Brain Products Press Release - May 2019

Fingerprints of excellence: A great journey towards the new features in BrainVision Analyzer 2.2.0
Supplementary Information

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⋯⟩ **Standard GUI controls for:**

- **Channel pair selection:** The automatic control allows the selection of predefined networks or channel pairs. The manual control provides several options to freely design custom connectivity graphs. Both controls are based on the generic elements of connectivity matrices (e.g. matrix diagonal, upper triangle, etc.). Custom connectivity graphs can be saved into a new *.bvgraph file, which can then be applied in other connectivity transforms across history files, workspaces, etc. The controls are used in the *Coherence*, *Correlation Measures* and *Cross-Correlation* transforms.

- **History file selection:** … includes the automatic and manual selection of history files and a new set of parameters validations. It is used in Analyzer 2.2.0 in the modules *Grand Average* and *Troubleshooting*.

- **Interval selection:** … consists of standard options to define the Start, End, and Length of intervals in the continuous and discrete domain. Users are now provided with data-specific interval constraints, and their inputs are interactively validated and mapped onto both continuous and discrete domains. The underlying computations are standardized to provide a consistent interval definition across modules. In Analyzer 2.2.0, the interval selection control is used in the transforms *ERS/ERD*, *Wavelets* and *Cross-Correlation*.

- **Segment Selection group:** … consists of a standard set of options to select segments for averaging. In Analyzer 2.2.0 it is used in the transforms *Average* and *ERS/ERD*.

⋯⟩ **Portation to the .NET platform:**

In order to assure backwards compatibility, Analyzer 2 still supports the so-called Vision 1 (V1) modules which were inherited from Analyzer 1. Most of them have been ported to the new development framework .NET, and hence have become outdated, meaning that they are not developed further.

⋯⟩ **Unsupported conditions:**

… refers to data integrity problems that may lead to severe data processing failures. Included in this category are duplicate channel names, empty or untrimmed channel names and duplicate head channel coordinates. Several modules will detect these unsupported conditions and abort execution when called from the ribbon or during automatic data analysis using history templates.

⋯⟩ **Filter mathlib:**

… is a generic IIR filter that standardizes the calculation of the filter coefficients, cutoff frequencies and the filter transient length. Other Analyzer 2.2.0 transforms which uses IIR filtering (*ERS/ERD* and *Complex Demodulation*) take advantage of this central implementation, guaranteeing consistency of numerical computations across different transforms.