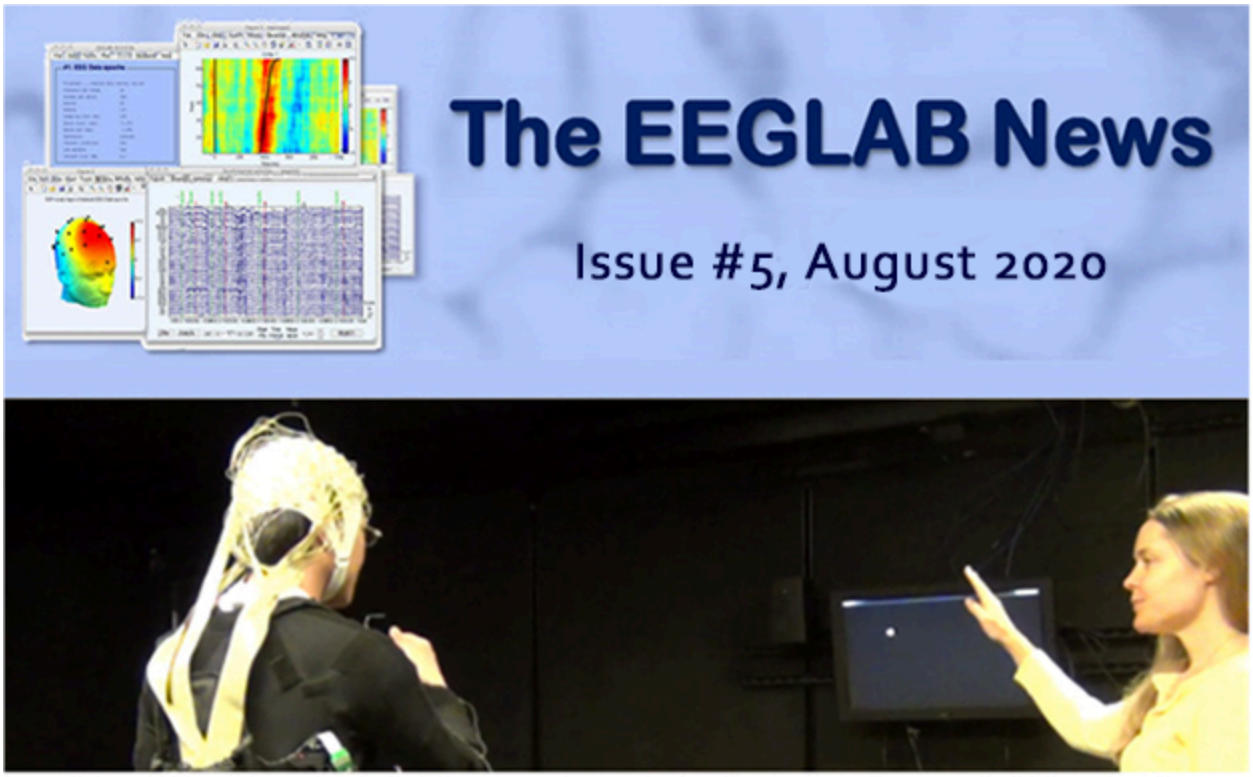


Grace Leslie trains a participant in her expressive music 'conducting' experiment in the SCCN MoBI lab.

View this email in your browser

What's New

New EEGLAB Release - EEGLAB 2020.0 has been released, with 239 commits made to the EEGLAB repository since the last update in November 2019.1. Altogether, 94 user submitted issues and minor bugs have been addressed. Major updates include the improved EEGLAB Plug-in manager with search capability, a capability to update EEGLAB directly from Matlab, improved support for the BIDS-EEG data format, and the new BIDS EEGLAB plug-in (the beta version is available at https://github.com/sccn/bids-matlab-tools). As well, clarification of first and second level variables for hierarchical data analysis at the group level has been implemented with improved support and bug fixes to improve the process of using the LIMO plug-in for EEGLAB. We plan for the EEGLAB core to remain stable; new functionality will be provided through plug-ins.

Additional News - Despite the Covid pandemic, work on our NSG portal to high-performance computing and NEMAR data, tools, and compute resource (DATCOR) building projects goes ahead. This includes collaboration with Kay Robbins of UTSA to streamline a new version of and tools for using the HED (Hierarchical Event Descriptors) system for recording the meaning of events marked in the data (in EEGLAB, in the *EEG.event* structure linked to *EEG.etc.hedtags*) for all types of event-related data analysis. The HED system is now specifically included in the BIDS brain imaging data standards, where its use to archive EEG studies will allow meta-analysis (or, 'mega-analysis') of event-related brain dynamics across studies. Clement Lee and a colleague in New Mexico are submitting parallel papers testing the get_chanlocs software for recording electrode positions quickly and precisely using low-cost photogrammetry, and Zeynep Akalin Acar is completing a second paper supporting the accuracy of the SCALE approach to estimating skull conductance for EEG source imaging. Meanwhile, UCSD has re-opened to some research data collection (under strict precautions) …

– Scott Makeig & Arno Delorme

Profiles

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

Sidney J. Segalowitz, Ph.D. Professor, Psychology Department and the Centre for Neuroscience, Brock University Founding Director, The Jack and Nora Walker Centre for Lifespan Development Research Director, Cognitive and Affective Neuroscience Lab

James Desjardins, M.A. High Performance Computing Consultant, SHARCNET, Compute/Calcul Canada. Formerly Electrophysiology Technologist, Cognitive and Affective Neuroscience Lab, Brock University; Jack and Nora Walker Centre for Lifespan Development Research.

In 1999, then neuropsychology student James Desjardins took a class led by Dr. Sid Segalowitz at Brock University in Ontario, Canada. He asked to do his Honours Thesis with him. This mentorship quickly grew into a remarkable partnership. In fact, Mr. Desjardins' Master's thesis pulled together much of the first version of what became their preprocessing pipeline – a program used to clean up scalp data before deriving ICs for reflecting cognitive processes. And through this experience, Dr. Segalowitz became an ICA convert – something relatively unique among long-time psychologists using ERP measures.

After discovering EEGLAB and ICA, the two began hosting annual workshops in advanced methods in EEG/ERPs in Canada starting in 2014, and Mr. Desjardins created several EEGLAB extensions. Most recently, Dr. Segalowitz and Mr. Desjardins have been working with techniques involving ICA (for the derivation of latent components in the ERP), ITC (inter-trial consistency measures for intra-subject variability in ERP responses), some new measures of cortical connectivity derived from EEG, and bootstrapping techniques for N=1 analyses. They also found that they have more than an interest in science in common! Read more »

Upcoming Events

This section contains announcements of future events of possible interest to EEGLAB users. Please submit brief descriptions.

ALL WORKSHOPS POSTPONED TO 2021 BECAUSE OF THE CURRENT COVID-19 OUTBREAK.

› **The next long-format 31st EEGLAB Workshop has been moved to June, 2021.** This workshop, to be presented at SCCN, will be the first to feature **a two-day Pre-Workshop Course** on the basics of EEG and using MATLAB, and on the basics of using EEGLAB to load and begin to process EEG data. Workshop attendees who might otherwise not be able to keep up with the main Workshop are encouraged to attend these sessions. **The main EEGLAB Workshop**, beginning with an Open House reception and poster show, will follow the format of previous EEGLAB workshops at UCSD, with new material incorporated as time and need permit. Following the Workshop, we plan to offer another new feature, **a two-and-a-half day Data Collaboratory** in which attendees with data to analyze will work with Workshop faculty to build analysis pipelines to process their data (limited to 20 participants).

› **The Second Hands-on LSL Workshop** has also been postponed to June, 2021, as has the **Fourth International MoBI Conference** and a **Group-EEG Recording Workshop** led by John Iversen

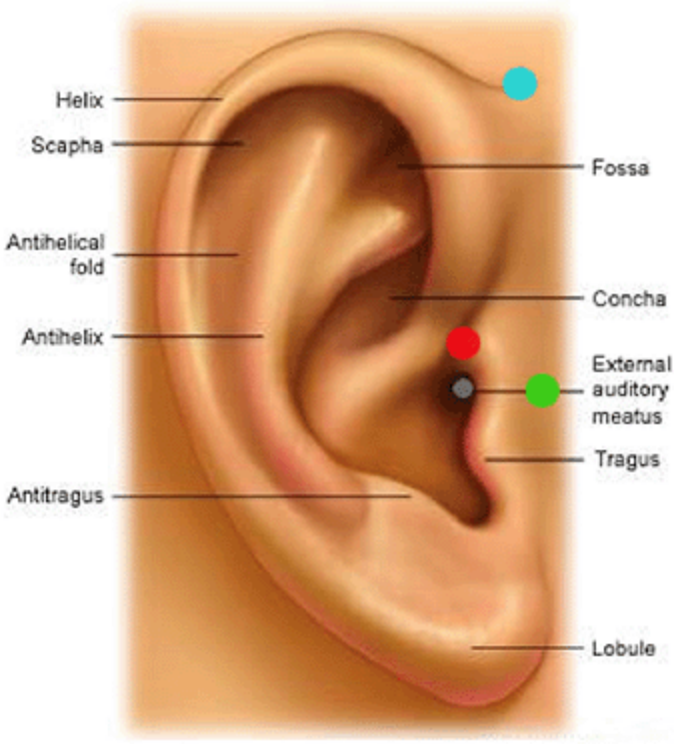
(jiversen@ucsd.edu) on recording and analysis of group EEG and other data streams.

The 32nd EEGLAB Workshop in Lublin, Poland is likewise being postponed to 2021. For more information, contact Dariusz Zapała (d.zapala@gmail.com).

From the eeglablist

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

Q: *How should I report the positions of the fiducial points on the head?*



A: Consistency is key when using fiducial points; the accuracy of collaborative or comparative analysis is severely diminished without accurate fiducial positions and position labels. This is particularly the case when source estimation can use individual head models based on subject MR head images, but is also the case when channel locations are warped to a template head model for source location estimation.

The nasion is easy to find and point out (the critical point between the forehead and the 'bridge' of the nose); EEGLAB recognizes the abbreviation NAS for this.

The lateral fiducial points, however, often generally referred to as the left and right 'pre-auricular' points, have been more variably defined in practice. We (and others) propose to use a definition that is easy to locate unambiguously both on the head itself and on an MR head image - the helix-tragus junction (the red dot in the drawing above). For these points, we propose the terms **LHT** and **RHT** for the left and right fiducial points, respectively.

In cases in which locations of the lateral fiducial points are or have been entered based on another definition of the later fiducials, we strongly advise using the following abbreviations as channel labels:
LEC|REC - left|right ear canal (grey dot)
LHS|RHS - left|right helix-scalp junction (blue dot)
LPA|RPA - left|right pre-auricular points (green dot)

Clarity and precision in the definition and measurement of the fiducial points can greatly simplify and improve the accuracy of source location estimation and clustering.

Scott Makeig

In Print

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

Acar, Z.A., and Makeig, S. (2014). Neuroelectromagnetic Forward Head Modeling Toolbox. J Neurosci Methods. 2010 Jul 15; 190(2); 258-270. doi: 10.1016/j.jneumeth.2010.04.031.

Acar, Z.A., Acar, C.E., Makeig, S. (2017). Simultaneous head tissue conductivity and EEG source location estimation. Neuroimage, 2016 Jan 1; 124: 168-180. PMCID: PMC4651780.

Desjardins, J. A., & Segalowitz, S. J. (2013). Deconstructing the early visual electrocortical responses to face and house stimuli. Journal of Vision, April 2013, Vol.13, 22. doi:https://doi.org/10.1167/13.5.22.

van Noordt, S., Desjardins, J.A., Gogo, C., Tekok-Kilic, A., Segalowitz, S. (2016). Cognitive control in the eye of the beholder: Electrocortical theta and alpha modulation during response preparation in a cued saccade task. NeuroImage 145(Pt A) · September 2016. DOI: 10.1016/j.neuroimage.2016.09.054.

van Noordt, S., Desjardins, J.A., Segalowitz, S. (2015). Watch Out! Medial Frontal Cortex is Activated by Cues Signaling Potential Changes in Response Demands. NeuroImage 114, April 2015. DOI: 10.1016/j.neuroimage.2015.04.021.

Online

Below, Zeynep Akalin Acar speaks at the 2016 EEGLAB workshop in San Diego on
Source Localization: The EEG Forward and Inverse Problem