



cnspworkshop@gmail.com

## **Cognition and Natural Sensory Processing Workshop CNSP-Workshop 2021**

Are you interested in studying cognition and perception in scenarios involving natural scenes and sounds? In this two-day workshop, you will learn methodological approaches to do so by analysing brain data (e.g., EEG, MEG) recorded in such realistic conditions. Our approach consists of 50% lectures, 25% talks on case-studies, and 25% hands-on tutorials. The CNSP-Workshop 2021 will focus on the case of speech listening scenarios.

Check out our website ([CNSP-Workshop.github.io](https://CNSP-Workshop.github.io)) for more information on the workshop. Follow us on Twitter ([@CnspWorkshop](https://twitter.com/CnspWorkshop)) for updates on the deadlines, schedule, and resource sharing. Feel free to contact us if you have further questions ([cnspworkshop@gmail.com](mailto:cnspworkshop@gmail.com)).

*When:* 2–3 August 2021

*Where and how much:* Online! Registration fee: €20

*Participants:*

- Researchers interested in studying natural speech or music perception with EEG / MEG / ECoG, but have **little experience** with ecologically-valid experiments.
- Researchers **with experience** in natural sensory processing and related tools such as mTRF-Toolbox, who are interested in deepening their understanding and in expanding their set of tools.

*Prerequisites:*

- Some experience with neural signal analysis (e.g., EEG, MEG, or ECoG).
- Some MATLAB experience is required for the hands-on sessions.
- A practical interest in applying these skills.

*What will you learn?*

Theoretical insights into system identification and multivariate linear methods for neural signal analysis. Practical guidelines on how to prepare, process, and interpret your data. Practical knowledge of tools for neural signal analysis, with an overview on MATLAB and Python solutions and a hands-on focus using mTRF-Toolbox.

*BYOD! Bring your own dataset*

We will provide you with guidelines to prepare your own data for the practical sessions. We can then answer your specific questions during the Q&A session after the main workshop (4<sup>th</sup> August). Datasets and resources will be available, if you don't have your own.

Thank you!

Giovanni Di Liberto, Nathaniel Zuk, Mick Crosse

## Provisional Schedule

### Day 1 (2<sup>nd</sup> August 2021)

#### **Session 1:** Investigating auditory perception with naturalistic paradigms

- o The CNSP-Workshop: What, why, and how
- o Neural tracking of continuous sensory stimuli
- o The Temporal Response Function. Concept and basic research
- o Hands-on tutorial

#### **Session 2:** Encoding and Decoding models for neural signal analysis: Use and interpretation

- o Encoding models
- o Decoding models
- o Stimulus feature extraction
- o Hands-on tutorial

### Day 2 (3<sup>rd</sup> August 2021)

#### **Session 3:** TRFs in applied research: Case studies

- o Case study 1: Speech sound perception in infants
- o Case study 2: Audio-visual perception
- o Case study 3: Auditory TRFs in ageing and hearing impaired cohorts
- o General discussion

### Day 3 (4<sup>th</sup> August 2021)

#### **Session 4:**

- o Q&A Session(s)
- o Closing remarks