Dimitri L. Brunelle

Curriculum Vitae

Contact Information

2514 Beckman Institute
405 N. Mathews Ave
Urbana, IL 61801

email: dimitri9@illinois.edu
cell: (813) 703-5354
UIUC Profile | Llano Lab Page | Google Scholar

Education

2022-present Ph.D., Neuroscience, University of Illinois at Urbana-Champaign

2017-2021 B.A., Psychology; *Honors*; University of South Florida

Undergraduate Honors Thesis: "Towards a Neural Representation of Music-Language Overlap: The Harmonic Prediction Violation Norming Model."

Grants and Awards

USF Psychology Honors Graduate, 2021
PAR Scholarship for Excellence in Psychology Recipient, 2021
Psi Chi International Honor Society in Psychology Undergraduate Research Grant, 2020-2021
Florida Bright Futures Academic Scholar, 2017-2021

Research Experience

Graduate Research Assistant to Dr. Daniel A. Llano, University of Illinois at Urbana-Champaign (Neuroscience Program, Dept. of Molecular and Integrative Physiology), August 2022 – present

Studying the functional connectivity of thalamocortical circuitry and the thalamic reticular nucleus in the auditory system. Currently learning techniques involving slice physiology and patch clamp electrophysiology.

Research Intern to Dr. Joseph P. Walton, University of South Florida (Dept. of Communication Sciences and Disorders, Dept. of Medical Engineering), April 2018 – August 2022

Undergraduate Research Assistant Volunteer, April 2018 – January 2019

Researched neural assays of tinnitus and age-related hearing loss in the mouse model within the Global Center for Hearing and Speech Research auditory neuroscience laboratory. Conducted experiments involving autonomic behavior and operant conditioning utilizing MATLAB software.

Lead Research Assistant Supervisor (paid), January 2019 – April 2021

Oversaw all aspects of the behavioral research subdivision of the laboratory. Managed 20+ research assistants, scheduled experiments performed on a weekly basis, and analyzed and interpreted the data with R. Conducted experiments involving evoked potentials (auditory brainstem responses and auditory steady-state responses).

Research Specialist (paid), April 2021 – August 2022

Conducted experiments involving extra-cellular electrophysiology. Constructed novel behavioral assessments for signal-in-noise detection in the mouse model. Developed a robust machine learning algorithm for classification of the acoustic startle reflex. Wrote analysis software for behavioral and active avoidance apparatuses with R.

Research Assistant to Dr. Elizabeth R. Schotter*,* University of South Florida (Dept. of Psychology), April 2019 – July 2021

Undergraduate Research Assistant Volunteer, April 2019 – July 2021

Researched preview benefit related to eye movements, and semantic and plausibility parafoveal processing during natural reading within the Eye Movements and Cognition laboratory. Conducted experiments working with human participants involving eye-tracking, electroencephalography, and plausibility and cloze norming.

Honors Thesis Mentee, January 2020 – January 2021

Researched the neuro-cognitive overlap in prediction between music and language. Developed a harmonic cloze norming model that enables musical and linguistic prediction to be studied in analogous ways.

Manuscripts

Fawcett, T. et al. including D.L. Brunelle. "Universal Automated Classification of the Acoustic Startle Reflex with Machine Learning." (In review).

D.L. Brunelle. "Age-Related Changes of Behavioral Tone-in-Noise Detection in a Mouse Model." (In progress).

Journal Reviews

European Journal of Neuroscience.

Presentations

"Detecting Tinnitus in Mice: Proof of Concept using an Active Avoidance Paradigm."
USF Undergraduate Research Conference, Tampa, FL, April 2019

"Comparing Silent vs. Oral Reading: Duration and Accuracy Using Parafoveal Vision."
Florida Psycholinguistics Meeting, Miami, FL and USF Psychology Expo, Tampa, FL, November 2019

"A Melodic Plausibility and Cloze Norming Model."
Florida Psycholinguistics Meeting (virtual conference), October 2020

"Exposure to an Augmented Acoustic Environment Improves Signal-in-Noise Detection in Old CBA/CaJ Mice."
Association for Research in Otolaryngology Midwinter Meeting (virtual conference) and USF Undergraduate Research Conference (virtual conference), February 2021

"Age Related Changes in Signal-in-Noise Perception Assessed by Modification of the Startle Reflex Response."
Association for Research in Otolaryngology Midwinter Meeting (virtual conference), February 2021

"Exposure to a Multi-Frequency Signal-in-Noise Augmented Acoustic Environment Improves Signal-in-Noise Detection in Aged CBA/CaJ Mice."
Association for Research in Otolaryngology Midwinter Meeting (virtual conference), February 2022

"Neural Correlates of Signal-in-Noise Processing Improve Following Treatment with a Targeted Augmented Acoustic Environment: A Behavioral and Physiological Approach."
USF Health Research Day, Tampa, FL, February 2022 and USF Undergraduate Research Conference, Tampa, FL, April 2022

Technical Skills

R, Bash, Python, MATLAB, GraphPad Prism, SPSS, Adobe Photoshop

Activities

School of Music Student, University of South Florida, January 2019 – January 2020

> Studied music at the university level for a year. Performed in numerous ensembles both at USF and in the Tampa Bay community. Was an actively performing saxophonist in Tampa Bay.

Volunteer Work

Feeding Tampa Bay, Tampa, FL, August 2020
Participated in providing meals to families-in-need in Tampa Bay.

Carrollwood Winds, Tampa, FL, December 2018 – June 2019
Performed wind ensemble repertoire in a community band for concerts which were free to the public.