

CURRICULUM VITAE SYLVIE NOZARADAN, MD PhD, September 2017

ORCID: 0000-0002-5662-3173
Date of birth: 30/12/1981
Email: sylvie.nozaradan@uclouvain.be

Nationality: Belgium
Languages: French (native), English (fluent),
Spanish (fluent), Dutch (basic knowledge)

EDUCATION

- 2013 **PhD in Neuroscience**, Université catholique de Louvain (UCL), Belgium – Institute of Neuroscience (IONS)
Advisor: Prof. André Mouraux
- 2013 **PhD in Neuroscience**, Université de Montréal (UdeM), Canada – BRAMS Laboratory – with **highest honors**
Advisor: Prof. Isabelle Peretz
- 2009 **Doctor in medicine (MD)**, orientation Neurology, UCL, Faculty of Medicine, Belgium
- 2005 **M. A. and B. A. in music**. Royal Superior Conservatory of Music of Brussels (CRB), Belgium.

CURRENT POSITIONS

- April 2016 – *present* **Post-doctorate research fellow** (Discovery Early Career Researcher Award, DECRA),
Australian Research Council (ARC), MARCS Institute for Brain, Behaviour and
Development, Western Sydney University (WSU), Australia
- October 2013 – *present* **Post-doctorate research fellow** (*Chargée de recherche*), Scientific Research
National Fund (FNRS), Institute of neuroscience (Ions), UCL, Belgium
- October 2014 – *present* **Associate researcher**, International Laboratory for Brain, Music and Sound
Research (BRAMS), Montreal, Canada

GRANTS AND AWARDS

- 2017-2020 Discovery Grant (PI: Sylvie Nozaradan, Manuel Varlet, Peter Keller), Australian Research Council.
Australia (341.500 AU\$)
- 2016-2019 Discovery Early Career Researcher Award, Australian Research Council. Australia (373.536 AU\$)
- 2013-2016 Scientific Research National Fund Post-doctorate research fellowship (*Chargée de recherche*).
Belgium. (94.650 €)
- 2011-2013 PhD fellowship. Scientific Research National Fund PhD fellowship. Belgium. (49.600 €)
- 2011 PhD student Exchange Grant of the European Research Council. EU. (15.000 €)
- 2011 Grant of the Belgian Foundation for Vocation. Belgium. (10.000 €)
- 2009-2011 PhD fellowship. Scientific Research National Fund PhD fellowship. Belgium. (49.600 €)
- 2016 Post-doctoral research award (*bourse d'excellence*). WBI. Belgium. (16.500 €)
- 2015 Post-doctoral research award (*bourse d'excellence*). WBI. Belgium. (16.500 €)
- 2015 Post-doctoral research award. FSR, UCL. Belgium. (2.520 €)
- 2014 Young Research Incubator Award (with Drs. Alexandre Lehmann and Marc Schönwiesner), CRBLM.
Montreal, Canada. (10.000 CA\$)
- 2013 Doctoral thesis award (*bourse d'excellence des études supérieures*) Physiology Dpt, UdeM. Canada.
- 2012 Award for the best oral presentation. Rhythm and Timing Workshop, Glasgow. UK.
- 2010 Award of the Belgian Brain Council for the best presentation. Belgian Brain Congress. Belgium.
- 2009 Award of the Academy of Medicine of Belgium for the best student-researcher of the UCL medicine
promotion. Belgium. (2.000 €)
- 2005 National competition for Chamber Music Award, Horlait-Dapsens Foundation. Belgium.

PUBLICATIONS

H-index: 11, number of citations: 701 (Google Scholar)

Book chapter

Musical rhythm embedded in the brain: bridging music, neuroscience and empirical aesthetics.

Nozaradan S. Invited chapter in “Assessing tools to enhance cultural participation: Methods and challenges”. **Springer Eds.** 2017.

Peer-reviewed journals

Specific contributions of basal ganglia and cerebellum in the neural tracking of rhythm.

Nozaradan S, Schwartze M, Obermeier C, Kotz S. **Cortex** 2017. *In press.*

Frequency-tagging to track the neural processing of contrast in fast continuous sound sequences.

Nozaradan S, Mouraux A, Cousineau M. **Journal of Neurophysiology** 2017. 118(1):243-253.

Intracerebral evidence of rhythm transform in the human auditory cortex.

Nozaradan S, Mouraux A, Jonas J, Colnat-Coulbois S, Rossion B, Maillard L. **Brain Structure and Function** 2016. 222(5):2389-2404.

Enhanced brainstem and cortical encoding of sound during synchronized movement.

Nozaradan S, Schonwiesner M, Caron-Desrochers L, Lehmann A. **NeuroImage** 2016. doi: 10.1016/j.neuroimage.2016.07.015.

Measuring Neural Entrainment to Beat and Meter in Infants: Effects of Music Background.

Cirelli LK, Spinelli C, **Nozaradan S,** Trainor LJ. **Front Neurosci** 2016. doi: 10.3389/fnins.2016.00229.

Individual differences in rhythmic cortical entrainment are correlated with predictive behavior in sensorimotor synchronization.

Nozaradan S, Peretz I, Keller P. **Nature Scientific Reports** 2016. DOI: 10.1038/srep20612

Neural entrainment to musical rhythms in human auditory cortex, as revealed by intracerebral recordings.

Nozaradan S, Jonas J, Vignal J-P, Maillard L, Mouraux A. **Front Hum Neurosci** 2015. DOI: 10.3389/conf.fnhum.2015.217.00276.

Neural entrainment during musical rhythm perception is correlated with individual differences in temporal prediction during sensorimotor synchronization.

Keller PE, **Nozaradan S.** **Front Hum Neurosci** 2015. doi: 10.3389/conf.fnhum.2015.217.00056.

Exploring with EEG frequency-tagging how musical rhythm entrains brain activity.

Nozaradan S. **Philosophical Transaction B** 2014. doi: 10.1098/rstb.2013.0393.

Body movement shapes selectively the neural representation of musical rhythms.

Chemin B, Mouraux A, **Nozaradan S.** **Psychological Science** 2014. 10.1177/0956797614551161.

From sounds to movement and back: how movement shapes internal representation of musical rhythms.

Nozaradan S, Chemin B, Mouraux A. **Front Hum Neurosci** 2013. doi: 10.3389/conf.fnhum.2013.212.00044

Capturing with EEG the neuronal entrainment and coupling underlying sensorimotor integration while moving to the beat.

Nozaradan S, Zerouali Y, Peretz I, Mouraux A. **Cerebral Cortex** 2015. 10.1093/cercor/bht261.

Selective neuronal entrainment to beat and meter embedded in a musical rhythm.

Nozaradan S, Peretz I, Mouraux A. **The Journal of Neuroscience** 2012. 32:17572-81

Steady-state evoked potentials as an index of multisensory temporal binding.

Nozaradan S, Peretz I, Mouraux A. **NeuroImage** 2012. 60:21-28

Steady-state evoked potentials to tag specific components of nociceptive cortical processing.

Colon E, **Nozaradan S,** Legrain V, Mouraux A. **NeuroImage** 2012. 60:571-581

Tagging the neuronal entrainment to beat and meter.

- Nozaradan S**, Peretz I, Missal M, Mouraux M. **The Journal of Neuroscience** 2011. 31:10234-10240
Nociceptive steady-state evoked potentials elicited by the periodic thermal activation of nociceptors.
- Mouraux A, Iannetti GD, Colon E, **Nozaradan S**, Legrain V, Plaghki L. **The Journal of Neuroscience** 2011. 31:6079-6087
- Born to dance but beat deaf: A new form of congenital amusia.
Phillips-Silver J, Toiviainen P, Gosselin N, Piché O, **Nozaradan S**, Palmer C, Peretz I. 2011. **Neuropsychologia**. 49:961-969
- How do primates anticipate uncertain future events?
de Hemptinne C, **Nozaradan S**, Duvivier Q, Lefèvre P, Missal M. **The Journal of Neuroscience** 2007. 27:4334-41

PRESENTATIONS

Conference talks

- 2017 Effect of tone frequency on neural entrainment to rhythm: superior role of bass. Australasian Society for Cognitive Neuroscience (ACNS annual conference), Adelaide, **Australia**.
- 2017 How musical rhythm entrains the human brain activity. International Neuropsychology Symposium annual conference, Crete, **Greece**.
- 2016 Enhanced brainstem and cortical encoding of sound during synchronized movement. Electrophysiology Society, Adelaide, **Australia**.
- 2015 From input-output transforms to perceptual templates: neural encoding of rhythms investigated with human depth-electrodes recording. Paris Workshop on Decoding of Sound and Brain (Horizon2020 COCOHA project), Ecole Normale Supérieure (ENS), Paris, **France**.
- 2015 The rhythm of silence: rhythmic neural entrainment explained by low-level auditory processes or higher-level predictive coding? Rhythm Perception and Production International Workshop (RPPW), Amsterdam, **The Netherlands**.
- 2015 Isolating the neural entrainment to segregated sound streams with frequency-tagging. Neuronus Conference, Krakow, **Poland**.
- 2014 Exploring the neural encoding of musical rhythms: a gateway to understand the human auditory system. Annual congress of the national society for otorhinolaryngology. Brugge, **Belgium**
- 2014 Musical entrainment directly recorded in the depth of the frontal, temporal and parietal cortex. Auditory Cortex Conference. Magdeburg, **Germany**.
- 2014 Neural entrainment during musical rhythm perception is correlated with individual differences of temporal prediction during sensorimotor synchronization (Peter Keller - Sylvie Nozaradan). ICON, Brisbane. **Australia**.
- 2013 Neural entrainment to musical rhythms in the human auditory cortex, as revealed by intracerebral recordings. Society for Neuroscience, San Diego. **USA**.
- 2013 From sounds to movement and back: how movement shapes neural representation of musical rhythms. Rhythm Perception and Production International Workshop (RPPW14) at University of Birmingham. **UK**.
- 2013 Music embedded in the brain: what can music and neuroscience learn from each other? Invited lecture. Festival Ars Musica (international festival of contemporary music). **Belgium**.
- 2012 Selective neuronal synchronization to beat and meter embedded in a musical rhythms. Perspective on Rhythm and Timing (PoRT Workshop) at Glasgow University. **UK**.
- 2011 Tagging the neuronal entrainment to beat and meter as steady-state evoked potentials. Rhythm Perception and Production workshop, Max Planck Institute for Human Cognitive and Brain Science, Leipzig. **Germany**.
- 2011 Tagging the neuronal entrainment to beat and meter with steady-state evoked potentials. Annual ANT Neuromeeeting. **France**.

2010 Tagging the neuronal entrainment to beat and meter with steady-state evoked potentials. Belgian Brain Congress. **Belgium.**

Invited lectures

- 2017 How musical rhythm entrains the human brain, explored with scalp and intracerebral EEG.
Faculty of Psychology, University of Sydney. Australia.
- 2016 How musical rhythm entrains the human brain, explored with scalp and intracerebral EEG.
Institut Neurospin, Paris-Saclay. France.
- 2016 How musical rhythm entrains the human brain, explored with scalp and intracerebral EEG.
Institut de Neurosciences systemes, la Timone, Marseille. France.
- 2016 Frequency-tagging evidence of neural entrainment to musical rhythms.
The Queensland Brain Institute, Queensland University, Brisbane, Australia.
- 2016 Frequency-tagging evidence of neural entrainment to musical rhythms.
The MARCS Institute, Western Sydney University, Sydney, Australia.
- 2015 La synchronisation neurale aux rythmes musicaux: exploration par EEG de surface et intracérébral chez l'homme.
Neurology Department Seminars. **Erasmé University Hospital, ULB, Brussels, Belgium.**
- 2015 Des neurones au rythme de la musique.
International week for the brain (Semaine internationale du Cerveau). Regional Music Conservatory of Grand-Nancy, Nancy, **France.**
- 2015 How musical rhythm entrains the human brain, explored with scalp and intracerebral EEG.
Institute of Neuroscience, UCL, Belgium.
- 2015 How musical rhythm entrains the human brain, explored with scalp and intracerebral EEG.
Auditory Cognition Lab, Neurology Department, Heidelberg University, Germany.
- 2015 How musical rhythm entrains the human brain, explored with scalp and intracerebral EEG.
The Ear Institute, UCL, London, UK.
- 2015 How musical rhythm entrains the human brain, explored with scalp and intracerebral EEG.
Université de Montpellier 1, EuroMov France.
- 2014 How musical rhythm entrains the human brain, explored with scalp and intracerebral EEG.
Institute of Neuroscience, Newcastle University, UK.
- 2014 How musical rhythm entrains the human brain, explored with scalp and intracerebral EEG.
CerCo (CNRS center), Toulouse, France.
- 2014 How musical rhythm entrains the human brain, explored with scalp and intracerebral EEG.
ERC Active Auditory System research network, Oldenburg/Magdeburg. Germany.
- 2013 Music embedded in the brain: ce que musique et neuroscience peuvent apprendre l'une de l'autre.
Solvay Business School, ULB (Brussels), Belgium.
- 2013 Steady-state responses to musical rhythm, as captured with human surface and intracerebral EEG.
KULeuven (Experimental psychology Dept). Belgium.
- 2013 Exploring the neural entrainment to musical rhythms and meter.
University of Nevada Las Vegas (UNLV). USA.
- 2013 Neural entrainment to musical rhythms and meter, as captured with scalp and intracerebral EEG.
BRAMS (Montreal). Canada.
- 2013 Musical rhythms and electrophysiology to explore the neuroscience of perception and action.
Nancy, Université de Lorraine. France.
- 2013 What can music and neuroscience learn from each other?
BEM Management School and School of Economics. Bordeaux. France.
- 2013 Exploring the neural entrainment to musical rhythms and meter. Invited lecture. Lyon Neuroscience Research Center. **France.**
- 2013 Exploring the neural entrainment to musical rhythms.
University of Amsterdam. The Netherlands.
- 2012 From sounds to movements: how the brain builds internal representation of beat. Invited talk. McGill University. **Canada.**
- 2012 From sounds to movement and back: how movement shapes internal representation of musical rhythms.

UCL meets UCL meeting #4 at University College London. UK.

- 2011 Music entrains humans to move, and entrains also their neurons: tagging the neuronal entrainment to the beat with EEG.
Max Planck Institute for Human Cognitive and Brain Science, Leipzig. Germany.
- 2011 Musical rhythms entrain humans to move, but entrain also their neurons.
Institute of Psychoacoustic and Electronic Music (IPEM), Ghent. Belgium.

Poster communications

- 2017 Neurophysiological bases of sensorimotor entrainment to auditory and visual rhythmic stimulations. Varlet M, Nozaradan S, Keller PE. ICON Annual Conference, Amsterdam, **The Netherlands.**
- 2016 Tracing the neural transforms of rhythm in the human auditory system. Australasian Society for Cognitive Neuroscience (ACNS annual conference), Newcastle, **Australia.**
- 2014 Musical entrainment directly recorded in the depth of the frontal, temporal and parietal cortex. Auditory Cortex Conference. Magdeburg, **Germany.**
- 2014 Neural entrainment to musical rhythms in the human auditory cortex, as revealed by intracerebral recordings. ICON, Brisbane. **Australia.**
- 2014 Neural entrainment to musical rhythms in the human auditory cortex, as revealed by intracerebral recordings. Neuromusic Conference, Dijon. **France.**
- 2014 Body movement shapes selectively the neural representation of musical rhythm. Neuromusic Conference, Dijon. **France.**
- 2014 Neural entrainment to musical rhythms in the human auditory cortex, as revealed by intracerebral recordings. ICCN, Berlin. **Germany.**
- 2013 From sounds to movement and back: how movement shapes neural representation of musical rhythms (Chemin, Mouraux, Nozaradan). Belgian Society for Neuroscience. **Belgium.**
- 2012 Capturing the neuronal entrainment and coupling underlying sensorimotor integration while moving to the beat. Nozaradan S, Peretz I, Mouraux A. Society for Neuroscience (SfN), New Orleans. **USA.**
- 2012 Selective neuronal entrainment to beat and meter embedded in a musical rhythm. Nozaradan S, Peretz I, Mouraux A. Auditory Cortex Conference, Lausanne. **Switzerland.**
- 2011 Tagging the neuronal entrainment to beat and meter. Nozaradan S, Peretz I, Mouraux A. Neurosciences and Music Conference, Edinburgh. **UK.**
- 2010 Feeling the beat from ears and eyes: using EEG frequency-tagging to measure audiovisual interaction in beat perception. Nozaradan S, Peretz I, Missal M, Mouraux A. SfN, San Diego. **USA.**
- 2010 Tagging the neuronal entrainment to beat and meter with steady-state evoked potentials. Nozaradan S, Peretz I, Missal M, Mouraux A. Belgian Brain Congress, Brussels. **Belgium.**
- 2010 Nociceptive steady-state evoked potentials elicited by the periodic thermal activation of nociceptors. Mouraux A, Iannetti GD, Colon E, Nozaradan S, Legrain V, Plaghki L. Belgian Brain Congress. **Belgium.**
- 2010 Dancing to the beat: Measures of musical beat-finding in perception and action. Phillips-Silver J, Toiviainen P, Gosselin N, Piché O, Nozaradan S, Peretz I. Cognitive Neuroscience Society (CNS), Montreal. **Canada.**

TEACHING ACTIVITIES

Academic: science

- 2016-2017 Lecturer "Physiology of Hearing", Faculty of Psychology, UCL. Belgium.
- 2016-2017 Lecturer "Introduction to Cognitive Neuroscience", Mater in Research, Western Sydney University, Australia.
- 2015-2016 Lecturer "Physiology of Hearing", Faculty of Psychology, UCL. Belgium.
- 2012-2014 Invited lecturer "What can music and neuroscience learn from each other?", Postgraduate Degree, Economics of Sport and Culture, BEM Management School, Bordeaux. France.
- 2010-2013 "Question approfondies de neuropsychologie", M.Sc. Psychology. UCL. Belgium.
- 2009-2011 Research assistant in Neurophysiology (*travaux pratiques*). Faculty of Medicine. UCL. Belgium. Topic: neurophysiology of motor control.

Supervision of postgraduate, graduate students, and research assistants

PhD student advisor:

- 2016-2019 Tomas Lenc (primary supervisor, Western Sydney University, Australia).
2016-2019 Cecile Bouvet (auxilliary supervisor, Western Sydney University, Australia; Montpellier Univ., France)
2017-2020 Patti Nijhuis (auxiliary supervisor, Western Sydney University, Australia)

Research assistant supervision:

- 2017 Caitlin Hooper (Western Sydney University, Australia).
2016 Dr. Vincent Aubanel (Western Sydney University, Australia).

PhD thesis committee member of

- 2013-2017 David Georghiev (UCL, Belgium).
2013-2017 Athanasia Mougou (UCL, Belgium).
2014-2018 Baptiste Chemin (UCL, Belgium; Université de Montréal, Canada).

Master thesis committee member and supervision of graduate students:

- 2011-2014 Baptiste Chemin (Medical School, UCL, Belgium).
2015-2019 Paolo Boghos (Medical School, UCL, Belgium).

Artistic: music

- 2000 - *present* Music and piano teaching. In non-profit organisms and private classes.
1999 - *present* Piano solo and chamber music performances in duo piano-violin, piano-percussions, two pianos (Belgium, Holland, France, Hungary, etc.). Classic and contemporary music repertoire.

SERVICE TO THE COMMUNITY

Science

Reviewer for national and international research funding agencies:

- The European Commission Research Council (ERC)
The National Research Agency (ANR), France: ANR Collaborative Research Projects
The Australian Research Council (ARC), Australia: Discovery Awards

Reviewer for international peer-reviewed journals:

- | | |
|-----------------------------------|--------------------------------------------------|
| The Journal of Neuroscience | Plos One |
| Scientific Reports | The Journal of the Acoustical Society of America |
| Journal of Cognitive Neuroscience | PsychoPhysiology |
| European Journal of Neuroscience | BioPsychology |
| NeuroImage | Frontiers in Psychology |
| Cortex | Time |
| Brain Topography | Music Perception |
| Experimental Brain Research | Philosophical Transaction B |

Organisation of scientific meetings

- 2009 Co-organizer of the workshop "Synchronization in music and speech". Sponsored by the National Fund for Scientific Research (FNRS). ULB. Belgium.
Organizing committee: Prof. Régine Kolinsky (ULB, Belgium), Dr. Pascale Lidji (McGill University, Montreal), Dr. Sylvie Nozaradan (UCL, Belgium, BRAMS, Montreal), Prof. Isabelle Peretz (BRAMS, UdeM, Montreal), ULB, Brussels, Belgium.

Media

- 2016 Interview for "CQFD" for "La semaine du cerveau". Radio-Télévision Suisse, Switzerland.
- 2015 TV documentary "Matière grise". RTBF. Belgium
- 2015 Invited lecture for large public audience, International week for the brain (Semaine du Cerveau), Nancy, France.
- 2014 Documentary "Voyage dans l'esprit du chercheur", UCL-Culture Production. UCL. Belgium.
- 2013 Invited lecture "Biological foundations of music". Ars Musica, Annual Festival of Contemporary Music. Belgium.
- 2012 TV documentary "Rhythm and the brain" (Bord de l'Eau Production). Taiwan-France.
- 2012 Invited lecture. "Neuroscience and music". High school Lycée Martin V, Louvain-la-Neuve. Belgium.
- 2015 TV report "Matières grises" (RTBF production). Belgium.
- 2012 - *present* Frequent articles in the written and radio media (Le Soir, La Libre Belgique, Le Journal du Médecin, Neurone, RTBF, etc.).