Introduction to the MindSet Research Tools

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NeuroSky®
Brain-Computer Interface Technologies

The NeuroSky product families consist of hardware and software components for simple integration of this bio-sensor technology into consumer and industrial end-applications. All products are designed and manufactured to meet exacting consumer specifications for quality, pricing, and feature sets. NeuroSky sets itself apart by providing building-block component solutions that offer friendly synergies with related and complementary technological solutions.

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Overview

The NeuroSky MindSet Research Tools (MRT) enables researchers to use the MindSet as a data collection device. Using the cost effective and user-friendly features of MindSet in conjunction with the MRT allows researchers to broaden the scope of their research and to make efficient use of resources.

The MRT includes specialized tools and applications that will allow you to use the MindSet to research and understand the behaviors of brainwaves at a low level, giving you the potential to develop your own brainwave-based algorithms. The MRT can be useful for anyone, from developers, to novice brain wave & electroencephalography (EEG) researchers just getting their feet wet, to experienced Electroencephalography researchers who wish to explore advanced analyses of the EEG measured by the MindSet.

The MRT includes the NeuroView software, which make it easy to connect, graph, view, and record MindSet data in real time. The MRT also includes the more advanced NeuroSkyLab MATLAB module, which adds the ability to define custom MATLAB scripts and functions for customized processing and analysis of MindSet data.

NeuroView is designed to be appropriate for novice to intermediate EEG researchers wishing to view and record EEG data in realtime. The recorded data can be easily exported to other third-party applications for downstream data analysis and processing.

NeuroSkyLab, on the other hand, is targeted at the more advanced EEG researcher who is familiar with the MATLAB environment. For those comfortable with MATLAB scripting, NeuroSkyLab provides much more powerful capabilities than NeuroView in terms of customization and realtime data viewing and analysis.

NeuroView

NeuroView is a Windows application that allows you to:

1. **Connect** to ThinkGear modules/headsets through the COM ports on your computer
2. **Record** data from connected ThinkGear modules/headsets into log files, which can then be opened in Excel, MATLAB, or other programs for further analysis
3. **View** data in meters and graphs received in real time from connected ThinkGear modules/headsets for immediate feedback during data collection experiments
4. **Send** Command Bytes to connected ThinkGear modules/headsets to customize and configure them (such as enabling raw sampling wave output on headsets that do not output raw wave data by default)

NeuroSkyLab

NeuroSkyLab is a Matlab graphical interface to record, plot and study EEG data recorded using the MindSet headset.

What you can do with NeuroSkyLab:

- Record data directly from the headset and save it on disk
- Record key-stroke event latencies along with the EEG data
- Plot data, spectrum, attention and meditation measures, and possibly other custom measures applied in real-time to the data
- Replay old data files
- Export data into the EEGLAB free software for more advanced analysis