R, "MEG Connectivity Analysis in Patients with Alzheimer's Disease Using Cross Mutual Information and Spectral Coherence", *Annals of Biomedical Engineering,* Position *20/72* Q2 Biomedical Engineering, FI: 2.368, 39(1), 524-536, (DOI: 10.1007/s10439-010-0155-7), 2011.

61. Giménez S, Romero S, Mañanas MA, Barbanoj MJ, "Waking and sleep electroencephalogram variables as human sleep homeostatic process biomarkers after drug administration", *Neuropsychobiology,* Position *25/75* Q2 Psychology, FI: 2.675, 63(4), 252-260, (DOI:10.1159/000321806), 2011.

62. A. M. Hernandez, M. B. Salazar, D. A. Urrego, R. Costa-Castelló, M. A. Mañanas., "Virtual laboratory for simulation and learning of cardiovascular system function in BME studies", *Revista Facultad de Ingeniería, Universidad de Antioquia*, Position 88/90 Q4 Engineeriing, multidisciplinay. FI: 0.083, 60, 194-201, 2011.

63. Ceres, R., Mañanas, M.A., Azorín, J. M., "Interfaces y Sistemas en Rehabilitación y Compensación Funcional para la Autonomía Personal y la Terapia Clínica", *Revista Iberoamericana de Automática e Informática Industrial*, Position 54/58 Q4 Automation & control systems. FI: 0.231, 8(2), 5-15, (DOI: 10.1016/S1697-7912(11)70021-8), 2011.

64. Rojas, M., García, M., Alonso, J.F., Mañanas, M.A., "Evaluación de la Función Neuromuscular del Antebrazo durante contracciones isométricas mediante Electromiografía de Superficie Multicanal", *Revista Iberoamericana de Automática e Informática Industrial*, Position 54/58 Q4 Automation & control systems. FI: 0.231, 8(2) 35-44, (DOI: 10.1016/S1697-7912(11)70024-3), 2011.

65. Alonso JF, Mañanas MA, Romero S, Hoyer D, Riba J, Barbanoj MJ, "Drug effect on EEG connectivity assessed by linear and nonlinear couplings", *Human Brain Mapping*, Position 5/113 Q1 Radiology, nuclear medicine & medical imaging (1er decil). FI: 5.107, 31(3), 487-497, (DOI: 10.1002/hbm.20881), 2010.

66. Romero S, Mañanas MA, Barbanoj MJ, "Ocular reduction in EEG signals based on adaptive filtering, regression and blind source separation", *Annals of Biomedical Engineering,* Position 20/59 Q1 Biomedical Engineering. FI: 2.409, 37(1), 176-191, (DOI: 10.1007/s10439-008-9589-6), 2009.

67. Romero S, Mañanas MA, Barbanoj MJ, "Influence of ocular filtering in EEG data on the assessment of drug-induced effects on the brain", *Human Brain Mapping,* Position 1/13 Q1 Neuroimaging (1er decil) FI: 6.256, 30(5), 1470-1480, (DOI: 10.1002/hbm.20614), 2009.

68. Romero S, Mañanas MA, Barbanoj MJ, "A comparative study of automatic techniques for ocular artifact reduction in spontaneous EEG signals based on clinical target variables: a simulation case", *Computers in Biology and Medicine*, Position 40/72 Q2 Computer science, interdisciplinary applications FI: 1.272, 38(3) 348-360, (DOI: 10.1016/j.compbiomed.2007.12.001), 2008.

69. Hernández A. M., Mañanas M. A., Costa-Castelló R, "Learning Respiratory System Function in BME Studies by means of a Virtual Laboratory: RespiLab", *IEEE Transactions on Education,* Position 7/24 Q2 Education, scientific disciplines FI: 1.4, 51(1), 24-34, (DOI: 10.1109/TE.2007.893355), 2008.

70. Alonso, J.F., Mañanas, M.A., Hoyer, D., Topor, Z.L. y Bruce, E.N., "Evaluation of Respiratory Muscles Activity by means of Cross Mutual Information Function at Different Levels of Ventilatory Effort", *IEEE Transactions on Biomedical*

Engineering, Position 19/44 Q2 Biomedical Engineering. FI: 1.622, 54(9), 1573-1582. (DOI: 10.1109/TBME.2007.893494), 2007.

71. Mañanas, M.A., Jané, R., Fiz, J.A., Morera, J., Caminal, P, "Influence of estimators of spectral density on the analysis of electromyographic and vibromyographic signals", *Medical & Biological Engineering & Computing*, Position 12/80 Q1 Computer science, interdisciplinary applications. FI: 1.069, 40(1), 90-98, (DOI: 10.1109/TBME.2007.893494), 2002.
72. Mañanas, M.A., Fiz, J.A., Morera, J., Caminal, P., "Analyzing dynamic EMG and VMG signals of respiratory muscles", *IEEE Engineering in Medicine and Biology Magazine,* Position 29/39 Q3 Biomedical Engineering. FI: 0.614, 20(6), 125-132, (DOI: 10.1109/51.982284), 2001.
73. Mañanas M.A., R. Jané, J.A. Fiz, J. Morera, P. Caminal, "Study of myographic signals from sternomastoid muscle in patients with chronic obstructive pulmonary disease", *IEEE Transactions on Biomedical Engineering.* Position 12/41 Q2 Biomedical Engineering. FI: 1.566, 47(5), 674-681, (DOI: 10.1109/10.841339), 2000.
74. Fiz J.A., J. Abad, R. Jané, M. Riera, Mañanas, M.A., P. Caminal, D. Rodenstein, J. Morera, "Acoustic analysis of snoring sound in patients with simple snoring and obstructive sleep apnea", *European Respiratory Journal*, Position 4/53 Q1 Respiratory system (1st decile). FI: 7.125, 9(11), 2365-2370, (DOI: 10.1183/09031936.96.09112365)1996.

Otras publicaciones (revistas revisadas)

75. Salazar , M.; Hernández, A.M.; Mañanas, M.A.; Zuluaga, A. "Potential clinical application of surface electromyography as indicator of neuromuscular recovery during weaning tests after organophosphate poisoning", *Revista Brasileira de Terapia Intensiva*, 29(2), pp: 253-258 (DOI: 10.5935/0103-507X.20170035), 2017
76. Muñoz, I.; Hernández, A.M.; Alonso, J.F.; Mañanas, M.A.; Atehortua, L., "Assessment of weaning indexes based on diaphragm activity in mechanically ventilated subjects after cardiovascular surgery. A pilot study", *Revista Brasileira de Terapia Intensiva*, 21(2), pp: 213-221 (DOI: 10.5935/0103-507X.20170030), 2017

Publicaciones en congresos internacionales"

---

1. Migliorelli, C.; Alonso, J. F.; Romero, S.; Mañanas M. A.; Nowak, R.; Russi, A., "Visual detection of High Frequency Oscillations in MEG", 3rd Int. Conference on NeuroRehabilitation (ICNR2016), 2016
2. Ochoa JF, Ruiz LM, Valle DA, Duque J, Tobón CA, Alonso JF, Hernández AM, Mañanas MA. "Neurophysiological correlates in mild cognitive impairment detected using group independent component analysis", 37th Int. Conference of IEEE Engineering in Medicine and Biology Society, DOI: 10.1109/EMBC.2015.7320112, 2015
3. Alonso J. F.; Sabater A.; Romero S.; Mañanas M. A.; Riba J. "Assessment of the pharmacological effects of alprazolam on electroencephalography using connectivity indexes not affected by volume conduction", B•DEBATE | A Dialogue with the Cerebral Cortex: Cortical Function and Interfacing Frontiers in Systems Neuroscience, 2015
4. Sanchez M.B.S., Hernandez A.M., Cortes C., Serpa A, Mañanas M.A., Agudelo Y. "Respiratory muscle activity in patients with acute organophosphorus poisoning", Pan American Health Care Exchanges, PAHCE, DOI: 10.1109/PAHCE.2015.7173341, 2015
5. Jordanic M, Rojas- Martínez M, Mañanas M. A. "Muscle pattern from HD-EMG applied to identification of movement intention", Summer School on Neurorehabilitation (SSNR 2015), 2015
6. Rojas-Martínez M, Mañanas MA. "Changes of HD-sEMG Maps of the Upper Limb During Isometric Endurance Contractions", 36th Annual International Conference of IEEE Engineering in Medicine and Biology Society, DOI: 10.1109/EMBC.2014.6944394, 2014
7. Jafar Z; Marateb H.R.; Rojas-Martínez M.; Muceli S.; Mañanas M.A., Farina D. "An EMGDriven Musculoskeletal Model to Estimate Muscle Forces Using Neuro-Fuzzy System Identification", XX International Conference of the Society of Electrophysiology and Kinesiology (ISEK), 2014

8. Migliorelli, C., Romero S, Alonso JF, Nowak R, Russi A, Mañanas MA. “Reduction of metallic interference in MEG signals”, 35th Annual International Conference of IEEE Engineering in Medicine and Biology Society, DOI: 10.1109/EMBC.2013.6610912, 2013
9. Rojas-Martinez M, Alonso, JF, Chaler J, Mañanas MA. “Analysis of muscle coupling during isokinetic endurance contractions by means of nonlinear prediction”, 35th Annual International Conference of IEEE Engineering in Medicine and Biology Society, DOI: 10.1109/EMBC.2013.6610672 , 2013
10. Serna LY, Hernandez AM, Mañanas MA. “Improving dynamic response of respiratory system under hypercapnia and exercise: a simulation study”, 35th Annual International Conference of IEEE Engineering in Medicine and Biology Society, 2013
11. Camacho, A. Hernández, A.M., Londoño, Z., Serna, L.Y., Mañanas, M.A. “A synchronization system for the analysis of biomedical signals recorded with different devices from mechanically ventilated patients”, 34th Annual International Conference of IEEE Engineering in Medicine and Biology Society, DOI: 10.1109/EMBC.2012.6346335, 2012
12. Gonzalez M, López E, Mañanas MA, Ramos J, Caminal P. “The chain value process and knowledge transfer in a bioengineering case”, 12th European Conference on Knowledge Management ISBN: 978-1-908272-09-6, pp.332-340, 2011
13. Gonzalez M, López E, Mañanas MA, Ramos J, Caminal P. “Knowledge management and Open Innovation in a bioengineering case”, 6th European Conference on Entrepreneurship and Innovation, ISBN: 978-1-908272-14-0, pp.406-407, 2011
14. Serna, L.Y., Hernández, A.M., Mañanas, M. A. “Computational Tool for Modeling and Simulation of Mechanically Ventilated Patients”, 32nd Annual International Conference of IEEE Engineering in Medicine and Biology Society, DOI: 10.1109/IEMBS.2010.5626429 , 2010
15. Marateb, H., Rojas, M.A., Mañanas, M. A., Merletti, R. “Robust Outlier detection in High Density Surface Electromyographic signals”, 32nd Annual International Conference of IEEE Engineering in Medicine and Biology Society, DOI:10.1007/s11517-011-0790-7 , 2010
16. J. F. Alonso, M. A. Mañanas, S. Romero, D. Hoyer, J. Riba, M. J. Barbanoj. “Benzodiazepine effects on EEG connectivity: linear and nonlinear couplings”, 16th Biennal Congress of the International Pharmaco-EEG Society (IPEG), 2010
17. Rojas, M., Mañanas, M.A. “Evaluación de la Función Neuromuscular mediante Electromiografía Multicanal en Procesos de Rehabilitación motora”, III Congreso Internacional sobre Domótica, Robótica y Teleasistencia (DRT4ALL 2009), 2009
18. Hernandez, A.M., Mañanas, M.A., Costa-Castelló, R. “EJS-Based Laboratory for Learning the Function of the Cardiovascular System”, The 8th IFAC Symposium on Advances in Control Education (ACE2009), ISBN: 978-390266156-2, 2009
19. Serna, L.Y., Hernández, A.M., Mañanas, M.A. “MV-Trainer: Sistema para el Entrenamiento En Ventilación Mecánica”, V Seminario Internacional de Ingeniería Biomédica, 2009
20. Hernandez, A.M., Pierfranco, G.H., Mañanas, M.A., Costa-Castelló, R. “Cardiolab: A Virtual Laboratory for the analysis of Human Circulatory System”, 14th International Conference on Emerging Technologies and Factory Automation (ETFA 2009), DOI: 10.1109/ETFA.2009.5347145, 2009
21. Unyó, C., Chaler, J., Pujol, E., Müller, B., Rojas, M., Mañanas, M.A., Garreta.R. “Forearm muscle strength in lateral epicondylitis patients”, 7th Mediterranean Congress of Physical and Rehabilitation Medicine, 2008
22. Rojas, M., Mañanas, M.A.; Müller, B. and Chaler, J. “Activation of Forearm Muscles for Wrist Extension in Patients Affected by Lateral Epicondylitis”, 29th Annual International Conference of the IEEE Engineering in Medicine and Biology Society, DOI: 10.1109/IEMBS.2007.4353428, 2007,
23. Alonso, J.F.; Mañanas, M.A.; Romero, S.; Riba, J.; Barbanoj, M. J.; Hoyer, D. “Connectivity analysis of EEG under drug therapy”, 29th Annual International Conference of the IEEE Engineering in Medicine and Biology Society, DOI: 10.1109/IEMBS.2007.4353768, 2007
24. Romero, S.; Mañanas, M. A.; Barbanoj, M. J. “Quantitative evaluation of automatic ocular removal from simulated EEG signals: regression vs. second order statistics methods”, 28th Annual International Conference of the IEEE Engineering in Medicine and Biology Society, DOI: 10.1109/IEMBS.2006.260338, 2006
25. Rojas, M.; Mañanas, M. A.; Chaler, J. “Analysis of forearm muscles during gripping exercise by means of linear electrode arrays at different levels of effort”, XVI Congress of the International Society of Electrophysiology and Kinesiology, 2006
26. Alonso, J. F.; Mañanas, M. A.; Bruce, E. N.; Topor, Z. L. “Evaluation of nonlinear prediction methods in demodulated EMG signals from respiratory muscles”, XVI Congress of the International Society of Electrophysiology and Kinesiology, 2008

27. Hernández, A.M.; Mañanas, M. A.; Costa-Castelló, R. “RESPILAB: A Virtual Laboratory for the analysis of Human Respiratory Control System”, 7th IFAC Symposium on Advances in Control Education, DOI: 10.3182/20060621-3-es-2905.00078, 2006
28. Mañanas, M. A.; Rojas, M.; Mandrile, F.; Chaler, J. “Evaluation of muscle activity and fatigue in extensor forearm muscles during isometric contractions”, 27th Annual International Conference of IEEE Engineering in Medicine and Biology Society, DOI: 10.1109/iembs.2005.1615813, 2005
29. Romero, S.; Mañanas, M. A.; Riba, J.; Morte, A.; Giménez, S.; Clos, S.; Barbanoj, M. J. “Evaluation of an automatic ocular filtering method for awake spontaneous EEG signals based on Independent Component Analysis”, 26th Annual International Conference of IEEE Engineering in Medicine and Biology Society, DOI: 10.1109/IEMBS.2004.1403311, 2004
30. Mañanas, M. A.; Hernández, A. M.; Rabinovich, R.; Benito, S.; Caminal, P. “Modeling and evaluation of respiratory and muscle pattern during hypercapnic stimulus”, 26th Annual International Conference of IEEE Engineering in Medicine and Biology Society, DOI: 10.1109/IEMBS.2004.1404094, 2004
31. Alonso, J. F.; Mañanas, M. A.; Hoyer, D.; Topor, S. L.; Bruce E. N. “Analysis of respiratory and muscle activity by means of cross mutual information function between ventilatory and myographic signals”, 26th Annual International Conference of IEEE Engineering in Medicine and Biology Society, DOI: 10.1109/IEMBS.2004.1403104, 2004
32. Mañanas, M.A., Alonso, J.F., Topor, Z.L., Bruce, E.N., Houtz, P., Caminal, P. ”Frequency Parameters from Myographic Signals for the Evaluation of Respiratory Muscle Activity during an Increased Ventilatory Effort”, 5th Annual International Conference of IEEE Engineering in Medicine and Biology Society, DOI: 10.1109/IEMBS.2003.1280824, 2003
33. Romero, S., Mañanas, M.A., Clos, S., Gimenez, S., Barbanoj, M.J. “Reduction of EEG Artifacts by ICA in Different Sleep Stages”, 25th Annual International Conference of IEEE Engineering in Medicine and Biology Society, DOI: 10.1109/IEMBS.2003.1280467, 2003
34. Mañanas, M.A., Hernández, M.A., Romero, S., Griñó, R., Rabinovich, R., Benito, S., Caminal, P. “Analysis of Respiratory Models at Different Levels of Exercise, Hypercapnia and Hypoxia”, 25th Annual International Conference of IEEE Engineering in Medicine and Biology Society, DOI: 10.1109/IEMBS.2003.1280487, 2003
35. Mañanas, M.A., Navarro, C., Romero, S., Griñó, R., Rabinovich, R., Benito, S. y Caminal, P. “Control system response of different respiratory models under ventilatory stimuli and pathologies”, 5th IFAC World Congress on Automatic Control, DOI: 10.3182/20020721-6-es-1901.01333, 2002
36. Romero, S.; Mananas, M.A.; Lorenzo, J.L.; Clos, S.; Barbanoj, M.J. “Analysis of sleep spindles in different NREM-REM cycles by means of bispectra”, 24th Annual International Conference of IEEE Engineering in Medicine and Biology Society, DOI: 10.1109/IEMBS.2002.1134441 ,2002
37. Mananas, M.A.; Topor, Z.L.; Bruce, E.N.; Houtz, P.; Caminal, P. “Respiratory and muscular analysis in patients with OSAS at different levels of ventilatory effort”, 24th Annual International Conference of IEEE Engineering in Medicine and Biology Society, DOI: 10.1109/IEMBS.2002.1134473, 2002
38. Mañanas, M.A.; Romero, S.; Topor, Z.L.; Bruce, E.N.; Houtz, P.; Caminal, P. “Cardiac interference in myographic signals from different respiratory muscles and levels of activity”, 23rd Annual International Conference of IEEE Engineering in Medicine and Biology Society, DOI: 10.1109/IEMBS.2001.1020386, 2001,
39. Mañanas, M.A., Guillén, M., Fiz, J.A., Morera, J., Caminal, P. “Analysis of stationarity and statistical changes in myographic signals from respiratory muscles”, 22nd Annual International Conference of IEEE Engineering in Medicine and Biology Society, DOI: 10.1109/IEMBS.2000.897985 , 2000
40. Mañanas, M.A., Romero, S., Caminal, P. “A comparative study of respiratory models in control of ventilation”, 22nd Annual International Conference of IEEE Engineering in Medicine and Biology Society, DOI: 10.1109/IEMBS.2000.900379 , 2000
41. Serena A., M.A Mañanas, J.A. Fiz, J. Morera, P. Caminal, “Methodology of large biomedical data analysis based on multivariate statistical techniques”, Fifth Conference of the European Society for Engineering and Medicine, 1999
42. Mañanas M.A., J.A. Fiz, J. Morera, P. Caminal. “Cardiac activity reduction from myographic signals at different levels of muscle effort”, Fifth Conference of the European Society for Engineering and Medicine, 1999
43. Mañanas M.A., J.A. Fiz, J. Morera, P. Caminal, R. Jané. “Influence of spectral estimation method on muscle activity parameters in myographic signals”, World Congress on Medical Physics and Biomedical Engineering, 1997
44. Mañanas M.A., A. Torres, J.A. Fiz, J. Morera, P. Caminal, R. Jané. “Time and Frequency Analysis of Signals from Sternomastoid Muscle in COPD patients and Control”, Annual Int. Conf. of the IEEE Engineering in Medicine and Biology Society, DOI: 10.1109/IEMBS.1996.647515 , 1996

45. Baranowski R., Mañanas, M.A., R. Jané, P. Caminal, W. Poplawska, L. Chojnowska, L. Rydlewska- Sadowska, X. Viñolas, J. Guindo, A. Bayés de Luna. "Analysis of 24h QTc Variability in Patients with Hypertrophic Cardiomyopathy", Intern. Congress Ambulatory Monitoring, 1996
46. Baranowski R., J.J. Zebrowski, W. Poplawska, M.A.Mañanas, R. Jané, P. Caminal, L. Chojnowska, X. Viñolas, J. Guindo, A. Bayés de Luna, "3-Dimensional Poincaré Plots of QT and RR Intervals. An Approach to Nonlinear Analysis of QT/RR Relationship", Intern. Congress Ambulatory Monitoring, 1996
47. Baranowski, R., Zebrowski, W., Mañanas, M.A., Jané, R., Caminal, P., Viñolas, J., Bayés de Luna, A. "3-Dimensional Poincare Plots of the QT intervals. An Approach to Nonlinear QT Analysis", Computers in Cardiology, 1995
48. Jané, R., Fiz, J.A., Mañanas, M.A., Morera, J., Caminal, P. "Evaluation of vibromyographic signals from sternomastoid muscle in COPD patients during respiratory loads", 17th Annual International Conference of IEEE Engineering in Medicine and Biology Society, DOI: 10.1109/IEMBS.1995.579711 , 1995
49. Jané, R., Fiz, J.A., Mañanas, M.A., Izquierdo, J., Morera, J., Caminal, P. "Analysis of Vibromyographic and Electromyographic signals from sternomastoid muscle in COP patients", 16th Annual International Conference of IEEE Engineering in Medicine and Biology Society, DOI: 10.1109/IEMBS.1994.412010 , 1994

Capítulos de libros

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1. Marateb, HR, Rojas-Martínez, M, Zamani, S. Shirzadi, M., Koochekian, A, Mañanas, MA, Chapter 6: *"Reliability of machine learning methods for diagnosis and prognosis during the COVID-19 pandemic: a comprehensive critical review"*. In: The application of Industry 4.0 technologies for automated health monitoring and surveillance during pandemics and post-pandemic life, (pp 6.1-6-20). edn. Edited by Bajaj V, Ansari IA, IOP Publishing Ltd; (DOI: https://doi.org/10.1088/978-0-7503-5247-5), 2023
2. Azimi, T.; Koochekian, A.; Marateb, H.; Shirzadi, M.; Rojas, M.; Alonso, J.F.; Bachiller, A.; Mansourian, M.; Rubio, M.; Romero, S.; Mañanas, M.A., Chapter 3: *"Psychiatric disorders and cognitive impairment following COVID-19: a comprehensive review and its implications for smart healthcare design"*. In: Cognitive sensors, Volume 1: Intelligent sensing, sensor data analysis and applications, (pp 3.1-3.27). edn. Edited by Bajaj V, Ansari IA, IOP Publishing Ltd; (DOI: 10.1088/978-0-7503-5326-7), 2022
3. Marateb HR, Mohebbian MR, Shirzadi M, Mirshamsi A, Zamani S, Abrisham chi A, Bafandes F, Mañanas MA, Chapter 5: *"Reliability of machine learning methods for diagnosis and prognosis during the COVID-19 pandemic: a comprehensive critical review"*. In: High Performance Computing for Intelligent Medical Systems, (pp 5.1-5.25). edn. Edited by Bajaj V, Ansari IA, IOP Publishing Ltd; (DOI: 10.1088/978-0-7503-3815-8ch5), 2021
4. Marateb HR, Nezhad FZ, Nosouhi M, Esfahani Z, Fazilati F, Yusefi F, Amiri G, Far NM, Rastegari M, Mohebbian MR, Wahid KA, Jordanić M, Alonso JF, Mañanas MA, Mansourian M: Chapter 14: *"Prosthesis Control Using Undersampled Surface Electromyographic Signals"*. In: Analysis of Medical Modalities for Improved Diagnosis in Modern Healthcare (pp.89-112). edn. Edited by Bajaj V, Sinha G: CRC Press (DOI: 10.1201/9781003146810-5), 2021
5. Mansourian M, Marateb HR, Cube Mv, Khademi S, Jordanic M, M.A. Mañanas, Binder H, Wolkewitz M: Chapter 14: *"Reliable Diagnosis and Prognosis of COVID-19"*. In: Computer-aided Design and Diagnosis Methods for Biomedical Applications. edn. Edited by Bajaj V, Sinha G: CRC Press; (DOI: 10.1201/9781003121152-14), 2021.
6. M Mansourian, H.R. Marateb, M. Mansourian, MR. Mohebbian, H. Binder, M.A. Mañanas, Chapter 17: *"Rigorous performance assessment of computer-aided medical diagnosis and prognosis systems: a biostatistical perspective on data mining"*, in: Modelling and Analysis of Active Biopotential Signals in Healthcare, Volume 2, IOP Publishing, pp. 17–1–17–24., (DOI: 10.1088/978-0-7503-3411-2ch17) 2020
7. H.R. Marateb, C. Migliorelli, A. Bachiller, T. Azimi, F.Z. Nezhad, M. Mansourian, J.F. Alonso, J. Aparicio, M.V.S. Antonio-Arce, S. Romero, M.A. Mañanas, Chapter 4: *"Epileptic seizure prediction and onset zone localization using intracranial and scalp electroencephalographic and magnetoencephalographic signals"*, in: Modelling and Analysis of Active Biopotential Signals in Healthcare, Volume 1, IOP Publishing, pp. 4.1-4.25, (DOI: 10.1088/978-0-7503-3279-8ch4) 2020.
8. H.R. Marateb, M. Jordanic, M. Rojas-Martínez, J.F. Alonso, L.Y. Serna, M. Shirzadi, M. Nosouhi, M.A. Mañanas, K.C. McGill, Chapter 7: *"Reliable and accurate information extraction from surface electromyographic signals"*, in: Modelling and Analysis of Active Biopotential Signals in Healthcare, Volume 1, IOP Publishing, pp. 7.1-7.23, (DOI: 10.1088/978-0-7503-3279-8ch7) 2020.

9. Alonso J.F. Romero S., Mañanas M.A., Nowak R., Russi A. *"Visual Detection of High Frequency Oscillations in MEG"* In: Converging Clinical and Engineering Research on Neurorehabilitation II, from Biosystems and Biorobotics, Springer Nature Publisher, Volume 15, pp 769 – 773, (DOI: 10.1007/978-3-319-46669-9_126), 2017

Participación proyetos I+D

1. An integrated High-Density EMG and EEG Approach to Assess Central and Peripheral Nervous System Alterations Associated with Fibromyalgia (FIBROEEMG), MICIU (*PID2023-150654OB-I00*) (1.9.2024- 31.8.2027) Grant amount: 216.625 €, PI: MA Mañanas & M. Rojas
2. MV-Optimizer: A digital and intelligent decision support system for operating a patient safety and cost reduction mechanical ventilation at the ICU, MICIU (*PDC2023-145905-I00*) (1.1.2024- 31.12.2025) Grant amount: 288.778 €, PI: MA Mañanas & S. Romero
3. Transferring innovative rehabilitation technology to the medtech industry. AGAUR (Generalitat de Catalunya) (2021 INNOV 00030). (16.12.2022- 15.5.2024) Grant amount: 84.000 €, PI: MA Mañanas
4. Hybrid neuroscience based on cerebral and muscular information for motor rehabilitation and neuromuscular disorders (HybridNeuro, Horizon Europe). (HORIZON-WIDERA-ACCESS-2021-03-TWINNING, Contract number:101079392) (01.01.2023-31.12.2025). Grant amount: 309.050 €, PI: MA Mañanas.
5. MV-OPTIMIZER: a digital-health system for safe-patient and cost-effective management of mechanical ventilation. AGAUR (Generalitat de Catalunya) (2021 PRODUCTE 00085) (19.10.2022- 18.4.2024). Grant amount: 99.875 €, PI: MA Mañanas. Scientific entrepreneur: LY Serna.
6. Transferring innovative rehabilitation technology to the medtech industry. AGAUR (Generalitat de Catalunya) (2021 INNOV 00030). (16.12.2022- 15.5.2024) Grant amount: 84.000 €, PI: MA Mañanas
7. MYOARM: Smart Technology for motor rehabilitation, MICINN (*PDC2021-120818-I00 Proof of concept*) (1.10.2021-31.9.2023) Grant amount: 138.000 €, PI: MA Mañanas & S. Romero
8. Innovative technologies to monitor and personalize intensive care patients' interdisciplinary rehabilitation (TECICREHAB), MICINN (*PID2020-117751RB-I00*) (1.9.2021- 31.8.2024) Grant amount: 242.000 €, PI: MA Mañanas & S. Romero
9. MyoSleeve: An assistive device for treatment of musculoskeletal injuries related to forearm, AGAUR (Generalitat de Catalunya) (2019PROD00071) (1.1.2021- 31.1.2022), Grant amount:: 99.875 €, PI: MA Mañanas
10. An online expert-based intelligent hybrid system to predict and assess motor rehabilitation outcomes in neurological disorders: NEURASSESS, *Generalitat de Catalunya/European Commission (TECSPR18-1-0017)* (14.07.2019-13.07.2021). Grant amount: 133.380 €, PI: MA Mañanas
11. A Smart T-shirt for the motor rehabilitation of upper arm (MYOSHIRT), ACCIÓ (Generalitat de Catalunya) (INNOTECRD18-1-0044) (7.8.2018- 22.10.2021), Grant amount: 131.935,7 €, PI: MA Mañanas
12. MV-Optimizer: Validation of a computational system for the management of ventilated intensive care patients, AGAUR (Generalitat de Catalunya) (2018-LLAV00060) (6.5.2019- 5.2.2020), Grant amount: 20.000 €, PI: MA Mañanas
13. Desarrollo de aplicaciones móviles para el aprendizaje del sistema respiratorio: conceptos básicos, diagnóstico de enfermedades, terapia y rehabilitación, *Colciencias, Departamento Administrativo De Ciencia, Tecnología E Innovación de la República de Colombia* (8.4.2019-31.10.2020). Grant amount: 37.522 €. PI (consortium): AM Hernández. PI (partner UPC): MA Mañanas
14. Multimodal analysis for assessment and rehabilitation of disabling neurological disorders, MINECO (*DPI2017-83989-R*) (1.1.2018- 31.12.2020) Grant amount: 217.800 €, PI: MA Mañanas & S. Romero
15. Cost effective self-management of urinary incontinence addressed to women across Europe, *European Commission (ref. 643535-WOMEN-UP) Strategic objective: PHC-26-2014 - Self management of health and disease: citizen engagement and mHealth (HORIZON 2020) (1.2.2015-31.5.2019).* Grant amount: 3,245.257 €. Project Coordinator: MA Mañanas
16. A novel non-invasive EMG sensor-and-analysis system, *Generalitat de Catalunya/European Commission (TECSPR14-2-0038)* (1.10.2015-1.10.2017). Grant amount: 129.720 €, PI: MA Mañanas
17. NEUROTEC. Red temática de investigación en neurotecnologías para la asistencia y la rehabilitación, MINECO (*DPI2015-69098-REDT*) (01.12.2015- 31.11.2017) Grant amount: 35.000€, PI: José María Azorín Poveda
18. Design of methods for assessing processes of neurological and neuromuscular decline associated with aging, *MINECO (DPI2014-59049-R)* (1.1.2015- 31.12.2018) Grant amount: 133.000 €, PI: MA Mañanas & S. Romero
19. Fortalecimiento de plataforma tecnológica para la formación especializada en el área de la salud y el desarrollo de tecnología biomédica, *Fondo Nacional de Regalías de la República de Colombia* (1.10.2014-31.9.2016). Grant amount: 22.120 €. PI (consortium): AM Hernández. PI (partner UPC): MA Mañanas

20. Robert: Robotic Arm And High Density Electromyography For Upper- Limb Rehabilitation And Therapy. *Centro de Investigación Biomédica en Red. Bioingeniería, Biomateriales y Nanoingeniería (CIBER-BBN)* (1.6.2014-31.5.2016). PI: M Rojas.
21. Desarrollo de herramientas tecnológicas para la formación especializada en el área de salud, *Fondo Nacional de Regalías de Colombia (2.12.2013-2.12.2015). Grant amount: 25.651,13 €.* PI (consortium): AM Hernández. PI (partner UPC): MA Mañanas
22. Sistema integrado para la monitorización continua de pacientes en los ambientes domiciliarios, intrahospitalarios y de movilidad para nuevos modelos de atención y de mercados, *Fondo Nacional de Regalías de la República de Colombia* (3.3.2014-3.3.2015). Grant amount: 3.520,87 €. PI (consortium): AM Hernández. PI (partner UPC): MA Mañanas
23. Multichannel systems of analysis and sensorization for rehabilitation and clinical monitoring, *MINECO (DPI2011-22680)* (1.1.2012-31.12.2014). Grant amount: 121.000 €. PI: MA Mañanas.
24. Preparación de una acción integrada entre el programa de bioingeniería de la UdeA y el centro de investigación en Ingeniería biomédica de la UPC en el marco de estudios de postgrado e investigación, *AECID. MAAEE (C/032085/10)* (1.6.2011-31.6.2012). Grant amount: 5000 €. PI: MA Mañanas.
25. Analysis of the dynamic interactions in non-invasive multichannel biosignals for rehabilitation and therapy, *MICINN (TEC2008-02274)* (1.1.2009-31.12.2011). Grant amount: 75.000 €. PI: MA Mañanas.
26. Research and Development of a system for upper limb neurorehabilitation, ACC1Ó *(CIDEM-Generalitat) (RDD08-2-0019)* (15.7.2008-15.7.2010).Grant amount: 800.000 €. PI (consortium): JM Ramírez. PI (partner UPC): MA Mañanas
27. Development of a biofeedback system for pelvic floor muscle training in patients with urinary incontinence, *ACC1Ó (CIDEM), Generalitat de Catalunya (VALTEC09-1-0060)* (1.10.2009-31.6.2012). Grant amount: 79.900 €. PI: MA Mañanas.
28. Creation and implementation of a model for scientific and technological management in the respiratory ICU of the Public Hospital La María in Medellín, *Centro de Cooperación para el Desarrollo (Technical University of Catalonia) (U-013,U-014)* (2008-2010). Grant amount: 6.500 €. PI: MA Mañanas.
29. Design and implementation of virtual laboratories for engineering education, *Center for Cooperation and Development (CCD-UPC) (ref. U-017)* (1.09.2007-30.07.2008). Grant amount: 3.000 €. PI: R Costa.
30. Analysis of neuromuscular function in the lower limbs for the development of orthoprosthetic systems and monitoring the rehabilitation process in people with spinal cord injury and walking disability, *IMSERSO (Ministerio de Trabajo y Asuntos Sociales) (Proyecto 102-06)* (2006-2007). Grant amount: 74.000 €. PI (consortium): J Vidal. PI (partner UPC): MA Mañanas
31. Application of advanced surface EMG signal acquisition and processing techniques for the rehabilitation of muscular functioning, *Ministerio Ciencia y Tecnología Acción Integrada (ref. HI2003-0186)*(2004-2005). Grant amount: 10.000 €. PI: MA Mañanas.
32. Processing and interpretation of biomedical signals for clinic assessment and rehabilitation*, MEC, CICYT (TEC2004-02274)*(2004-2007). Grant amount: 236.280 €. PI P Caminal.
33. Advanced biomedical signal processing techniques for monitoring, diagnosis and therapy of cardiac diseases, *CICYT (ref. TIC2001-2167-C02-01)* (2002-2004). Grant amount: 169.473,40 €. PI: P. Caminal.
34. Diseño y desarrollo de nuevos prototipos de adquisición y procesado de señales biomédicas para la ayuda al diagnóstico de patologías cardíacas y respiratorias, *FEDER, (ref. 2FD97-1197-C02-02)* (1999-2001). Grant amount: 172.520 €. PI: P. Caminal.
35. Análisis de complejidad y tiempo-frecuencia para la obtención de la información clínica oculta en señales cardíacas y respiratorias, *CICYT (ref. TIC 97-0945-C02-01)*, (1997-2000). Grant amount: 93.758 €. PI: Pere Caminal.
36. Análisis en el dominio tiempo-frecuencia de señales biomédicas no estacionarias para la mejora del diagnóstico clínico, *CICYT (ref. TIC 94-0608-C02-01)* (1994-1997). Grant amount: 66.111 €. PI: P. Caminal.
37. Heart rate variability analysis by means of power spectral analysis techniques, *Consejo Superior de Investigaciones Científicas - Hungarian Academy of Sciences* (1992-1996). PI: P Caminal.

Participación en proyectos privakdos

1. Improving patient outcomes and reducing cognitive load of clinical staff in intensive care through medical device interoperability and an open and secure IT ecosystem (SASICU, Horizon Europe). (HORIZON-JU-IHI-2022-03, Contract number: 101132808) Innovative Health Initiative Program (01.10.2023-30.9.2026). Grant amount: 8.808.922.50 €, PI (Consortium): Jonas Roth (Dräger company), PI (UPC partner): MA Mañanas.
2. Definition of Biotypes within Psychotic Syndrome based on Cognitive Performance and Cortical Inhibitory Activity. Fundació La Marató TV3 (Ref 202219-30-31-32) (15.04.2023- 14.04.2026) 119.875 €, PI: MA Mañanas
3. MV-OPTIMIZER: the e-health solution for the effi cient mechanical ventilationmanagement of critically ill patients, LaCaixa Foundation (*CaixaImpulse CI21-00242*) (01.07.2021- 1.3.2023) Grant amount: 70.000 €, PI: L.Y. Serna & MA Mañanas
4. Evaluation of cognitive function in patients with Rett syndrome during different stimulation therapies and with advanced electroencephalographic (EEG) signal analysis. Private Foundation of Sant Joan de Déu (01.10.2019- 31.10.2020) Grant amount: 10.000 €, PI: MA Mañanas
5. MYOSLEEVE: A wearable device for rehabilitation of musculoskeletal disorders related to forearm, LaCaixa Foundation (*CaixaImpulse CI18_00083*) (01.09.2018- 30.04.2020) Grant amount: 70.000 €, PI: MA Mañanas
6. System of clinical response indexes based on EEG for the evaluation of cognitive psicostimulation for the Alzheimer disease, BBVA, (1.10.2016-31.4.2018), PI: MA Mañanas, Funds: 38.109 €.
7. Social network mobile app to promote patient adherence to treatment and healthy lifestyles, Fundación MAPFRE (06.02.2017-15.05.2018) Grant amount: 44.500 €, PI: JF Alonso & JJ Ramos (UPC)
8. Assessment of functional and effective connectivity during spontaneous activity and mental tasks, INDUSTEX S.A. (1.6.2012-31.5.2014), PI: MA Mañanas, Funds: 62.000 €
9. New clinical-response indicators based on high-resolution electromyography for the rehabilitation of SCI patients, MAPFRE, (1.4.2013-31.3.2014), PI: MA Mañanas, Funds:15.000 €
10. General introduction and basics of MATLAB application to medical physics, Catalan Society of Medical Physics (SCFM) (1.03.2012-31.04.2012), PI: MA Mañanas, Funds: 6.500 €
11. Signal recording and subsequent analysis to determine the effect of different tissues, FLEX S.A., (2008), PI: MA Mañanas, Funds: 9.000 €
12. Realización de un equipo Biofeedback, Albyn Medical S.L., (2003-2004), PI: P. Caminal, Funds: 12.000 €
13. Estudio de la innovación tecnológica de las patentes EP0104772, EP0329196 y EP0127947 en el ámbito de la pulsioximetría, Carril, Cables y Sensores, (2003-2004), PI: MA Mañanas, Funds 4.000 €
14. Informe técnico sobre pulsioximetría, Carril, Cables y Sensores, (2003-2003), PI: MA Mañanas, Funds: 3.066 €
15. Study of feasibility of a biofeedback system, Albyn Medical S.L., (2002-2003), PI: P. Caminal, Funds: 8.222 €
16. Procesado de señales EMG y sonidos musculares para el diagnóstico de la fatiga muscular respiratoria, Hospital Germans Trias i Pujol, (1993-1995), PI: R Jané, Funds: 3.387 €

Patentes

1. LY Serna, MA Mañanas, AM Hernandez “A medical ventilator system and a method for predicting transient states of a ventilated patient upon changes in mechanical ventilator settings”, PCT/EP2022/061524, Date of international filling: 29-04-22, Date of priority: 28-4-21. Company/Institution: Technical University of Catalonia and Universidad de Antioquia.
2. M Rojas, MA Mañanas, “Portable device, system and method for measuring electromyographic signals of a user” PCT 2016001040IB, Date of priority 23-7-15, Company/Institution: Technical University of Catalonia. Granted to Europe, US, Japan, South Corea and China.
3. M.A Mañanas, J.J. Ramos, M. Espuña, A. Pérez “Method with bio-feedback for training the muscles of the pelvic floor muscle”, P201231114, PCT/ES2013/070507, Date of priority: 16-7-12, Company/Institution: Technical University of Catalonia, Hospital Clínic. Countries to which has been granted: US, Chi, Europe.