

## **Luan C. Tonelli, PhD**

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### **EDUCATION & TRAINING**

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**Postdoctoral Research Associate**, University of Connecticut, Department of Speech, Language and Hearing Sciences (SLHS) and Brain Imaging Research Center (BIRC), USA. (2021 – 2024).

**Postdoctoral Research Associate**, University of Connecticut, Department of Psychological Sciences, USA. (2020 – 2021).

**Postdoctoral Research Associate**, University of Connecticut, Department of Psychological Sciences, Biomedical Engineering and Elemind Technology, USA. (2019 – 2021)

**Ph.D., Neuroscience**, Philipps – University of Marburg, Experimental and Physiological Psychology, Marburg, Germany. (2014-2018)

**Master's Degree**. Erasmus Studies at Faculty of Sport Sciences and Physical Education, Coimbra, Portugal. (2012-2013)

**B.S.** Physical Education - Health and Exercise Sciences Mode; Federal University of São Paulo, Brazil. (2009-2014)

### **TEACHING EXPERIENCE**

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**Trinity College – USA**; Visiting Assistance Professor – Psychological and Neuroscience Departments.

- **Brain and Behavior – PSYC 261**
- **Drugs and Behavior – PSYC 265**
- **Neuropsychopharmacology – NESC 364/PSYC 365**
- **NeuroFrontiers of Neurological Disorders – NEW COURSE**

**University of Connecticut – USA**; SLHS-4245 – Teaching Assistant – Neuroscience of Cognitive and Communication Disorders (Fall 2023).

- This is a four-credit class tailored to explore the neurological underpinnings of various cognitive and communication disorders. How disruptions in normal brain function can lead to specific deficits in cognition, language, and communication. This course integrates principles from neuroscience, psychology, and speech-language pathology to provide a multidisciplinary perspective on disorders such as aphasia, dementia, autism spectrum disorders, and dyslexia.
- The curriculum is structured to not only impart theoretical knowledge but also to foster practical understanding through case studies, current research methods, and interaction with affected individuals when possible.

**University of Connecticut – USA**; SLHS-2003 – Teaching Assistant - Anatomy and Physiology of Speech and Hearing (Spring 2022, Spring 2023).

- This is a three-credit class in anatomy and physiology. This course is customized for students in the clinical sciences and aims to promote advanced knowledge of the anatomical structures and physiological mechanisms that give rise to respiration, phonation, swallowing, hearing, and neural processing. The course emphasizes both basic and applied aspects of topics in anatomy and physiology.
- Course preparation: syllabus and exam preparation and providing feedback on student work (grading).

**University of Connecticut – USA**; SLHS-5337 – Guest Lecture – Clinical Practicum - **Research Methods on neuroimaging** (Spring 2023).

- This Clinical Practicum lecture focuses on Research Methods in Neuroimaging, offering students hands-on experience in the latest neuroimaging techniques and their applications in clinical research. The lecture is designed to bridge the gap between theoretical neuroimaging concepts and their practical application in clinical settings. This course is ideal for those pursuing careers in neuroscience research, clinical psychology, or neurology, who seek to deepen their understanding and practical skills in neuroimaging methodologies.
- Course preparation: syllabus and exam preparation and providing feedback on student work (grading).

**University of Mary Hardin-Baylor** – USA; Guest Lecturer for the School of Exercise and Sport Science (2021, 2022).

- Team Liaison Officer – Lectured on the globalization of sport, required competencies, and provided a Christian perspective of working for a global sport organization during the FIFA World cup 2014, Brazil.

**University of Connecticut** – USA; Guest Lecturer - PSYC 5200 - Behavioral Neuroscience Seminar.

- Seminar focused on neurobiological aspects of behavior. From animal to human science.
- Class preparation, quizzes and Q&R sessions.

**University of Connecticut** – USA; Supervising and training undergrad and grad students – Bachelor’s, Master’s and PhD program in the Department of Psychological Sciences (Jan 2019 – 2020).

- Laboratory and technical surgery practice in anatomy and physiology of rodents.

**University of Marburg** – Germany; Teaching Assistant – Seminar of biopharmacology (2015 - 2016).

- Seminar instructed to undergrad students on basic concepts of biology and chemistry to determine how drugs affect the organism and its perspective in comprehending how cells, organs and organism function.

**Federal University of São Paulo** – Brazil; Teaching Assistant of practical laboratory classes of Human Anatomy and Physiology (2011- 2012).

- Led classes on practical anatomy through cadaver dissection and exploration of anatomical structures

## **EMPLOYMENT & RESEARCH EXPERIENCE**

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**University of Connecticut – Department of Speech, Language, and Hearing Sciences**

**United States**  
2021-Present

*Postdoctoral Research Associate with Dr. Erika Skoe (Fund by National Science Foundation - NSF)*

- Investigating auditory brain mechanisms, plasticity and behavioral relevance of the neural encoding of sound related to functional (EEG-FFR) and structural (MRI) changes in the central auditory system (CAS).
- Investigating neural oscillation (Gamma waves) related to the pathogenesis of Alzheimer’s disease and Schizophrenia.
- Aging and Presbycusis – Neuroanatomical Analysis of the myelination of the cochlear nerve.
- National Science Foundation research proposal (writing protocols, annual reports and grant extension)
- Contact with patient care, clinicians, medical experts and investigators.
- Providing scientific training on research protocols and clinical examinations (Hearing tests, EEG and MRI);

**University of Connecticut - Department of Psychological Sciences and Biomedical Engineering.**

**United States**  
2019-2021

*Postdoctoral Research Associate with Dr. Heather Read (Fund by UConn Internal Grant)*

- Used novel neuromodulation techniques - Brain Computer Interface (BCI) through EEG - to shape brainwaves and change brain states. A study to ultimately understand and improve overall sleep disorders.
- Established, developed, and maintained relationships with clinical research investigators, medical experts and Key Opinion Leader (KOL).

- Served as a liaison to Elemind Technologies providing feedback and insights related to experiment results, product efficiency and study execution.
- Established and maintained strong collaborations with Investigators and subject recruitment.

**University of Connecticut - Department of Psychological Sciences.**

**United States**  
2020-2021

*Postdoctoral Researcher with Dr. John Salamone (Fund by National Institutes of Health – NIH)*

- Identified frontal cortex EEG biomarkers associated with physical effort-based instrumental behaviors.
- Examined neurophysiological, neurochemical, and behavioral data to explore rodent models of motivational dysfunction.
- Stereotaxic surgery, EEG and ECOG brain implantations in rodents.
- Responsible for supervising, training and mentoring graduate students in how to perform animal brain surgery and EEG and ECOG implantation.

**Philipps University of Marburg – Department of Psychology**

**Germany**  
2014-2018

*Ph.D. Candidate with Dr. Rainer Schwarting & Liana Melo-Thomas*

- Studied preclinical animal model of neurobiological mechanisms of Parkinson’s disease.
- Dissertation: “A new animal model of paradoxical kinesia induced by 50-kHz ultrasonic vocalizations playback in rats: implications of the inferior colliculus”.
- Taught Biopharmacology class and supervised students.
- Organized seminars, lectures and scientific events.

**University of Coimbra - Faculty of Sport Sciences and Physical Education and Department of Pharmacology and Experimental Therapeutics; IBILI - Faculty of Medicine.**

**Portugal**  
2012-2013

*Research Assistant with Dr. Paula Tavares*

- Investigated the mechanisms underlying the modulation of fiber muscle type (II) to the type (I) induced by exercise.

**Federal University of São Paulo – Department of Neuroscience & Sports Sciences**

**Brazil**  
2009-2011

*Research Assistant with Dr. Ronaldo T. Dos Santos*

- Studied the role of the glutamatergic receptors in the inferior colliculus in the catalepsy induced by haloperidol in rodents.
- Investigated the effects of sport games on balance and physical skills of elderly obese women.

## **PUBLISHED SCHOLARLY ARTICLES**

- **Tonelli LC**, Tichcko P, Skoe E. Revisiting the 40-Hz Gamma response: Phase-locked Neural Activity Along the Human Auditory Pathway Relates to Bilingual Experience. *Brain and Language* (<http://dx.doi.org/10.2139/ssrn.4599987>).
- **Tonelli LC**, Melo-Thomas L, Wöhr M, Müller C, Schwarting R. Playback of 50-kHz ultrasonic vocalizations overcomes psychomotor deficits induced by sub-chronic haloperidol treatment in rats”. *Psychopharmacology*. 2020 May 18. <https://pubmed.ncbi.nlm.nih.gov/32419116/>
- **Tonelli LC**, Wöhr M, Schwarting R, Melo-Thomas L. Paradoxical kinesia induced by appetitive 50-kHz ultrasonic vocalizations in rats depends on glutamatergic mechanisms in the inferior colliculus. *Neuropharmacology*. 2018 Mar 14;135:172-179. <https://pubmed.ncbi.nlm.nih.gov/29550392/>
- **Tonelli LC**, Wöhr M, Schwarting R, Melo-Thomas L. Awakenings in rats by ultrasounds: A new animal model for paradoxical kinesia. *Behav Brain Res*. 2018 Jan 337;204-209. <https://pubmed.ncbi.nlm.nih.gov/28916501/>

- **Tonelli LC**, Wöhr M, Schwarting R, Melo-Thomas L. Awakenings in Cataleptic rats by ultrasounds: A new animal model for paradoxical kinesia and its possible mechanisms. *European Neuropsychopharmacology* 27 (4), S687-687. <https://portal.findresearcher.sdu.dk/en/publications/awakenings-in-cataleptic-rats-by-ultrasounds-a-new-animal-model-f>
- Medeiros P, Viana MB, Barbosa-Silva RC, **Tonelli LC**, Melo-Thomas L. Glutamatergic neurotransmission in the inferior colliculus influences intrastriatal haloperidol-induced catalepsy. *Behav Brain Res.* 2014 Jul 15;268:8-13. <https://pubmed.ncbi.nlm.nih.gov/24667361/>
- **Tonelli LC**, Wöhr M, Schwarting R, Melo-Thomas L. “P.2.008 - Paradoxical kinesia induced by appetitive 50-kHz ultrasonic vocalisations in rats depends on glutamatergic mechanisms in the inferior colliculus”. *European Neuropsychopharmacology*, Volume 28, Supplement 1, March 2018, Pages S26-27. <https://www.sciencedirect.com/science/article/abs/pii/S0924977X17320771>
- Moretto, D., Pinto-Pereira, S., **Tonelli, L.**, Lopes, A., Paiva, A., André, A., Fontes Ribeiro, C. A, Tavares, P., Characterization of skeletal muscle fiber type changes induced by aerobic exercise in rat soleus muscle. *Medicine and Science in Sports and Exercise* 45 (5), 176-176. [https://www.researchgate.net/publication/257141189\\_Characterization\\_of\\_Skeletal\\_Muscle\\_Fiber\\_Type\\_Changes\\_Induced\\_by\\_Aerobic\\_Exercise\\_in\\_Rat\\_Soleus\\_Muscle](https://www.researchgate.net/publication/257141189_Characterization_of_Skeletal_Muscle_Fiber_Type_Changes_Induced_by_Aerobic_Exercise_in_Rat_Soleus_Muscle)
- Tavares, P., Pinto-Pereira, S., Moretto, D., Lopes, A., Paiva, A., **Tonelli, L.**, André, A., Fontes Ribeiro, C. A, “The influence of aerobic exercise on the number and differentiation of blood rat endothelium progenitor cells (EPC s)”. *J Tissue Eng Regen Med*, Volume 6, Supplement 2, October, 2012, Pages 8-39. [https://www.uc.pt/en/fcdef/Research/CIDAF\\_2/Publications\\_2/International\\_referee\\_impact\\_factor](https://www.uc.pt/en/fcdef/Research/CIDAF_2/Publications_2/International_referee_impact_factor)

## **MANUSCRIPT UNDER REVIEW**

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- **Tonelli LC**, T. Parker, Skoe. E. Revisiting the 40-Hz gamma response: Phase-locked neural activity along the human auditory pathway relates to bilingual experience. (*Under review – Brain and Language*).
- DA Silva ET, **Tonelli LC**, Dos Santos RVT. Does probiotic supplementation attenuate mood and affect serotonin level after marathon race? (*Under review – European Journal of Sport Science*).
- Silvestre JC, **Tonelli LC**, Tufik S, Thomatieli-Santos R. Effects of beta-alanine supplementation on sleep and perceived exertion in Crossfit® practitioners: A randomized, double-blind clinical study (*Under review – Nutrition*)
- **Tonelli LC**, Lerud KD, Mechtenberg H, Myers E, Skoe. E. Automated Segmentation of Brainstem, Midbrain, Thalamus, and Auditory Cortex: Test-Retest Reliability and Comparison to Manual Segmentation. (*In preparation*).

## **HONORS AND AWARDS**

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- Associate for Research and Otolaryngology (ARO) **Travel Award** for presentation on *Automated Segmentation of Brainstem, Midbrain, Thalamus, and Auditory Cortex: Test-Retest Reliability and Comparison to Manual Segmentation*. February – 2023. Orlando, FL – USA
- Scholarship for **Full Doctorate** – Coordination for the Improvement of Higher Education Personnel (CAPES); 2014 - 2018, Brazil – Germany.
- **IBNS Travel Awards 2018** for “Glutamatergic mechanisms in the inferior colliculus play a key role in paradoxical kinesia induced by appetitive 50-kHz ultrasonic vocalizations in rats”. June – 2018, Florida, United States of America.
- Award Junior Scientist in Europe by the **ECNP Workshop** on Neuropsychopharmacology. March – 2018, Nice, France.
- Award best poster presentation at the “**Donders Discussion 2017**” "Awakenings in cataleptic rats by ultrasounds: a new animal model for paradoxical kinesia and its possible”. October – 2017, Nijmegen,

Netherlands.

- **ECNP Travel Award 2017** for "Awakenings in cataleptic rats by ultrasounds: a new animal model for paradoxical kinesis and its possible. September – 2017, Paris, France.
- Award by the **German neuroscience society for young investigator** at the 12<sup>th</sup> Göttingen Meeting of the German Neuroscience Society. Oral talk presented on "*Parkinsonian rats respond to ultrasonic vocalizations: a new animal model of paradoxical kinesis*". March – 2016, Göttingen, Germany.
- Scholarship for **Erasmus researcher** – Santander Bank; 2012 – 2013, Brazil – Portugal.
- Scholarship for **Beginner researcher** – São Paulo Research Foundation (FAPESP); 2011 – 2012, Brazil.

#### **ORAL PRESENTATIONS (over 10 + presentations – most important)**

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- **Tonelli, L.C.**, "Individual differences in frequency-dependent fluctuations in the FFR amplitude". **Frequency-Followed Response - FFR workshop**. June – 2022, Barcelona, Spain.
- **Tonelli, L.C.**, Wöhr, M., Schwarting, R.K., Melo-Thomas, L, "Glutamatergic mechanisms in the inferior colliculus play a key role in paradoxical kinesis induced by appetitive 50-kHz ultrasonic vocalizations in rats". **In Symposium**: Social neuroscience in rodents: Neural foundations and clinical implications. International behavioral Neuroscience Society – IBNS. June – 2018, Florida, USA.
- **Tonelli, L.C.**, Wöhr, M., Schwarting, R.K., Melo-Thomas, L, "Glutamatergic mechanisms in the inferior colliculus play a key role in paradoxical kinesis induced by appetitive 50-kHz ultrasonic vocalizations in rats". **In Travel Award Blitz**. International behavioral Neuroscience Society – IBNS. June – 2018, Florida, USA.
- **Tonelli, L.C.**, Wöhr, M., Schwarting, R.K., Melo-Thomas, L, "Parkinsonian rats respond to ultrasonic vocalizations: a new animal model of paradoxical kinesis". 12<sup>th</sup> Göttingen Meeting of the German Neuroscience Society. March – 2016, Göttingen, Germany.
- **Tonelli, L.C.**, Wöhr, M., Schwarting, R.K., Melo-Thomas, L, "The influence of auditory stimulation on motor impairments in an animal model of parkinsonism". Seminar for PhD students from Brazil. September – 2015, Bonn, Germany.

#### **POSTER PUBLICATIONS (over 20 + presentations – most important)**

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- **Tonelli, L.**, Karl D. Lerud, Hannah Mechtenberg, Emily Myers and Erika Skoe. "Automated Segmentation of Brainstem, Midbrain, Thalamus, and Auditory Cortex: Test-Retest Reliability and Comparison to Manual Segmentation". (ARO) February – 2023. Orlando, FL – USA
- **Tonelli, L.C.**, Wöhr, M., Schwarting, R.K., Melo-Thomas, L, "Glutamatergic mechanisms in the inferior colliculus play a key role in paradoxical kinesis induced by appetitive 50-kHz ultrasonic vocalizations in rats". International behavioral Neuroscience Society – IBNS. June – 2018, Florida, USA.
- **Tonelli, L.C.**, Wöhr, M., Schwarting, R.K., Melo-Thomas, "50-kHz ultrasonic vocalizations can induce paradoxical kinesis in cataleptic rats: A new animal model and its possible mechanisms". Society for Neuroscience – SfN. November – 2017, Washington. USA.
- **Tonelli, L.C.**, Wöhr, M., Schwarting, R.K., Melo-Thomas, L, "Awakenings in cataleptic rats by ultrasounds: a new animal model for paradoxical kinesis and its possible mechanism". Donders Discussion. October – 2017, Nijmegen, Netherlands.
- **Tonelli, L.C.**, Wöhr, M., Schwarting, R.K., Melo-Thomas, L, "Awakenings in cataleptic rats by ultrasounds: a new animal model for paradoxical kinesis and its possible mechanism". ECNP Travel award 2017 September – 2017, Paris, France.

- **Tonelli, L.C.**, Wöhr, M., Schwarting, R.K., Melo-Thomas, L, “Awakenings in cataleptic rats by ultrasounds: a new animal model for paradoxical kinesis and its possible mechanisms”. International behavioral Neuroscience Society – IBNS. June – 2017, Hiroshima, Japan.
- **Tonelli, L.C.**, Wöhr, M., Schwarting, R.K., Melo-Thomas, “Ultrasonic vocalizations release catalepsy in rats: a new animal model of paradoxical kinesis”. *13th International Conference on Alzheimer's & Parkinson's Diseases – ADPD*, March – 2017, Vienna, Austria.
- **Tonelli, L.C.**, Wöhr, M., Schwarting, R.K., Melo-Thomas, L, “The influence of auditory stimulation on motor impairments in an animal model of parkinsonism”. Seminar for PhD students from Brazil. September – 2015, Bonn, Germany.

## **MENTORING EXPERIENCE**

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- **University of Connecticut (CAPSTONE project):** Mary Lewis and Alexandra Moody (Fall 2023 – present): Utilizing MRI CISS Sequences for Imaging Cranial Nerves: The Challenges and Significance of 8th Nerve Imaging in Clinical and Non-Clinical Research Settings.
- **Federal University of São Paulo (PhD candidate):** Jean Carlos Silvestre (August 2019 – present): Does chronic  $\beta$ -alanine supplementation improve physical performance and recovery in CrossFit athletes? A double-blind, randomized, controlled study.
- **University of Connecticut (PhD candidate):** Samantha Marques (January 2019 – 2020): Understanding the mechanisms of sleep and how it can be modulated via closed-loop of auditory stimulation through EEG technology.
- **University of Connecticut (Master candidate):** Kasey Smith (January 2019 – 2020): Chirurgical brain implantation of electrodes in rodents for mapping the auditory cortex.