Mariana de Carvalho Pereira

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Education

2019 **P.h.D. Candidate in Cognitive Neuroscience**, *Donders Institute for Brain, Cognition and Behaviour*, Nijmegen - GLD, Netherlands.

2017-2019 **M.Sc. in Electrical and Computer Engineering**, *School of Electrical and Computer Engineering - University of Campinas (FEEC - Unicamp)*, Campinas - SP, Brazil, GPA 4 out of 4.

2014–2015 **Undergraduate Exchange Student**, *College of Arts and Science - University of Alabama at Birmingham (UAB)*, Birmingham - AL, U.S.A, GPA 3.8 out of 4.

2009–2016 **B.Sc. in Telecommunication Engineering**, *Federal University of São João del-Rei (UFSJ)*, Ouro Branco - MG, Brazil, GPA 8.2 out of 10.

Research Positions

2019 **PhD Candidate**, *Donders Institute for Brain, Cognition and Behaviour*, Nijmegen - GLD, Netherlands, Member of the Sleep and Memory Laboratory, this project aims towards cognitive neuroscience of human REM sleep throughout a comprehensive physiological characterization utilizing recent developments in neuroimaging, with a focus on EEG/fMRI combined.
Supervisors: Guillèn Fernandez, Prof. Dr. and Martin Dresler, Ph.D.

2018 **Master's Student Trainee**, *Donders Institute for Brain, Cognition and Behaviour*, Nijmegen - GLD, Netherlands, Investigated the dynamics between sleep EEG measurements and blood-derived measurements in a dataset, in particular focusing on cortisol and growth hormone. In a subset of the data, additionally the association between plasma amyloid beta and sleep EEG measurements were analyzed.
Supervisor: Martin Dresler, Ph.D.

2017 **Graduate Student Researcher**, *Faculty of Electrical and Computer Engineering, UNICAMP*, Campinas - SP, Brazil, Member of the Medical Imaging and Computing Laboratory, focus on deep learning techniques applied to Magnetic Resonance Images and Alzheimer's disease. The main goal of this Masters project is to classify different patients stages of: pathologically proven Alzheimer's disease, mild-cognitive impairment, and normal cohort. Visioning an early-stage diagnostic of Alzheimer's disease.
Supervisor: Leticia Rittner, M.D./Ph.D. and Co-Supervisor: Roberto Lotufo, M.D./Ph.D.

2015 **Undergraduate Project Member**, *Department of Electrical and Computer Engineering, UAB*, Birmingham - AL, U.S.A, Studied of the relationship between fractional anisotropy signal in regions important for generation of REM sleep behavior in individuals with Parkinson's disease with and without the complaint of vivid dreaming. Performed statistical analysis using afni 3dQwarp program. Worked with diffusion tensor tractography using the discovered signal as seeds for exploring changes in connectivity in individuals with PD who have the aforementioned condition.
Supervisor: Frank Skidmore, Ph.D.

2015 **Undergraduate Research**, *IIT School of Applied Technology*, Chicago - IL, U.S.A, Research project focused on the technical and social challenges in developing solutions to improve energy efficiency in buildings through the employment of new technologies, alternative energies, energy analysis of a building, and more. Conducted an in-depth energy analysis of the Wishnick Hall building, to include thermal measurements, exploration of smart technologies for lighting, communications systems, HVAC control and monitoring, energy storage, and identified recommendations for improvements.
Supervisor: Daniel Tomal, Ph.D.

2014 **Undergraduate Research**, *Federal University of São João del-Rei*, Ouro Branco - MG, Brasil, Studied the main generation mechanisms of a neural signal and how these signals are collected using surface electrodes. Developed MATLAB software to extract signals of interest from an online database. The analysis in the frequency domain and time-frequency consisted of identifying target signals (characteristic response P300) and non target. Techniques such as Fourier Transform, Fourier Transform Windowed, Component Analysis (ICA), and the toolbox EEGLAB were performed in order to extract characteristics of each individual portion of the signal.
Supervisor: Ana Cláudia Silva Souza, M.D./Ph.D.

Scientific Publications and Presentations

2020 Herrera, W.; **Pereira, M.**; Bento, M.; Lapa, A. T.; Appenzeller, S.; Rittner, L., **A framework for quality assessment of corpus callosum segmentation in large-scale studies** Journal of Neuroscience Methods, 108593.

2020 **Pereira, M.**; Fantini, I.; Lotufo, R.; Rittner, L. **An extended-2D CNN for multiclass Alzheimer's Disease diagnosis through Structural MRI.** In SPIE Medical Imaging 2020: Computer-Aided Diagnosis (In press).

2019 **Pereira, M.**; Magalhaes, T.; Lotufo, R.; Balthazar, M.; Rittner, L., **A Brazilian dataset domain adaptation to diagnose Alzheimer's disease and subjects with cognitive deficit using convolutional neural networks.** 6th BRAINN Congress, 2019, Journal of Epilepsy and Clinical Neurophysiology, 2019.

2018 **Pereira, M.**; Lotufo, R.; Rittner, L., **An extended-2D CNN approach for diagnosis of Alzheimer's disease through structural MRI.** In International Society for Magnetic Resonance in Medicine (ISMRM) Annual Meeting and Exhibition 2019.

2018 **Pereira, M.**; Herrera, W.; Lotufo, R. A.; Lotufo, Rittner, L., **Classification of Alzheimer's patients and cognitive deficit through MRI.** 5th BRAINN Congress, 2018, Journal of Epilepsy and Clinical Neurophysiology, 2018.

2018 **Pereira, M.**; Cover, G.; Appenzeller, S.; Rittner, L., **Corpus callosum parcellation methods: a quantitative comparative study.** In Medical Imaging 2018: Biomedical Applications in Molecular, Structural, and Functional Imaging. Vol. 10578. International Society for Optics and Photonics.

2017 Cover, G; **Pereira, M. E. C**; Bento, M; Appelenzer, S; Rittner, L., **Data-Driven Corpus Callosum Parcellation Method through Diffusion Tensor Imaging.** IEEE Access 5 (2017): 22421-22432.

2015 **Pereira, M. E. C**; Skidmore, F., **REM Sleep Behavior Disorder and Parkinson's Disease.** Poster presented at 2015 Graduate Student Research Exchange. University of Alabama at Birmingham , Birmingham-AL, U.S.A.

2015 **Pereira, M. E. C**; Duarte, B; Paiva, B; Lara M. V; Py, L; Brandão, M. E; Teixeira, T; Lucia, R. Rodrigues, L; Drumond, J. P., **Energy Audit of Wishnick Hall.** Poster presented at the Summer Undergraduate Research Project. Illinois Institute of Technology, Chicago-IL, U.S.A.

2014 **Pereira, M. E. C**; Souza, A. C. S., **Feature Extraction in Electroencephalography Signals Using Analysis of Individual Sections.** Revised by Ana Cláudia Silva Souza (Unpublished manuscript). Research project at Federal University of São João del-Rei funded by CNPq, Ouro Branco-MG, Brazil.

Academic Awards

2019 **Best Master's Student Paper**, VI BRAINN Congress, 2019., BRAINN., Campinas - SP, Brazil.

2014 **International Scholarship**, Studied at University of Alabama at Birmingham and Illinois Institute of Technology, U.S.A.

Other Experiences

2019 **Organization team**, *Workshop*, Halle, Germany.
"Introduction into sleep research methods" at German National Academy of Sciences Leopoldina.

2019 **Organization team**, *Radboud Summer School*, Nijmegen - GLD, Netherlands.
"Cognitive Neuroscience of Sleep".

2012–2014 **Teacher's Assistant**, *UFSJ*, Ouro Branco - MG, Brazil.
Assisted students in exercises of Linear Algebra in 2012 and Stochastic Process from 2013 to 2014.

2013 **Volunteer - Professional Training Project**, *UFSJ*, Ouro Branco - MG, Brazil.
A year project teaching poor youths about basic electronic with the goal of introducing them new professional skills.

Languages

Portuguese Native: Writing, Reading, Listening and Speaking

English	Fluent: Writing, Reading, Listening and Speaking
Spanish	Intermediate: Writing, Reading, Listening and Speaking
French	Basic: Writing, Reading, Listening and Speaking