

Daniel Leal

Biomedical Engineering Neuroscientist, Ph.D.

Skills

Machine Learning



Statistics



Electroencephalography



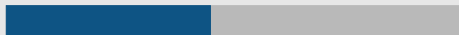
Electromyography



Arduino



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MATLAB



Python



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Languages

Portuguese



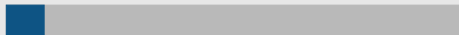
English



Spanish



French



Interests

Engineer fascinated with the development of neurotechnologies. Application of signal processing techniques to decode and interpret physiological information mainly focused on neuroscience, motor learning, brain, and human-machine interfaces.

Experience

Since 05/2023 Postdoctoral Researcher Translational Neural Engineering Laboratory
Istituto di BioRobotica - Scuola Superiore Sant'Anna

Education

2019-2023 PhD in Neurology and Neuroscience Laboratory of Neuroengineering and Neurocognition
Escola Paulista de Medicina - Federal University of São Paulo
Thesis: Auricular muscle for motor control in human-machine interfaces

2020-2022 Visiting PhD period Translational Neural Engineering Laboratory
École Polytechnique Fédérale de Lausanne, Campus Biotech - Geneva, Switzerland (10/2020-09/2021 and 01/2022-12/2022)

2017-2019 Master in Neurology and Neuroscience Laboratory of Neuroengineering and Neurocognition
Escola Paulista de Medicina - Federal University of São Paulo
Thesis: Modulation in phase and frequency of neural oscillations during epileptiform activity induced by neonatal Zika virus infection in mice

2013-2018 Bachelor in Biomedical Engineering
Instituto de Ciência e Tecnologia - Federal University of São Paulo
Thesis: Method for electrophysiological characterization of neural signals recorded in animal models with Information Theory techniques

2013-2015 Bachelor in Science and Technology
Instituto de Ciência e Tecnologia - Federal University of São Paulo

Publications

2023 Dominijanni, G., Pinheiro, D. L., Pollina, L., Orset, B., Gini, M., Anselmino, E., ... & Micera, S. (2023). Human motor augmentation with an extra robotic arm without functional interference. *Science Robotics*, 8(85), eadh1438.

2023 Pinheiro, D. J., Faber, J., Micera, S., & Shokur, S. (2023). Human-machine interface for two-dimensional steering control with the auricular muscles. *Frontiers in Neurorobotics*, 17, 1154427.

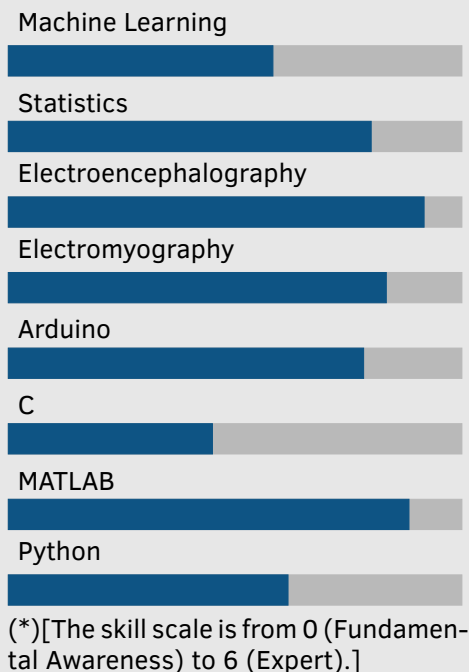
2023 Moreira, J. V. D. S., Rodrigues, K., Pinheiro, D. J. L. L., Cardoso, T., Vieira, J. L., Cavalheiro, E., & Faber, J. (2023). Electromyography biofeedback system with visual and vibratory feedbacks designed for lower limb rehabilitation. *Journal of Enabling Technologies*.

2022 Melo, M. C., Pinheiro, D. J. L. L., Dantas, R. L. M., Athanazio, N. M. A., Morozini, C. F., dos Santos, G. C., ... & Faber, J. (2022, October). Evidence of Cortical Activation Alterations of Paraplegics with Pelvic Nerves Stimulation on Resting State: A Case Series. In *Latin American Conference on Biomedical Engineering* (pp. 78-85). Cham: Springer Nature Switzerland.

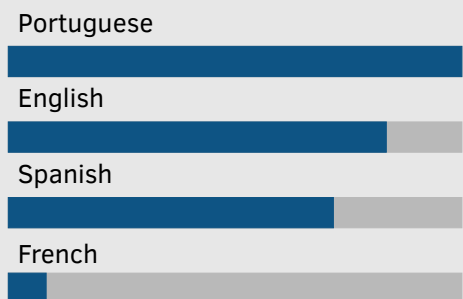
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2022 Daniella B. Victorino , Jean Faber , Daniel J. L. L. Pinheiro , Fulvio A. Scorza , Antônio C. G. Almeida , Alberto C. S. Costa , Carla A. Scorza. Toward the Identification of Neurophysiological Biomarkers for Alzheimer's Disease in Down Syndrome: A Potential Role for Cross-Frequency Phase-Amplitude Coupling Analysis. *Aging and disease*. Aging and Disease

2022 Rodrigues, K. A., Moreira, J. V. D. S., Pinheiro, D. J. L. L., Contier, A. T., Cavalheiro, E., & Faber, J. (2022, July). Physiological Self-regulation Using Biofeedback Training: From Concept to Clinical Applicability. In *Computational Neuroscience: Third Latin American Workshop, LAWCN 2021, São Luís, Brazil, December 8–10, 2021, Revised Selected Papers* (pp. 189-214). Cham: Springer International Publishing.

2022 Rodrigues, K. A., da Silva Moreira, J. V., Pinheiro, D. J. L. L., Dantas, R. L. M., Santos, T. C., Nepomuceno, J. L. V., & Faber, J. Embodiment of a virtual prosthesis through training using an EMG-based human-machine interface: Case series. *Frontiers in Human Neuroscience*, 16.

2021 Victorino, D. B., Pinheiro, D. J., Scott-McKean, J. J., Barker, S., Stasko, M. R., Faber, J., ... & Costa, A. (2021). Atypical electrophysiological and behavioral responses to diazepam in a leading mouse model of Down syndrome. *Scientific reports*, 11(1), 1-16.

2020 Pinheiro, D. J., Oliveira, L. F., Souza, I. N., Brogin, J. A. F., Bueno, D. D., Miranda, I. A., ... & Faber, J. (2020). Modulation in phase and frequency of neural oscillations during epileptiform activity induced by neonatal Zika virus infection in mice. *Scientific reports*, 10(1), 1-14.

2020 C. Gonçalves, V., JLL Pinheiro, D., de la Rosa, T., G. de Almeida, A. C., A. Scorza, F., & A. Scorza, C. (2020). Propolis as a potential disease-modifying strategy in Parkinson's disease: Cardioprotective and neuroprotective effects in the 6-OHDA rat model. *Nutrients*, 12(6), 1551.

2020 Faber, J., Antoneli, P. C., Araújo, N. S., Pinheiro, D. J., & Cavalheiro, E. (2020). Critical elements for connectivity analysis of brain networks. In *Functional brain mapping: methods and aims* (pp. 67-107). Springer, Singapore.

2019 Oliveira, L. F., Pinheiro, D. J., Rodrigues, L. D., Reyes-Garcia, S. Z., Nishi, E. E., Ormanji, M. S., ... & Cavalheiro, E. A. (2019). Behavioral, electrophysiological and neuropathological characteristics of the occurrence of hypertension in pregnant rats. *Scientific reports*, 9(1), 1-12.

2018 Nem de Oliveira Souza, I., Frost, P. S., França, J. V., Nascimento-Viana, J. B., Neris, R. L., Freitas, L., ... & Clarke, J. R. (2018). Acute and chronic neurological consequences of early-life Zika virus infection in mice. *Science translational medicine*, 10(444), eaar2749.

2017 Baracho, S. F., Pinheiro, D. J. L. L., de Godoy, C. M. G., & Coelho, R. C. (2017). A segmentation method for myocardial ischemia/infarction applicable in heart photos. *Computers in Biology and Medicine*, 87, 285-301.

2016 Baracho, S. F., Pinheiro, D. J. L. L., de Melo, V. V., & Coexlho, R. C. (2016, July). A hybrid neural system for the automatic segmentation of the interventricular septum in echocardiographic images. In *2016 International Joint Conference on Neural Networks (IJCNN)* (pp. 5072-5078). IEEE.

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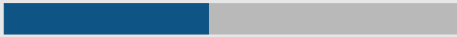
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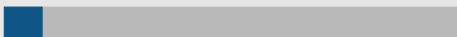
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Internships

2018

Biomedical engineering at the Center for Neuroengineering and Computing of Federal University of São Paulo (6 months).

Awards

2022

EPFL School of Engineering Teaching Assistant Award for the involvement in the course "Fundamentals of Neuroengineering"

Other information

HackaHealth 2022 - Hackathon

I actively participated in the HackaHealth 2022 event hosted at Campus Biotech in Geneva, where a collaborative solution developed during the hackathon evolved into a sponsored project. The project, titled "Apprendre à sentir et à bouger son corps pour construire son schéma corporel" (Learning to Feel and Move One's Body to Build Body Schema), received sponsorship from the Innovation Booster Technology & Special Needs.