

ENES Symposium 2021

30 March



ENES | Equipe de Neuro-Ethologie Sensorielle | www.eneslab.com
Université de Saint-Etienne

Centre de Recherche en Neurosciences de Lyon (CRNL) – CNRS UMR5292 – INSERM UMR S1028

Bâtiment J (STAPS) Amphi J108, Faculté des Sciences,
23 rue Paul Michelon, 42023 Saint-Etienne Cedex 2

Join us Online : <https://ujmstetienne.webex.com/meet/ENES-Symposium>

Schedule

9:30		Welcome & Introduction
9:40	Nicolas Mathevon	The ENES lab: Past, present and future The voice of the Amazon: Vocal plasticity in the song of the screaming piha?"
10:10	Marco Gamba *	From spots to dots: blowing the mist away from the indris' song
10:40	Florence Levrero	The graded vocal repertoire of bonobos
11:00	Patricia Duchamp-Viret	Olfactory receptor neurons encode key attributes of final olfactory perception
11:20 – 11:40		Break
11:40	Siloé Corvin	Is there an individual vocal signature common to bath and pain baby cries?
12:00	Daria Valente	Acoustic space of pain, part 2: Characterising women's childbirth vocalisations
12:20	Kasia Pisanski	Does sensory deprivation alter human nonverbal voice production and perception?
12:40	Clément Cornec	Does form and function in babies' cries vary across distinct cultures?
1:00 – 2:30		Lunch
2:30	Jean-Julien Aucouturier *	Data-driven methods for the study of vocal cognition in health and disease
3:00	Andrey Anikin	Sensory biases in human vocal communication
3:20	Emilie Rojas	Does noise pollution modify the freshwater trophic chain?
3:40	Wenjing Wang	Multisensory and cross-modal control of fish behaviour across development
4:00	Mathilde Massenet	Nonlinear vocal phenomena affect human perceptions of puppy whines
4:20	Lucie Barluet de Beauchesne	Expression of emotional state in formants of ewe's vocalisations
4:40	Julie Thévenet	Sounds labelling in young crocodilians: Categorical perception?
5:00	Arthur Guibard	Analysis of propagation constraints on acoustic communication networks in mountain Galliformes
5:20	Valentina Cartei	Acoustics of chants from around the world: a convergent cultural evolution?

** Invited Guest Speakers*

Organiser contact:

Katarzyna (Kasia) Pisanski: katarzyna.pisanski@cnrs.fr

Presenters & Abstracts



Nicolas Mathevon

ENES – Director

The voice of the Amazon: Vocal plasticity in the song of the screaming piha?"

The evolutionary origin of song learning in birds remains obscure. When did learning evolve in oscines passerines and why does it seem to be absent in their sister group, the suboscines? Our poor knowledge on the vocal behavior of suboscine birds limits our ability to answer these questions. I will report the results of our recent investigations and field work testing vocal plasticity in the screaming piha *Lipaugus vociferans*, a suboscine bird widespread over the Amazonian basin.



Marco Gamba (invited speaker)

University of Torino, Italy – Professor

From spots to dots: Blowing the mist away from the indris' song

The indris' song provides conspecifics with information on the sex, status, and age of the emitters. This unique vocal display can also inform about the relatedness of the animals participating in the chorus.

Florence Levrero

ENES – Associate Professor

**The graded vocal repertoire of bonobos**

Vocalizations often contain both 'dynamic' information about short-term fluctuations in an individual's emotional state, and 'static' information about long-term attributes such as age, sex and size. While dynamic information requires acoustic versatility, static information or 'individual vocal signatures' require acoustic stability. How do animal signals deal with this potential conflict in information coding?

Patricia Duchamp-Viret

ENES – CNRS Research Director

**Olfactory receptor neurons encode key attributes of final olfactory perception**

What we generally call "odour" is the ultimate perception of more or less complex mixtures of odorant molecules that initially interact with olfactory receptor neurons (ORNs) located in the nose. We study ORNs' responses in conjunction with behavioural perception in newborn rabbits, for which the olfactory sense is vital for survival.



Siloé Corvin

ENES – PhD student (N. Mathevon)

Is there an individual vocal signature common to bath and pain baby cries?

Non-parents are able to learn to recognize a specific baby from its cries, like parents learn to recognize their own baby in their first days of life. With playback experiments, we investigate if there is an individual vocal signature common to both pain and bath cries that listeners can utilise to learn to recognise a baby from its cry, and across contexts.



Daria Valente

ENES – Postdoctoral fellow

Acoustic space of pain, part 2: Characterising women's childbirth vocalisations

Childbirth is one of the most painful and excruciating situations that can be experienced, and although investigations on labour pain are extensive, there exists no study on vocal behaviour during childbirth. We analysed cries emitted by women giving birth to test how vocal parameters vary in relation to labour stage and apparent pain.



Katarzyna (Kasia) Pisanski

ENES – CNRS Researcher

Sensory deprivation in deaf humans influences the production of emotional vocalisations

Humans are born crying, but do we need auditory feedback throughout our lives to produce stereotypical vocalisations, such as cries, roars and screams, as adults? To test this, we compare the production and perception of emotional vocalisations produced by deaf adults to those of normally hearing controls.



Clément Cornec

ENES – Postdoctoral fellow

Does form and function in babies' cries vary across distinct cultures?

While we know that human babies communicate vital information through their cries, studies are largely restricted to Western human cultures. To test how generalisable these results are across human populations, we examine the production and perception of babies' cries in remote and extremely 'non-WEIRD' human populations in the Democratic Republic of the Congo.



Jean-Julien Aucouturier (invited speaker)

FEMTO-ST Institute Besançon & IRCAM Paris – CNRS Researcher

Data-driven methods for the study of vocal cognition in health and disease

Recent years have seen the emergence of data-driven methods (such as reverse-correlation) that extract the sensory representations used by participants to recognize facial expressions. I will show how these methods can be adapted to study voice perception in both healthy participants and patients.



Andrey Anikin

ENES & Lund University – Postdoctoral fellow

Sensory biases in human vocal communication

Different animal species understand each other's vocal signals surprisingly well. Working with human nonverbal vocalizations, such as laughs and screams, I present two examples of sensory biases that may contribute to such phylogenetically conserved aspects of vocal communication as acoustic size exaggeration and the expression of high arousal.



Emilie Rojas

ENES – PhD student (V. Médoc, N. Mathevon)

Does noise pollution modify the freshwater trophic chain?

Large-scale and long-term research has examined how noise pollution affects fish behaviour, yet few studies have tested if behavioural changes spread through the aquatic community. Here, in experiments on mesocosms, we test the effect of boat noise exposure for 6 weeks on a freshwater three-level trophic chain including fish (roach), zooplankton and phytoplankton, testing if noise pollution affects behavioural dietary changes and thus modulates the trophic cascade.



Wenjing Wang

ENES – PhD student (M. Beauchaud, N. Mathevon)

Multisensory and cross-modal control of fish behaviour across development

Anthropogenic noise can affect the behaviour of adult fish, yet few studies have examined the effect of chronic anthropogenic noise on fish development. To test this we examined the size, social interactions, and personality of Cichlid fish larvae reared and hatched under different noise conditions.



Mathilde Massenet

ENES – PhD student (D. Reby, N. Mathevon)

Nonlinear vocal phenomena affect human perceptions of puppy whines

While Nonlinear Phenomena (NLPs) are widely reported in animal vocalisations, their function remains debated. Using sound re-synthesis, we investigated how the presence and extent of nonlinearities in puppy whines affects judgments of distress, size and dominance by human listeners.



Lucie Barluet de Beauchesne

ENES – PhD student (D. Reby, N. Mathevon)

Expression of emotional state in formants of ewe's vocalisations

Mouth articulation seems to play an important role in mother–young vocal communication in sheep. Does mouth articulation, and more specifically, the degree of mouth opening, transmit information about the emotional state of the ewe?



Julie Thevenet

ENES & CAP – PhD student (N. Mathevon, N. Grimault)

Sounds labelling in young crocodilians: Categorical perception?

Categorical perception of acoustic signals has been well studied in the context of human speech perception, but it is also an essential process for animals to correctly and quickly attribute significance to signals. I present the first evidence that young crocodiles may categorically perceive a range of vocalisations, relying only on the spectral envelope of the calls to classify them.



Artur Guibard

ENES – PhD student (F. Sèbe, S. Ollivier, D. Dragna)

Analysis of propagation constraints on acoustic communication networks among mountain Galliformes

Communication networks in birds are still poorly developed regarding the impact of propagation constraints. However, propagation of an acoustic signal is known to be highly dependent on weather and ground effects. We are developing an acoustic propagation model to study voice communication in birds, and test how birds deal with environmental constraints.



Valentina Cartei

ENES – Postdoctoral fellow

Acoustics of chants from around the world: a convergent cultural evolution?

Chanting is a unique and universal human vocal behaviour, but one that has not been systematically scientifically investigated. I report preliminary findings on the identification of common acoustic features from a wide range of religious and secular chants across Eastern, Eastern and tribal traditions.

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