

## **The Use of Network Tool for Brain Signal Data Analysis: A Case Study with Blind and Sighted Individuals**

**Authors :** Cleiton Pons Ferreira, Diana Francisca Adamatti

**Abstract :** Advancements in computers technology have allowed to obtain information for research in biology and neuroscience. In order to transform the data from these surveys, networks have long been used to represent important biological processes, changing the use of this tools from purely illustrative and didactic to more analytic, even including interaction analysis and hypothesis formulation. Many studies have involved this application, but not directly for interpretation of data obtained from brain functions, asking for new perspectives of development in neuroinformatics using existent models of tools already disseminated by the bioinformatics. This study includes an analysis of neurological data through electroencephalogram (EEG) signals, using the Cytoscape, an open source software tool for visualizing complex networks in biological databases. The data were obtained from a comparative case study developed in a research from the University of Rio Grande (FURG), using the EEG signals from a Brain Computer Interface (BCI) with 32 eletrodes prepared in the brain of a blind and a sighted individuals during the execution of an activity that stimulated the spatial ability. This study intends to present results that lead to better ways for use and adapt techniques that support the data treatment of brain signals for elevate the understanding and learning in neuroscience.

**Keywords :** neuroinformatics, bioinformatics, network tools, brain mapping

**Conference Title :** ICLAC 2019 : International Conference on Language Acquisition and Cognition

**Conference Location :** Paris, France

**Conference Dates :** March 28-29, 2019