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SaaS platform for time series data handling

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There is a cloud based resource MathBrain which provides users with tools for time series analysis. The most of methods is dedicated to magnetic- and electro encephalography (MEG, EEG) analysis which originally contains big amount of data to calculate. These methods of brain analysis are noninvasive, and the process looks like a registration of electro-magnetic activity. During the procedure, magnetic encephalograph device registers a magnetic field for several minutes, in hundreds of channels. Thus, as a result of these experiments specialists have big amount of data with complex structure. The resource suggests spectral methods, quantitative analysis, principal component analysis, independent component analysis and inverse problem solution [1]. From mathematical prospective the analysis is based mostly on Fourier transform method [2]. From technical side, Software as a Service platform gives such advantages as operating system independency, hardware capacity and opens a way for revising solutions in data-handling problems field [3, 4]. These pros are available, because the tool is provided as a “thin” client and user doesn’t have to install any application on local computer. The architecture of this resource contains several layers of abstraction which help to share hardware between tasks and can be used for balancing the load. The engine of the resource which handle data is written on Python language. The task queue works on JSON-RPC listener/task-dispatcher scripts. Such approach allows not to overload the hardware during the complex calculations.

References

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