



## Software Tools and Services for chrono and psycho physiology

### PRANA® Software Suite

PRANA® (Polygraphic Recording Analyzer) is a complete software package for biosignal processing and time series analysis developed by PhiTools. The high visualization and computing performance of the PRANA® Software Suite can be used for various purposes such as sleep and alertness, biological rhythms and stress analysis, as well as many other applications. The software brings together into an integrated environment multiple pattern recognition, signal processing and quantitative analysis methods, and provides users with powerful and convenient tools specially designed for the review, scoring, annotation and quantitative analysis of polygraphic recordings including multiple physiological and behavioral signals such as EEG, EOG, EMG, EKG, EDA, respiration, pulse oxymetry, blood pressure, temperature, activity, sound, light intensity, etc.

The PRANA® Software Suite features state-of-the-art quantitative EEG analysis with automatic artifact correction/rejection, heart-rate variability, pulse, arterial pressure and respiration analysis. Various data types with different time scales (traces, markers, events, trends) can be displayed simultaneously and in total synchronicity with a 1-msec accuracy. Based on a library of [digital recording file formats](#), the software package can be used independently of the hardware collection systems ensuring data exchange and comparability. The software package also includes a set of powerful [data management tools](#) and comprehensive [report generators](#).

The PRANA® Software Suite for biosignal processing and time series analysis is available in two different releases, a **Production Suite** delivered as a stand-alone application with high computing performance for production, and a **Developer Suite** delivered as a [MATLAB®](#) toolbox for developers with a basic knowledge in computer programming planning to develop new software plug-ins integrating their own signal processing algorithms. Together with its [software developer kit](#), the PRANA® **Developer Suite** allows quickly integrating new signal analysis and pattern detection algorithms, without the need to handle input/output interoperability while decreasing development time.

Based on [MATLAB®](#), the PRANA® Software Suite combines high computing performance and friendly graphical user interfaces to review and analysis biosignals and time series.



### System Requirements

All you need to start working with the PRANA® Software Suite is an IBM compatible personal computer or a virtual machine running a Windows operating system.

The important amount of computations required by the software for several algorithms may require a powerful configuration, with a rapid central processing unit, a fast video board and a comfortable amount of rapid-access memory, which will speed up both data processing and reviewing.

#### Recommended configuration:

- o CPU AMD or Intel 2.6GHz processor,
- o 2GB RAM,
- o 500GB hard drive,
- o 1280x1024 graphic card with 32-bit colors and 19-inch monitor,
- o Windows 7 32 or 64-bit operating systems.

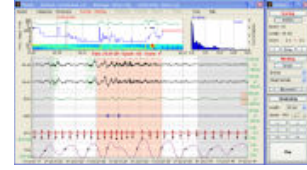
#### Download:

\* requires Windows XP / Vista / 7

## PRANA Viewer

From a graphical user interface, the PRANA® Software Suite's **Viewer program** allows displaying and reviewing of a selection of signals using various montage, re-referencing, filtering, artifact correction and denoising options based on **blind source separation (BSS)**. Its complete navigation and search tools ensure a fast and easy recording review. Recording annotation and stage scoring can be undertaken easily by simple mouse-clicks and keyboard key-presses inserting markers and scores directly from the traces. The PRANA **Viewer program** also offers an expert scoring system adapted to various classification rules (human/animal sleep and vigilance analysis, haemorrhagic shock, anaesthetic depth, etc.). Any recording portions can be scored by several experts on an epoch-by-epoch basis with selectable epoch durations.

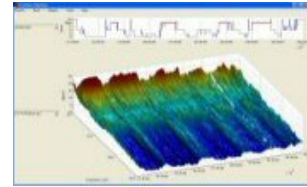
A series of additional graphically interfaced modules accompany the PRANA® Software Suite for polysomnography and biosignal processing. These optional software plug-ins feature general to specific time-varying or event-related quantitative biosignal analysis as well as various transient waveform and event detection methods:



Reviewer for PSG scoring and qEEG analysis

## PRANA Profiler

The PRANA® Software Suite also includes **PRANA Profiler**, a fully integrated and graphically interfaced program for the fusion, selection, representation and post-processing of time series. This provides a fast and convenient mean to prepare any data sets prior further statistical analysis.



Profiler for time series visualization and post-processing

## PRANA Tools

To save your time, the PRANA® Software Suite includes an easy to use **plug-in launcher** which allows performing multiple individual analyses into single-run, reducing user-computer time-consuming interventions.



Data management tools