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**Clinical Neuroscience and Neurogenetics**  
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**SmartCST- Platform for Stress Coping and Reduction for Patients under Social Risk and submitted to Chronic Stress**

The impact of stress on mothers and children relationship can have negative consequences not only in the short term, but in the overall child's development, affecting psychological, cognitive and physiological aspects. The use of new methodologies and techniques based on the most recent advances in neuroscience can support mothers in coping with chronic stress through planned activities carried out with the monitoring of biological signals, such as the electrical activity of the [brain](#) and heart rate. The SmartCST system consists on a computerized solution to support chronic stress coping and reduction in mothers under social risk, continuously submitted to chronic stress from Fortaleza, Brazil. The system is based on the monitoring of biological signals during a pre-planned personalized activity program. Hair cortisol levels are considered as a biomarker of chronic stress and quantitative EEG (qEEG) in the beginning and ending of the program were conducted to evaluate the electric activity in specific brain regions. The system extracts statistics, nonlinear and frequency domain features from biosignals processing and transfer to the artificial intelligence module for pattern recognition and machine learning. For this, three dynamically interacting subsystems are used: 1) RAS – Relaxation Activities Subsystem: which consists in brain stimulation exercises for relaxation. 2) PS - Perception Subsystem: responsible for the monitoring and processing biological signals, retrofitting the RAS with automatic definition of activities, with the possibility of external interaction. 3) RMS - Results Monitoring Subsystem: the analysis of results with reports and dashboards of individual progress.



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**Biography**

[Alexandre Lobo](#) is PhD in [Bioengineering](#). He works as Associate Professor and Research Coordinator at the [University of Saint Joseph-USJ](#), Macao SAR, China. In 2019, he founded the Laboratory of Neuroeconomics FBL/USJ. In 2021 he co-founded the Institute of Data Engineering and [Sciences](#) (IDEAS/USJ). His research interests are data analytics, artificial intelligence, applied neurosciences, and chaotic and nonlinear analysis of time series.

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