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SUNY Downstate Health Sciences University

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Neural and Behavioral Science Program

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Education

2019-Curr.	Ph.D. Candidate, Neuroscience	SUNY Downstate Health Sciences University, USA
2017-2019	M.Sc., Neuroscience	Federal University of São Paulo, Brazil
2012-2016	B.Eng., Biomedical Engineering	Vale do Paraíba University, Brazil
2014-2014	Non-Degree, Bioengineering	University of Illinois at Chicago, USA

Research Experience

Ongoing/Recent

[Dura-Bernal Computational Neuroscience Lab](#) SUNY Downstate, USA
Salvador Dura-Bernal, Ph.D. Ph.D. Scholarship

Jun. 2021 - Curr. Development of biophysically detailed models of thalamocortical cells

Aug. 2020 - Curr. Development of a large-scale model of Cortico-thalamo-cortical loops

Mar. 2020 - Curr. Effects of Ih-current in a Corticospinal cell model

[Migliore Lab](#) (*collab.*) CNR Palermo, Italy
Michele Migliore, Ph.D. Research Internship - Human Brain Project

Mar. 2022 - Mar. 2022 Code update and NetPyNE conversion of a detailed Olfactory Bulb computational model

[Varela Lab](#) (*collab.*) FAU, USA
Carmen Varela, Ph.D. Research Internship

Oct. 2021 - Nov. 2021 Computational modeling of thalamocortical neurons and experimental training

Previous

Neuroengineering and Neurocognition Lab UNIFESP, Brazil
Jean Faber, Ph.D., Esper Cavalheiro, Ph.D. [CAPES-PROEX Schol.](#)

Jan. 2017 - Aug. 2019 Development of Rehabilitation devices for lower-limb amputees

Laboratory of Energy Storage and Supply UNIVAP, Brazil
Hudson Giovanni Zanin, Ph.D. FAPESP Schol. [15/17764-9](#)

Aug. 2015 - Dec. 2016 Study of Carbon-based materials as Supercapacitors

Laboratory of Biomedical Nanotechnology UNIVAP, Brazil
Anderson de Oliveira Lobo, Ph.D., Fernanda Roberta Marciano, Ph.D. PIBIC-UNIVAP Scholarship

Feb. 2015 - Jun. 2016 Computational modeling of a high-speed polymer extruder

Graham Clinical Performance Center UIC, USA
Cristian Luciano, Ph.D. Summer Internship

May 2014 - Nov. 2014 Development of devices for virtual surgical training

Laboratory of Biomedical Nanotechnology UNIVAP, Brazil
Anderson de Oliveira Lobo, Ph.D., Fernanda Roberta Marciano, Ph.D. FAPESP Schol. [12/19371-6](#)

Feb. 2012 - Dec. 2013 Study of biomaterials for bone tissue regeneration

Publications

Journals

- 2022 Rodrigues KA, **Moreira J.V.S.**, Pinheiro DJLL, Dantas RLM, Santos TC, Nepomuceno JLV, Nogueira MARJ, Cavalheiro EA and Faber J (2022) Embodiment of a virtual prosthesis through training using an EMG-based human-machine interface: *Case series. Front. Hum. Neurosci.* 16:870103. doi: [10.3389/fnhum.2022.870103](https://doi.org/10.3389/fnhum.2022.870103)
- Rodrigues, K.A., **Moreira, J.V.S.**, Pinheiro, D.J.L.L., Contier, A.T., Cavalheiro, E., Faber, J. (2022). Physiological Self-regulation Using Biofeedback Training: From Concept to Clinical Applicability. In: Ribeiro, P.R.d.A., Cota, V.R., Barone, D.A.C., de Oliveira, A.C.M. (eds) Computational Neuroscience. LAWCN 2021. *Communications in Computer and Information Science*, vol 1519. Springer, Cham. doi: [10.1007/978-3-031-08443-0_12](https://doi.org/10.1007/978-3-031-08443-0_12)
- 2021 Andrade, J. B. C. D., Mohr, J. P., Timbó, F. B., Nepomuceno, C. R., **Moreira, J.V.S.**, ... & Bamford, J. (2021). Oxfordshire Community Stroke Project Classification: A proposed automated algorithm. *European Stroke Journal*, 6(2), 160-167. doi: [10.1177/23969873211012136](https://doi.org/10.1177/23969873211012136)
- 2016 **Moreira, J.V.S.**, Corat, E. J., May, P. W., Cardoso, L. D. R., Lelis, P. A., & Zanin, H. (2016). Freestanding aligned multi-walled carbon nanotubes for supercapacitor devices. *Journal of electronic materials*, 45(11), 5781-5788. doi: [10.1007/s11664-016-4817-6](https://doi.org/10.1007/s11664-016-4817-6)
- Moreira, J.V.S.**, May, P. W., Corat, E. J., Peterlevitz, A. C., Pinheiro, R. A., & Zanin, H. (2017). Diamond and carbon nanotube composites for supercapacitor devices. *Journal of electronic materials*, 46(2), 929-935. doi: [10.1007/s11664-016-5010-7](https://doi.org/10.1007/s11664-016-5010-7)

Patents

- 2022 **Moreira, J.V.S.**, Faber, J., Rodrigues, K.A., Pinheiro, D.J.L.L., Nepomuceno, J.L.V., Santos, T.C. (2022) Sistema de Biofeedback Integrado (Integrated Biofeedback System). Federal University of São Paulo. Patent: BR102022005234-4
- 2021 Rodrigues, K.A., Faber, J., Pinheiro, D.J.L.L., Santos, T.C., **Moreira, J.V.S.** (2021) Sistema eletrônico vibro-tátil e método de acionamento de um sistema eletrônico vibro-tátil. Federal University of São Paulo. Patent: BR102021024303-1

M.Sc. Dissertation

- 2019 **Moreira, J.V.S.**, Cavalheiro, E., Faber, J. (2019) Desenvolvimento de um sistema de Biofeedback Integrado utilizando Realidade Virtual e estímulos Vibrotáteis para a Reabilitação de Membros Inferiores. Universidade Federal de São Paulo. Unifesp: [11600/59909](https://doi.org/11600/59909)

Pre-prints

- 2022 Borges, F.S., **Moreira, J.V.S.**, Takarabe, L.M., Lytton, W.W., Dura-Bernal, S. Large-scale biophysically detailed model of somatosensory thalamocortical circuits in NetPyNE. bioRxiv 2022.02.03.479029; doi: [10.1101/2022.02.03.479029](https://doi.org/10.1101/2022.02.03.479029)
- 2021 **Moreira, J.V.S.**, Rodrigues, K.A., Pinheiro, D.J.L.L., Santos, T.C., Vieira, J.L., Cavalheiro, E.A., Faber, J. Electromyography biofeedback system with visual and vibratory feedbacks designed for lower limb rehabilitation. arXiv:2103.04034 doi: [2103.04034](https://doi.org/2103.04034)

In preparation

Varela, C., **Moreira, J.V.S.**, Kocaoglu, B., Dura-Bernal, S., Ahmad, S. A dendritic mechanism for dynamic routing and attention in the thalamus

Moreira, J.V.S., Neymotin, S., Suter, B.A., Shepherd, G.M.G., Lytton, W.W., Dura-Bernal, S. Effects of ih-current modulation in a Corticospinal cell model.

Conferences and Workshops

2022 **Moreira, J.V.S.**, Borges, F.S., Lytton, W.W., Dura-Bernal, S. (2022) Large-scale and topographically detailed model of the sensorimotor thalamus with bidirectional connections to M1 and S1. *CNS*2022*, Melbourne, Australia ([Abstract/Poster](#)).

Moreira, J.V.S., Borges, F.S., Lytton, W.W., Dura-Bernal, S. (2022) Topographically Detailed Computational Model of the Somatosensory and Motor Thalamus. *2022 Downstate Annual Research Day*, Brooklyn, New York, NY, USA ([Abstract/Presentation](#)).

2021 Rodrigues, K., **Moreira, J.V.S.**, Pinheiro, D.J.L.L., Contier, A.T., Cavalheiro, E., Faber, J. (2021) Physiological self-regulation using biofeedback training: from concept to clinical applicability. *III Latin- American Workshop on Computational Neuroscience*, São Luís, MA, Brazil ([Certificate](#)).

Moreira, J.V.S., Borges, F.S., Doherty, D., Lytton, W.W., Dura-Bernal, S. (2021) Topographically detailed computational model of the motor and somatosensory thalamic circuits. *SfN Neuroscience 2021*, online conference ([Certificate/Abstract/Presentation](#)).

Varela, C., **Moreira, J.**, Kocaoglu, B., Dura-Bernal, S., Ahmad, S. (2021) A Dendritic Mechanism for Dynamic Routing in the Thalamus. *Picower Institute Fall 2021 Symposium - Dendrites: Molecules, Structure, and Function*, online conference. ([Abstract/Conference](#))

Moreira, J.V.S., Neymotin, S., Suter, B.A., Shepherd, G.M.G., Lytton, W.W., Dura-Bernal, S. (2021) Effects of ih-current modulation in a pyramidal tract projecting cell model *CNS*2021*, online conference ([Abstract/Poster/Poster info](#)).

Moreira, J.V.S., Dura-Bernal, S. (2021) Effects of ih-current modulation in a Corticospinal cell model. *2021 Downstate Annual Research Day*, online conference ([Abstract/Presentation](#)).

2020 Rodrigues, K., Pinheiro, D.J.L.L., Santos, T.C., **Moreira, J.V.S.**, Cavalheiro, E., Faber, J. (2020) Codificação e decodificação da atividade neural a partir de estímulos vibro-táteis para percepção de movimentos e formas de objetos virtuais. *Congress on Brain, Behavior and Emotions 2020*, online conference ([Certificate](#)).

2019 **Moreira, J.V.S.**, Rodrigues, K., Pinheiro, D.J.L.L., Santos, T.C., Cavalheiro, E., Faber, J. (2019) Desenvolvimento e caracterização de um sistema de biofeedback integrado com EMG/EEG em um ambiente de realidade virtual e estímulos vibro-táteis para o uso na reabilitação de pessoas com amputação transfemoral. *V Congresso Acadêmico da Unifesp*, São Paulo, Brazil ([Certificate/Abstract](#)).

Ortiz-Villatoro, N.N., Reyes-Garcia, S.Z., Freitas, L., de Almeida, C.G., Canton Santos, L.E., Faber, J., **Moreira, J.V.S.**, Cavalheiro, E.A., Scorza, F.A. and Scorza, C.A. (2019). Proechimys Rodents From Brazil's Amazon Rainforest: An Animal Model Resistant To Post-Stroke Epilepsy. *Epilepsia*, 60, 134-134 ([Abstract](#)).

- 2018 **Moreira, J.V.S.**, Rodrigues, K., Pinheiro, D.J.L.L., Vieira, J.L., Santos, T.C., Cavalheiro, E., Faber, J. (2018) Desenvolvimento e validação de um sistema de biofeedback integrado para reabilitação de pessoas com amputação transfemoral. *Congresso Brasileiro de Engenharia Biomédica 2018*, Búzios, Brazil ([Certificate](#)).
- Moreira, J.V.S.** (2018) NetPyNE: A Network simulation tool in the study of Epilepsy. *Redes Neurais em Epilepsia*, Porto Alegre, RS, Brazil ([Certificate](#)).
- Moreira, J.V.S.**, Rodrigues, K., Pinheiro, D.J.L.L., Vieira, J.L., Santos, T.C., Faber, J. (2018) Desenvolvimento de um dispositivo de biofeedback para avaliação da resposta proprioceptiva de membros inferiores em ambiente de realidade virtual. *IV Congresso Acadêmico da Unifesp*, São Paulo, Brazil ([Certificate/Abstract](#)).
- Rodrigues, K., Pinheiro, D.J.L.L., **Moreira, J.V.S.**, Santos, T.C., Cavalheiro, E., Faber, J. (2018) Avaliação da percepção sobre movimentos de objetos externos a partir de estímulos vibrotáteis. *IV Congresso Acadêmico da Unifesp*, São Paulo, Brazil ([Certificate/Abstract](#)).
- 2017 **Moreira, J.V.S.**, Rodrigues, K., Pinheiro, D.J.L.L., Vieira, J.L., Santos, T.C., Cavalheiro, E., Faber, J. (2017) Desenvolvimento de um ambiente de realidade virtual aplicado a um dispositivo de biofeedback para reabilitação de amputados de membro inferior. *III Congresso Acadêmico Unifesp*, São Paulo, Brazil ([Certificate](#)).
- Rodrigues, K., **Moreira, J.V.S.**, Santos, T.C., Pinheiro, D.J.L.L., Cavalheiro, E., Faber, J. (2017) Caracterização da apropriação cognitiva em amputados transfemorais. *III Congresso Acadêmico Unifesp*, São Paulo, Brazil.
- 2016 **Moreira, J.V.S.**, Lima, M.O., Marciano, F.R. (2016) Engenharia Biomédica aplicada à reabilitação em pós-operatório de mastectomia. *XX Encontro de Iniciação Científica*, São José dos Campos, Brazil ([Abstract](#)).
- Moreira, J.V.S.**, Almeida, P.L.R., Zanin, H.G. (2016) Caracterização de Nanotubos de Carbono de Paredes Múltiplas Autossustentáveis como dispositivos supercapacitores. *XX Encontro de Iniciação Científica*, São José dos Campos, Brazil ([Abstract](#)).
- Moreira, J.V.S.**, Valdez-Jasso, D. (2016) Biaxial response of rubber and rat right-ventricle tissue. *XX Encontro de Iniciação Científica*, São José dos Campos, Brazil ([Abstract](#)).
- 2015 **Moreira, J.V.S.**, Zanin, H.G., Marciano, F.R., Lobo, A.O. (2015) Influência da associação de Nanotubos de Carbono e de solvente auxiliar no processo de eletrofição de policaprolactona. *XIX Encontro Latino Americano de Iniciação Científica*, São José dos Campos, Brazil ([Certificate](#)).
- 2013 **Moreira, J.V.S.**, Toniato, T.V., Marciano, F.R., Lobo, A.O. (2013) Study on morphology of electrospun Polycaprolactone nanofibers. *XII SBPMAT Meeting*, Campos do Jordão, Brazil.
- Toniato, T. V., **Moreira, J.V.S.**, Marciano, F.R., Lobo, A.O. (2013) Comparison between aligned and non-aligned electrospun polylactic acid nanofibers. *XII SBPMAT Meeting*, Campos do Jordão, Brazil.
- 2012 **Moreira, J.V.S.**, Ribeiro Neto, W.A., Bretas, R.E.S., Corat, E.J., Marciano, F.R., Lobo, A.O. (2012) Produção de nanobiomateriais à base de Nanohidroxiapatita/Nanotubos de Carbono e

polímeros biorreabsorvíveis. *XVI Encontro Latino Americano De Iniciação Científica*, São José Dos Campos ([Certificate](#)).

Awards and Fellowships

2022	Third prize on Best Projects	2022 SUNY Downstate Annual Research Day
2020	Research Incentive Scholarship	Congress on Brain, Behavior and Emotions 2020
2018	Best Final Project Award	XII Latin-American Summer School on Epilepsy
	Honors Mention in Final Project	VII Latin American School on Computational Neurosci.
2017	CREA Award of Academic Excellence	Provided by the São Paulo Engineering Committee
	Best Student Award - Biomedical Eng.	Provided by Vale do Paraíba Univ.
	Best Final Project Award	XI Latin-American Summer School on Epilepsy
2016	XX INIC five best projects	XX Scientific Initiation Nat. Meet. Vale do Paraíba Univ.
2015	Best Research Project	Best research 2015 PIBIC-UNIVAP Scholars (News)
	XIX INIC five best projects	XIX Scientific Initiation Nat. Meet. - Vale do Paraíba Univ.
2014	Science Without Borders Scholarship	Awarded one year of undergrad. in the USA (UIC, IL)
2012	XVI INIC five best projects	XVI Scientific Initiation Nat. Meet. Vale do Paraíba Univ.

Languages and Skills

Portuguese (native), English (fluent), Spanish (intermediate)
NetPyNE, NEURON, Python3, Matlab