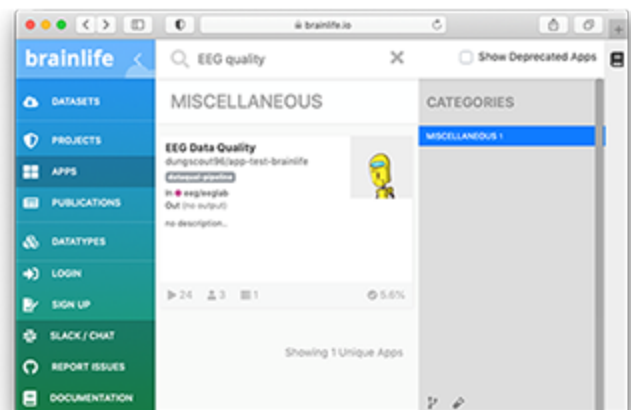


[View this email in your browser](#)

What's New

EEGLAB pipeline. An EEGLAB pipeline is now running on Brainlife, a free cloud platform for neuroscientific data analysis. Select a dataset on [OpenNeuro](#), click on "Analyze in Brainlife.io," create a new project and import the dataset to preprocess the data using EEGLAB. A short video describes the process. The output of the EEGLAB pipeline will be a collection of data quality metrics for each EEGLAB .set file, and the saved preprocessed data (filtered, cleaned by clean_rawdata EEGLAB plug-in, and with artifactual ICA components labeled by ICLabel). A standard EEGLAB pipeline that you may download and run on your own computer is also available [on this page](#). Pipelines can be applied to single datasets or EEGLAB studies. A [LIMO/EEGLAB](#) pipeline is also available, and can produce figures like those above.



Plug-Ins

Here we highlight new EEGLAB plug-ins of possible wide interest to EEGLAB users. [Please send descriptions of new plug-ins for consideration](#). These should have a brief lead introduction, and further text and images to be published on a continuation page.

BIDS-matlab-tools plug-in. A new version of the BIDS EEGLAB plug-in (v6.0) has been released. This version allows importing BIDS formatted EEG, MEG, or intracranial EEG datasets. It also allows exporting datasets with third-generation Hierarchical Event Descriptors (HED) annotations. As before, EEGLAB studies exported using this plug-in are guaranteed to pass the BIDS validator. We have also added two new example scripts that you can adapt to export your data. Export your data either via the EEGLAB menu or by calling a MATLAB script from the command line.

MEF3 plug-in. A new MEF3 plug-in has been developed by Max van den Boom to import intracranial EEG data in the MEF3 format, often used to store intracranial EEG data.

Profiles

This section contains personal profiles of EEGLAB developers and/or users, with a description of how they use EEGLAB in their research.



Cyril Pernet, Ph.D.

Senior Research Software Developer, Ph.D.
Organization for Human Brain Mapping Fellow, Software Sustainability Institute Fellow
Neurobiology Research Unit, Copenhagen University Hospital, Rigshospitalet, Copenhagen, Denmark

"Code sharing is like data sharing; We need it for good science," says Dr. Cyril Pernet, who has always been a strong advocate for data sharing, open source, good practices and open, reproducible science. As a cognitive neuropsychologist and Senior Research Software Developer at the Neurobiology Research Unit (NRU), Copenhagen University Hospital, Rigshospitalet in Denmark, he

conducts research in three areas: (1) methodological and statistical issues in brain imaging, (2) translational imaging, and (3) neuroinformatics (data sharing, good practices, code).

"Many brain imaging methods have been developed to study the normal brain. A major challenge is to translate these discoveries and methods to clinical settings," Dr. Pernet explains. "Implementing such knowledge to benefit patients, and in particular those with brain tumors, is a prime example of how methods, translational research and neuroinformatic intersect. For instance," he continues, "I have co-developed new methods to map eloquent cortical areas, implementing the tools and pipelines to run analyses prior to tumor surgery." He has also authored the Linear Modelling (LIMO) toolbox – an EEG analysis plug-in for EEGLAB. [Read more](#) »

Upcoming Events

This section contains announcements of future events of possible interest to EEGLAB users. [Please submit brief descriptions.](#)

➤ **Virtual EEGLAB Workshop Pacific/Asia - Nov 29-Dec 3rd 2021 - First day free.** From November 29 to December 3rd, the 31st EEGLAB workshop will be held online inside Gather.Town, an online conference platform. The first day will be free for all and will feature lectures and social events. Timings have been arranged to accommodate Pacific and Asian time zones. The event will feature lectures on how to process data using EEGLAB, including scripting and the use of multiple plug-ins. Parallel sessions will discuss specific topics, particularly wearable EEG and LSL, deep learning and EEG, connectivity analysis, and EEG. We have 19 EEGLAB expert speakers lined up. Because it is an online

event, the registration is deeply discounted. As COVID subsides, it is unclear if we will have more online events of this type in the future, so it is a unique occasion to meet in virtual space. All workshop videos will be made available to registrants after the workshop. [Click here](#) for more information.

期待在第31届EEGLAB研讨会上见到您 - 鍾子平 (聖地牙哥加大 史沃茲電腦運算神經科學中心 副主任; 國立陽明交通大學 客座教授; 國立清華大學 講座教授; 天津大學 合聘教授)

第31回EEGLABワークショップでお会いしましょう 宮腰誠 (カリフォルニア大学サンディエゴ校 スウォーツ計算神経科学センター プロジェクトサイエンティスト)

➤ **"Actionable event annotation in neuroimaging: HED-3G principles and practice."** The third-generation Hierarchical Event Descriptor (HED) schema and syntax specification have been released. Learn more about HED at the Society for Neuroscience meeting by viewing a [linked group of abstracts](#) on 3rd-gen HED. An online Q&A session will be held on Thursday, November 11 (see SfN programme). Note: The lead abstract, by first author K Robbins, will be presented on Wednesday.

➤ **The 33rd EEGLAB Workshop in Lublin, Poland**, is postponed to 2022. The dates have not been set yet. For more information, contact Dariusz Zapala (d.zapala@gmail.com). [More information](#) »

From the eeglablist

(... the [EEGLABLIST](#) email list) [This section contains brief questions and answers from the eeglablist archives or elsewhere.](#)

Q: I have a between subjects design (3 groups) with (4) repeated factors. I'd like to calculate custom contrasts, but I'm not sure what order the contrasts would go in. From the design matrix (and common sense), I can see that I would need 12 values in any contrast (13 if you include the constant).

A: Cyril Pernet: Actually, you should not analyse your data in this way. At the 1st level (per subject) you should have 5 columns, 4 conditions + the constant; then at the group level, you would have the groups and the conditions (no constant - because LIMO MEEG relies on a Hotelling T^2)

The documentation is available at: https://github.com/LIMO-EEG-Toolbox/limo_tools/wiki/Repeated-Measure-ANOVA

The repeated measure at the group level will compute for you the repeated factor effect, group effect and interaction. Of course post-hoc contrasts will be possible too here based on the design - happy to help with this if needed. - Cyril Pernet

A: Arnaud Delorme: To clarify: Within the hierarchical LIMO model, we first fit a model for each subject and then perform group analysis. At the single subject level, there are no groups of subjects, which is why Cyril mentions that the design matrix only has 5 columns (the 4 factors/conditions plus the constant). At the group level, Cyril applies standard statistics (as any statistical software would do) to compute repeated factor effects, group effects, and their interactions.

In Print

[Here we list recent papers highlighting EEGLAB function and plug-in capabilities. Please submit suggested papers, with a brief summary description.](#)

McLoughlin G, Gyurkovics M, Palmer J, Makeig S (2021, In Press). [Midfrontal Theta Activity in Psychiatric Illness: An Index of Cognitive Vulnerabilities Across Disorders](#). *Biological Psychiatry*, Sept. 2, 2021. DOI:<https://doi.org/10.1016/j.biopsych.2021.08.020>

Bannier E, Barker G, Borghesani V, Broeckx N, Clement P, Emblem KE, Ghosh S, Glerean E, Gorgolewski KJ, Havu M, Halchenko YO, Herholz P, Hespel A, Heunis S, Hu Y, Hu CP, Huijser D, de la Iglesia Vayá M, Jancalek R, Katsaros VK, Kieseler ML, Maumet C, Moreau CA, Mutsaerts HJ, Oostenveld R, Ozturk-Isik E, Pascual Leone Espinosa N, Pellman J, Pernet CR, Pizzini FB, Trbalić AŠ, Toussaint PJ, Visconti di Oleggio Castello M, Wang F, Wang C, Zhu H. (2021). [The Open Brain Consent: Informing research participants and obtaining consent to share brain imaging data](#). *Hum Brain Mapp.* 2021 May;42(7):1945-1951. doi: 10.1002/hbm.25351. Epub 2021 Feb 1. PMID: 33522661; PMCID: PMC8046140.

Pernet C, Rousselet G, Suay Mas I, Martinez R, Wilcox R, Delorme A. (2021 Preprint). [ElectroEncephaloGraphy robust linear modelling using weights reflecting single trials' dynamics](#). doi: <https://doi.org/10.1101/2021.04.27.441629>

Pernet CR, Martinez-Cancino R, Truong D, Makeig S, Delorme A. (2021). [From BIDS-Formatted EEG Data to Sensor-Space Group Results: A Fully Reproducible Workflow With EEGLAB and LIMO EEG](#). *Front. Neurosci.*, Vol.14, 1407, 2021, 11 January 2021. <https://doi.org/10.3389/fnins.2020.610388>, DOI=10.3389/fnins.2020.610388.

Markiewicz, C.J., Gorgolewski, K.J., Feingold, F., Blair, R., Halchenko, Y.O., Miller, E., Hardcastle, N., Wexler, J., Esteban, O., Goncavles, M. and Jwa, A., 2021. [The OpenNeuro resource for sharing of neuroscience data](#). *Elife*, 10, p.e71774. *The NEMAR.org data, tools, and compute resource the EEGLAB and Neuroscience Gateway (nsgportal.org) teams are building will build on EEG, MEG, and intracranial EEG data shared via OpenNeuro.*

Robbins, K., Truong, D., Appelhoff, S., Delorme, A., & Makeig, S. (2021, May 7). [Capturing the nature of events and event context using Hierarchical Event Descriptors \(HED\)](#). *BioRxiv*, 2021.05.06.442841.

Online

Introduction to Hierarchical Event Descriptors (HED) for Data Annotation

A new BIDS webcast is a conversation between Remi Gau of the BIDS management team with Kay Robbins and Dung Truong of the HED Working Group (9/17/21)



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