JAIME GOMEZ-RAMIREZ, PhD
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WORK EXPERIENCE

Research & Development Policy & Academia

2022 Scientific Officer European Research Council ERCEA (Brussels, BE)
Selecting excellent ideas for frontier research in Computer Science

2021- 2022 Scientific Project Officer at the European Commission JRC (Ispra, IT)
Mathematical modeling of disease epidemics and risk contagion

2020- Senior Data Scientist at Global New Energy (Barcelona, SP)
Leader of research and innovation for digital transformation of the company

2017-2020 *Research Associate at Instituto de Salud Carlos III (Madrid, SP)*
Causal Inference, Machine Learning, Predictive and Personalized medicine

2015-2016 Postdoctoral Research Fellow at Hospital for Sick Children (Toronto, CA)
Neural dynamics intracranial EEG and MEG

2014-15 Postdoctoral Research Fellow at the University of Wisconsin-Madison (US)
Mathematical and computational causal modeling of neural mechanisms.

2012-13 Postdoctoral Research Fellow at Okayama University (JP)
Network brain connectivity (Bayesian based network biomarkers)

***2018 Professor at Universidad Complutense de Madrid* (SP)**
Lecturer in Robotics and Signal Processing courses

***2017 Visiting Professor at University of Turin* (IT)**
Lecturer Cognitive Neuroscience Course at Scuola di Studi Superiori

***2006-2011 Professor at Universidad Pontificia de Comillas, Madrid (*SP)**
Lecturer 800 hours, undergraduate and graduate courses Mechanical and Electronical Engineering Departments

Private Sector IT

2000-2004 Consultant and Manager

Solutions architect at Hewlett-Packard, France.
Network lifecycle management through network, network security design, system performance characterization and testing.

Project Manager at Accenture, Spain.
Interfacing with the stakeholders and clients. Technical evaluation and strategic recommendations.

EDUCATION and TRAINING

- PhD with 3 postdoctoral periods in Okayama University (Japan), University of Madison-Wisconsin (US) and The Hospital for Sick Children-University of Toronto (Canada).
- Experience in Academia as a Professor and Researcher, in the private sector in consulting firms and Public Administration

2010 PhD Universidad Politécnica de Madrid

2009 Visiting Scientist at University of Palermo

2008 Visiting Scientist at Humboldt University of Berlin

2007 Visiting Scientist at University of California Berkeley

2000 BSc, MSc in Computer Engineering at Universidad Politécnica de Madrid

LANGUAGES

Proficient in English, French, Italian and Spanish

PROJECT LEADER

Study of the anatomo-functional connectome of AD-relatives: an early intervention on cognitive al lifestyles (Spanish National Plan, cod. RTI2018-098762-B-C31). 01/09/2019-01/09/2021.

PILEP+90: Spain-Portugal longevity research program +90. "Application of data mining techniques for the identification of factors of healthy and pathological ageing (ImageH)", 01/01/2019-01/01/2021.

Imaging Excessive Hippocampal Excitability in aMCI (University of Toronto). 08/01/2016-08/01/2019.

Patient-Specific Adaptive Closed-Loop Neurostimulation for Optimum Treatment of Intractable Epilepsy (Canadian Institutes of Health Research). 08/01/2016-08/01/2019.

PUBLICATIONS

1. Books as single author

- Gomez-Ramirez J. A New Foundation for Representation in Cognitive and Brain Science: Category Theory and the Hippocampus, Springer Series in Cognitive and Neural Systems, Springer Dordrecht, 2014.

2. Journal Publications (PubMed)

- Fasano, A., Riccetti, N., Angelou, A. *et al.* An epidemiological model for mosquito host selection and temperature-dependent transmission of West Nile virus. *Sci Rep* 12, 19946
- Riccetti N, Fasano A, Ferraccioli F, Gomez-Ramirez J, Stilianakis NI. Host selection and forage ratio in West Nile virus–transmitting Culex mosquitoes: Challenges and knowledge gaps. PLoS Negl Trop Dis 16(10)
- Gomez-Ramirez J et al. Prediction of Chronological Age in Healthy Elderly Subjects with Machine Learning from MRI Brain Segmentation and Cortical Parcellation. *Brain Sci.* 2022, *12*(5), 579
- Sanz-Blasco R. et al. Transition from mild cognitive impairment to normal cognition: Determining the predictors of reversion with multi-state Markov models. Alzheimer's & Dementia (2021)
- Gomez-Ramirez J Causal analysis of the effect of age and sex differences on brain atrophy in the elderly brain. *Life* 2022
- Mateos D, Gomez-Ramirez J and Rosso O. Using time causal quantifiers to characterize sleep stages. Chaos, Solitons and Fractals (2021)
- Fernandez-Blazquez M. and Gomez-Ramirez J.; Impact of individual and neighborhood dimensions of socioeconomic status on the prevalence of mild cognitive impairment over seven-year follow-up, Aging & Mental Health (2020)
- Gomez-Ramirez; et al Selecting the most important self-assessed features for predicting conversion to Mild Cognitive Impairment with Random Forest and Permutation-based methods. Scientific Report doi.org/10.1101/785519 (2019).
- Gomez-Ramirez J.; et al Exploring the alpha desynchronization hypothesis in resting state networks with intracranial electroencephalography and wiring cost estimate Scientific Reports. Nature. 7-15670. (2017).
- Gomez-Ramirez J. and Costa T. Boredom begets creativity: a solution to the exploitation-exploration trade-off in predictive coding Biosystems 162-12, Pages 168-176 (2017).
- Gomez-Ramirez J., Li Y, Wu Q. and Wu J. A quantitative study of network robustness in resting state fMRI in young and elder conditions. 3;7:256 Neurobiol Aging. (2015)
- Marshall, W., Gomez-Ramírez J., Tononi, G. 2016. Integrated Information and State Differentiation 2016; 7: 926 Frontiers in Psychology
- Eheresmann A. and Gomez-Ramirez J. Conciliating neuroscience and phenomenology via category theory. Prog Biophys Mol Bio. 119, Issue 3, 2015, Pages 347-359
- Gomez-Ramirez J. and Wu J. Network-Based Biomarkers in Alzheimer's Disease: Review and Future Directions, Front Aging Neurosci.; 6: 12 (2014)

- Simeonov P, Gomez-Ramirez J, Siregar P. On some recent insights in Integral Biomathics, Prog Biophys Mol Bio. 113:1, 216–228 (2013)
- Gomez-Ramirez J.and Sanz, R. On the limitations of standard statistical modeling in biological systems: A full bayesian approach for biology. Prog Biophys Mol Bio. 113:1, 80-91 (2013)
- Gomez-Ramirez J, Sanz, R., Hippocampal Categories: A Mathematical Foundation for Navigation and Memory. Adv Exp Med Biol., 718, pp 149- 64 (2011)
- Sanz R, Hernández C, Gómez-Ramirez J. Introduction: from brains to the machines of the future., Adv Exp Med Biol. 2011;718:1-6. doi: 10.1007/978- 1-4614-0164-3_1. (2011)
- Sanz R, Hernandez C, Gomez J, Hernando A., A Functional Approach to Emotion in Autonomous Systems. Adv. Exp. Med. Biol. 2010;657, pp 249- 65 (2010)
- Gomez-Ramirez J. Don't blame the economists. It is an inverse problem! Eur J Futures Res 15:13 (2013).
- Gomez-Ramirez J, Comments on Aur's From Neuroelectrodynamics To Thinking Machines. Cogn. Comput. 4, 4: pp563-565 (2012)

3. Book chapters

- Gomez-Ramirez J, Sanz R, What the Escherichia coli tells neurons about Learning, Integral Biomathics: Tracing the Road to Reality, Simeonov,P. Smith L, Eheresmann A. (Eds.), Springer- Verlag, Heidelberg, 2012, pp 41- 55.
- Simeonov P, Gomez-Ramirez, J. et al., Stepping Beyond the Newtonian Paradigm in Biology. Towards an Integrable Computational Model of Life: Accelerating Discovery in the Biological Foundations of Science, Integral Biomathics: Tracing the Road to Reality, Simeonov,P. Smith L, Eheresmann A. (Eds.), Springer-Verlag, Heidelberg, 2012, pp 319-417.
- Simeonov PL, Ehresmann AC, Smith LS, Gomez-Ramirez J, Repa V; A., New Biology: A Modern Perspective on the Challenge of Closing the Gap between the Islands of Knowledge, Towards a Servive-Based Internet, Cezon M., Wolfsthal Y. (Eds.), Springer-Verlag, Heidelberg, 2011, pp 188-195.
- Sanz R, Hernandez C, Hernando A, Gomez-Ramirez J., Bermejo J., Grounding Robot Autonomy, Emotion and Self-awareness, Advances in Robotics, Jong-Hwan Kim et al. (Eds.) Springer-Verlag, Heidelberg, 2009, pp: 23-43.
- Sanz R, Gomez Ramirez J. et al., Thinking with the body, Handbook of Cognitive Science: An Embodied Approach, Calvo P. and Gomila T. (Eds.), Elsevier Science, 2008, pp 395-419.
- Sanz R, Bermejo J, López I, Gomez J, A Real-Time Agent System Perspective of Meaning and Sapience, Toward Artificial Sapience: Principles and Methods for Wise Systems. Rene V. Mayorga y Leonid Perlovsky (Eds.), Springer-Verlag, London, 2008, pp 61-75.