Using data standards in Neuroscience and Audiology

OCTOBER 23, 2025

MORNING PRESENTATIONS (9:30 AM – 12:30PM)

Ágnes Ullmann Amphitheater (pasteurians only) or online

Introduction *(Laurent ESSIOUX, Head of the Research and Resource Centre for Scientific Informatics)*

Introduction to Brain Imaging Data Standard (BIDS) *(Achilleas PITSILLIDES, Data Management Core Facility)*

BIDS embodies some of the best practices in structuring data, which is no surprise for a format that was initially conceived by the fMRI repository to manage their data. In this talk we will introduce the main ideas of the standard and show some examples of data in the BIDS format and of the BIDS Validator.

Managing electrophysiological human data using BIDS: early feedbacks from the IdA *(Rémy MASSON, Neural coding and neuroengineering of human speech functions)*

The BIDS format has been declared in the IHU reConnect Data Management Plan as the preferred standard for neuroimaging data. In this talk, we will show how the BIDS format can be easily integrated into the management and analysis of electrophysiological data.

Introduction to the NWB format *(Achilleas PITSILLIDES, Data Management Core Facility)*

NWB is a format for storing multimodal data from a single session in a single file. We will discuss the benefits of the format by comparing the legacy output and NWB output of some data acquisition.

COFFEE BREAK

NWB in practice

TBA

Data standards for audiology based on openEHR *(Mareike BUHL, Center for Research and Innovation in Human Audiology)*

For exchanging data across institutions, or combining data from different data sources for analysis, the definition of data standards is crucial. A recently started community initiative (in the context of a European Federation of Audiological Societies (EFAS) working group) is based on the openEHR approach, which aims to achieve interoperability between databases by separating information and knowledge, through so-called archetypes and templates. The CeRIAH team of Institut de l'Audition contributes to the EFAS working group. In this presentation, I will present the background of the openEHR data standard, introduce the basic concepts, and show an ongoing study as application example in the domain of audiological data.

EBRAINS, OpenNeuro and DANDI: three repositories for sharing neuroscience data *(Fanny SEBIRE, Scientific Information Resources Center)*

To share your data to the scientific community, it is recommended to use a data repository adapted to your discipline or type of data. EBRAINS, OpenNeuro and DANDI are three repositories you can use in the field of neuroscience. In this presentation, we will introduce you to these repositories: how they work, their specific features, the types of data accepted, the link with the NWB and BIDS standards...

AFTERNOON WORKSHOPS (2 sessions of each: 2PM - 3:15PM and 3:30PM - 4:45PM)

Fernbach building (pasteurians only)

Introduction to openEHR archetype modelling *(Mareike BUHL, Center for Research and Innovation in Human Audiology)*

This workshop provides a deeper understanding of the so-called archetypes as basic building blocks of the openEHR data standard. We will look into existing archetypes for different audiological tests to learn more about the properties and the modelling approach of the archetypes. A hands-on part allows the participants to experience how an archetype can be modelled based on an intuitive open online tool. Participants are invited to bring their computer.

NWB in practice: from acquisition to analysis *(Clara DUSSAUX, Data Acquisition and Signal Processing Facility and Achilleas PITSILLIDES)*

In this workshop, you will create, modify, and manipulate behavior, two photon imaging, and electrophysiology data in NWB format. We will start with demonstrating acquisition software that collects data in NWB format such as the IDA (SPIDA) developed BASIL software, and the well-known open-source software Open ephys. We will continue with a short tutorial on using theneuroconv package to convert data to NWB format. We will conclude by demonstrating open-source NWB tools for visualization and analysis of NWB datasets. Participants should bring their own computer.