

Cognitive Neuroscience

Newsletter

March 14, 2023

Volume 3, Number 1

WELCOME
TO THE M.S. PROGRAM IN
COGNITIVE NEUROSCIENCE

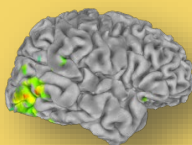
Spring 2023

Students

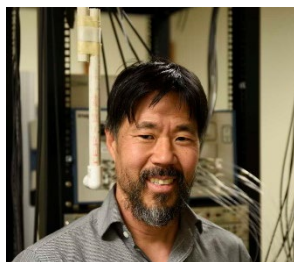
Faculty

Events

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CU NY GRADUATE CENTER



MESSAGE FROM THE DIRECTOR

This edition of the M.S. Program in Cognitive Neuroscience Newsletter features new faculty, the introduction of tutors to some core courses, student research supported by a Research Award, publications, and other remarkable work by faculty and our students, many of whom as in previous years are now being admitted into doctoral programs.

The program continues to expand its faculty roster with the addition of Drs. Sebastian Alvarado, Dina Lipkind, and Wei Wang. Their vast expertise in the field of cognitive neuroscience adds to the program's list of highly regarded faculty members and provides students with exciting opportunities to conduct research in their labs. Some of Drs. Alvarado's, Lipkind's, and Wang's impressive work is featured in this issue.

Beginning this past fall, we introduced peer-tutors into the Statistics and Neuroscience I core courses, and we have two tutors for this spring semester's Neuroscience II core course. The tutors, through their recent firsthand experience, provide an excellent resource to help students navigate the rigors of these more challenging courses. In this newsletter, Ella Gregorio describes some of her experiences in this role.

We are also delighted that Dr. Virginia Garcia Marin is teaching our neuroanatomy course this spring semester. In addition to being an outstanding neuroanatomist, students are singing praises for her teaching style and are eagerly looking forward to the brain dissections that will be performed as part of the course later this semester.

The Diversity, Equity, and Inclusion committee, chaired by Dr. Elizabeth Chua, continues to perform important and groundbreaking work. Beginning this year, in lieu of the former GRE requirement for admissions, applicants now complete a QALMRI statement on a recent journal article published from a faculty member with whom they would like to conduct research. The Admissions Committee looks forward to continuing to admit stellar students into the program with this additional information.

If you would like to have your publications, grants, awards, and other accomplishments included in future newsletters, please respond to the invitation for submissions that will come from our office or visit our website. We encourage you to participate, as it will give way to exciting and successful newsletters to share with current and prospective students.

Tutor Spotlight: Ella Gregorio



This past semester, I was invited to be one of the first peer tutors for Neuroscience I. Being a peer tutor for such a high-impact class was challenging and rewarding. I found myself assisting in recitation, answering discussion board questions, and providing one-on-one support to students as needed. Peer tutoring proved to be valuable: Students expressed that having access to people who had already taken the class was particularly useful when they had lingering questions after reviewing lecture material. People who take Neuroscience I come from an impressively diverse set of backgrounds, ranging from computer sciences to physics to psychology. Hiring individuals who have already taken the class and can communicate the requirements for success, or even people who have a strong background in education, teaching, and compassionate pedagogy, makes it possible to meet the needs of a diverse class more effectively. In the domain of neuroscience, the study of learning and memory is one of the pillars of the field, providing informed support to encourage efficient learning in these foundational courses seems only right.

Exploring the brain and space: Nikki Gerohristodoulos



I consider myself someone who will always be a student. This began while I conducted research in a VR lunar psychophysics lab while getting my undergraduate degree in Brain Sciences. I had found what I was passionate about; however, as graduation day approached, I felt slightly envious of my classmates that knew exactly what their next steps were. When I took my time to think about what I had studied, I realized that there are two things I find more fascinating than anything else: the brain and space. A need to explore the unknown, to investigate the conscious human experience and to push science forward with people who feel the same way about neuroscience as I do is what drew me to this master's program. My first academic year helped me developed a strong background in cognition and perception. While this was fulfilling, I still needed something separate from neuroscience. I was selected as an intern at NASA Johnson Space Center to work with a team on developing ways for astronauts to be more autonomous on deep space missions, specifically using virtual and augmented realities. Now while I work in the Ro Lab, I hope to fill the current gaps in literature regarding VR, neurophysiology, and space science by investigating the experience of VR environments, specifically a simulation of the International Space Station. This path may not have been obvious to me when I first started, but now that I have, I feel so passionately about it that I do not see how anyone does anything else.

Brainwaves, Memory, and Reward: Rebecca McCune



Reward is an important motivational device for improving learning and memory, including declarative memory (i.e., general knowledge), which is a key component of classroom education. Traditionally, rewards are only given to reinforce accurate responses. However, this may discourage students from making attempts at difficult questions where the likelihood of being accurate is perceived to be low. Yet, research shows that when people actively generate effortful responses, even if the responses are wrong, they are more likely to learn the content (from feedback) than if they are passive learners. Our research asks: what if we reward students, not only for correct responses but also for "effortful" or "close" incorrect answers? Does a reward structure that incentivizes engagement with difficult material, through intermittent rewards to effortful incorrect answers, ultimately improve error correction and learning? If so, why? This is the question that 2nd year Cognitive Neuroscience master's student Rebecca McCune is researching under the mentorship of Dr. Jennifer Mangels in the Dynamic Learning Lab at Baruch College. As a recipient of the research award, Rebecca plans to use the funds for equipment to conduct electroencephalography (EEG) as well providing financial incentive within the study design itself for her thesis "Brainwaves, Memory and Reward."

Dr. Klara Marton's Recent Grants



Drs. Klara Marton (CUNY & ELTE; P.I.) and Bence Kas (ELTE; Co-P.I.) have received a 4-year grant from the Hungarian Academy of Sciences for a study that aims to identify children with language learning difficulties among those who are at high risk of failure or drop-out from school and to distinguish between children with language differences (e.g., low proficient bilingual children) and those with developmental language disorder (DLD).

A PSC-CUNY grant was also awarded to Dr. Klara Marton (P.I.) to develop a new classification approach for English-language learners and bilingual children with language disorder. Both studies will test the hypothesis that measures of cognitive control functions better distinguish between children with language differences and disorders than the traditional language tests.

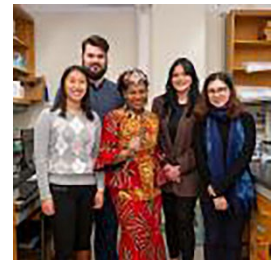
Reflections From a Recent Graduate: Tikva Nabatian



The Cognitive Neuroscience program has given me the opportunity to engage with graduate level neuroscience courses alongside doctoral students, while also supporting my thesis research through the available research awards and workshops aimed at guiding students through the process of writing and submitting a thesis. These opportunities have fostered the development of skills necessary to succeed in a career in research or future doctoral study. When I started the program, I had a general sense of what areas of neuroscience I was interested in, but through the core courses and electives offered, I was able to hone in on the specific fields of research I am most interested in. Working on my thesis has greatly expanded my capacity and efficiency for independent research, analysis, and writing. I was supported along the way by mentors and staff at the program while working independently on the project, allowing me to develop and recognize the ways in which I work best and to cultivate time-management skills. My advice for students planning on submitting their theses soon is to make a detailed plan for when they will be working on each part of the thesis, since I found it challenging at first to know how to pace writing throughout the semester to allow me time for editing and improving the writing, while also finishing up my course requirements. Overall, my time as a student here has given me the necessary skills to succeed in a career in research. I look forward to my future as a neuroscientist being guided by the tools I have gained from the program.

Congolese Royalty Visits to Look at African Cichlid Research: Dr. Sebastian Alvarado & Anastasia Martashvili

On November 30th, Queen Diambi Kabatusuila Tshiyoyo Muata paid a visit to Queens College to learn about the behavioral neuroscience and ecology taking place in the Alvarado Lab. During her visit, Queen Diambi discussed ongoing fieldwork on Lake Tanganyika, which borders the Democratic Republic of Congo, Zambia, Burundi, and Tanzania. Her visit even included the live birth of a few dozen fry from a mouthbrooding mother. Queen Diambi spoke with Cognitive Neuroscience Master's student Anastasia Martashvili, who is currently investigating how visual ecology can shape female mate preference in the African cichlid, *Astatotilapia burtoni*. This visit highlighted many of the ways in which Lake Tanganyika and the Congo River Basin remain largely unexplored and how seasonal changes in the region are shaping both the coloration and behavioral profiles of cichlid fish. This is particularly important for Ms. Martashvili's work, for which the Graduate Center has awarded her a research grant. Queen Diambi's visit included a tour of Queens College labs followed by a reception in Rosenthal Library emphasizing the importance of collaboration across borders and the broad challenges of climate change. The Alvarado Lab and its research program leverage these natural changes in seasonal biology to understand how phenotypic plasticity can be shaped by epigenetic changes, broadly speaking. Cichlid fish are an emerging model family in the study of neurobiology, as behavior and morphology have been two hallmarks driving their rapid speciation in the Great African East Rift Lakes.



**M.S. Program in Cognitive Neuroscience Ombuds:
Dr. Peter Serrano**



The Graduate Center currently has an [Ombuds Office](#), open to all students, faculty, staff, and administrators at The Graduate Center. However, some students may feel more comfortable speaking with a faculty member who is familiar with our program. Consequently, Dr. [Peter Serrano](#) has recently been appointed as the M.S. Program in Cognitive Neuroscience's ombuds! As Ombuds, Dr. Serrano is a confidential, impartial person for our students to speak with about problems related to working or studying at The Graduate Center, including matters regarding grade disagreements, tuition, interpersonal conflicts, safety concerns, professional/scientific misconduct, etc. Students are welcome to contact him directly via [email](#).

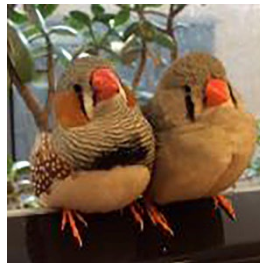
Leveraging Data Science for Cognitive Neuroscience Research

Dr. Wei Wang, our newest faculty member in the Program, conducts research in conjunction with data science and cognitive neuroscience. Wang is an Associate Professor of Psychology at the CUNY Graduate Center and leads the Computational Psychology Lab (<https://www.computationalpsychology.org/>). His lab is particularly interested in how sophisticated computational modeling—combining cognitive neuroscience—may advance our understanding of many critical psychological problems, such as intelligence, emotional intelligence, autistic spectrum disorders (ASD), leadership, etc. With funding support from National Science Foundation (NSF), the current research projects in his lab leverage eye-tracking and electroencephalogram (EEG) techniques and various machine-learning models to pinpoint emotional regulation abilities and aggression personality traits. The lab is also currently working to collect eye-tracking and EEG data from ASD individuals to explore neurodiversity in both school settings and the workplace.



Dr. Wang's lab constantly seeks graduate research assistants, providing supervision opportunities for thesis advisement. Interested students are welcome to contact him directly via his email address wwang@gc.cuny.edu.

Learning complex vocal skills in animals and humans




Animals and humans have a remarkable capacity to learn complex skills, from using tools to performing intricate vocalizations. Learning a new skill is a challenging task that often requires weeks, months, and even years of practice to accomplish. Why is lengthy practice required to become skilled, and what is happening during practice that makes a learner progressively better? Research in Dr. [Dina Lipkind's](#) lab aims to answer these questions using zebra finches, an Australian songbird species, as a model system. Young zebra finch males learn their courtship song by listening to their father's singing, and gradually matching their own singing to resemble it in a developmental process that takes several weeks of vocal practice. We combine experimental methods for controlling and manipulating song learning with artificial stimuli, and computational tools for analyzing continuously recorded vocal output, to tease apart and understand the components of this process. A parallel line of research focuses on translating the insights and methodology from our birdsong studies to understand how humans acquire the pronunciation of a new language.

M.S. Program in Cognitive Neuroscience

A Smart Move.

Prepare for doctoral studies and careers in health, high tech, and more.



 Click on the image above to play the video.

Admissions Deadline
April 15 for fall 2023 enrollment

The Graduate Center, CUNY
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Submit Content for the Cognitive Neuroscience Newsletter

Share news and events to highlight in our Cognitive Neuroscience Newsletter by using the following link or scan the QR code:
<https://www.gc.cuny.edu/cognitive-neuroscience/news-and-events/newsletter-submission-form>



M.S. Program in Cognitive Neuroscience Faculty Members' Recent Publications

Richard Bodnar

Bodnar, R.J. & Heinricher, M. M. (2022). Central mechanisms of pain suppression: modulation. In Pfaff, D.W., Volkow, N. D., & Rubenstein, J. L. (Editors), *Neuroscience in the 21st Century: From Basic to Clinical*. (pp. 3861-3886). Springer.

Iskhakova J., Mustac, T., Yuabov, A., Macanian, J., Israel, E., Dohnalova, P., Iskhakov, B., Ben Lulu, E., Aminov, S., Fazylov, D., & Bodnar, R. J. (2022). Acquisition and expression of fat conditioned flavor preferences following dopamine D1, opioid and NMDA receptor antagonism in C57BL/6 mice. *Nutritional Neurosci* 25(1), 137-145. <https://doi.org/10.1080/1028415x.2020.1724706>

Bodnar, R.J. (2022). Endogenous opiates and behavior: 2020. *Peptides*, 151: 170752.

Elizabeth Chua

Chi, S. Y., Chua, E.F., Kieschnick, D. W., & Rabin, L. A. (2022). Retrospective metamemory monitoring of semantic memory in community-dwelling older adults with subjective cognitive decline and mild cognitive impairment. *Neuropsychological Rehabilitation*, 32(3), 429-463.

Tracy Dennis

Dennis-Tiwary, T., Cho, H., Myruski, S. (2023). Effects of attention bias modification for anxiety: Neurophysiological indices and moderation by symptom severity. *Clinical Neurophysiology*, 147, 45-57.

Timothy Ellmore

Ortega, J., Plaska, C. R., Gomes, B. A., Ellmore, T. M. (2022). Spontaneous Eye Blink Rate During the Working Memory Delay Period Predicts Task Accuracy, *Frontiers in Psychology*, 13:788231.

Plaska, C. R., Ortega, J., Gomes, B. A., Ellmore, T. M. (2022). Interhemispheric Connectivity Supports Load-Dependent Working Memory Maintenance for Complex Visual Stimuli, *Brain Connectivity*, 12(10).

Jon Horvitz

Stamos, J., Ma, S., Pawlak, A., Engelhard, N., Horvitz, J.C., West, M.O. (2022). Reward vs. motoric activations in NAc Core of rats during Pavlovian conditioning, *European Journal of Neuroscience*, 1-21.

Klara Marton

Fortunato-Tavares, T., Schwartz, R. G., Marton, K., Houston, D., & Furquim de Andrade, C.R. (2022). Are Prosodic Effects on Sentence Comprehension Dependent Only on Age? *CODAS*, 2317-1782.

Gehebe, T., Wadhera, D., & Marton, K. (2022). Interactions between bilingual language proficiency and exposure: Comparing subjective and objective measures across modalities in bilingual young adults. *International Journal of Bilingual Education and Bilingualism*, 1-16.

Szollosi, I. & Marton, K. (2022). Cognitive control processes in post-stroke non-fluent aphasia. *Rehabilitacio*, 32, (1-2), 25-33. (in Hungarian)

Varga, A. & Marton, K. (2022). How does music help to improve cognitive control? In: Zs. Polyak & K. Kempf (eds.). A muveszetpedagogia multja es jelene - reformpedagogia, eletreform, gyermekkultura. *Budapest*, 61-65.

Varga, A., Marton, K., Jakab, Z., & Lang, S. (2022). The Influence of Musical Activities on Cognitive Control Mechanisms: Overview and empirical findings. In: E., Markus; E., Trentinne, Benko; V. Arva; B. Svraka (eds.) Languages, Inclusion, Cultures and Pedagogy: Research and Good Practices 2. *Budapest*, ELTE, pp. 167-189.

Upcoming Events

End of the Year Event – TBA

Cognitive Neuroscience Hybrid
Open House – [April 5, 2023](#)

Commencement 2023

Date: Friday, June 2, 2023

Location: David Geffen Hall at
Lincoln Center

Time: 1:30 PM

For more information, visit The
Graduate Center's [website](#).

Beyond the Lab: Fall 2022 and Spring 2023 Workshop Series

- Steps to Submitting Your Thesis Workshop, Hosted by Roxanne Shirazi, Dissertation Librarian, and Daisy Reyes, College Assistant
- Student Resources & Navigating the Student-Faculty Relationship Workshop, Hosted by Daisy Reyes, College Assistant
- Faculty Mentor Panel Workshop, Hosted by Drs. Richard Brown, Tatiana Emmanouil, Dina Lipkind, and Peter Serrano
- Applying to Ph.D. Programs Workshop, Hosted by Dr. Peter Serrano
- Steps to Submitting Your Thesis Workshop, Hosted by Daisy Reyes, College Assistant
- Writing a Thesis Workshop, Hosted by Drs. Tatiana Emmanouil and Peter Serrano

For more information, visit our [website](#).

Waldman DeLuca, Z., Schwartz, R.G., Marton, K., Houston, D., Ying, E., Steinman, S., Drakopoulou, G. (2022). The Effect of Sentence Length on Question Comprehension in Children with Cochlear Implants. *Cochlear Implants International*, 1-13.

Yoko Nomura

Demirci, G. M., Delgeniis, D., Wong, W. M., Shereen, A. D., Nomura, Y., & Tsai, C. L. (2023). Superstorm Sandy exposure in utero is associated with neurobehavioral phenotypes and brain structure alterations in childhood: A machine learning approach. *Frontiers in Neuroscience*, 17:1113927. <https://doi.org/10.3389/fnins.2023.1113927>

Lucas Parra

Hsu, G., Shereen, A.D., Cohen, L. G., Parra, L.C. (2023). Robust enhancement of motor sequence learning with 4mA transcranial electric stimulation. *Brain Stimulation*, 16(1), 56-67.

Tony Ro & Zhigang Zhu

Chen, J., Ro, T., & Zhu, Z. (2022). Emotion Recognition With Audio, Video, EEG, and EMG: A Dataset and Baseline Approaches. *IEEE Access*, 10.

Orie Shafer

Shafer, O., Gutierrez, G., Li, K., Mildenhall, A. (2022). ---Connectomic analysis of the Drosophila lateral neuron clock cells reveals the synaptic basis of functional pacemaker classes, *eLife Sciences*, 11.

Wei Wang

Wang, W., Dinh, J. V., Jones, K. S., Upadhyay, S., Yang, J. (2022). Corporate Diversity Statements and Employees' Online DEI Ratings: An Unsupervised Machine-Learning Text-Mining Analysis, *Journal of Business and Psychology*, 38(1), 1-17.

Douglas Whalen

Whalen, D.H., Lewis, M.E., Gillson, S., McBeath, B., Alexander, B., Nyhan, K. (2022). Health effects of Indigenous language use and revitalization: a realist review. *Int J Equity Health*, 21(1):169.

Zhigang Zhu

Wang, X., Zhu, Z. (2023). Context understanding in computer vision: A survey. *Computer Vision and Image Understanding*, 229.

Cognitive Neuroscience Students and Faculty Convened at Student-coordinated Events

The COVID-19 pandemic has greatly impacted students' physical and mental health, and students have felt isolated during these difficult times. To help with feelings of isolation and to promote community and inclusion, the M.S. Program in Cognitive Neuroscience Social Liaisons have worked with staff to host our annual Meet and Greet and End of the Semester Event, which took place on September 20, 2022 and December 13, 2022, respectively. These events not only allowed students and faculty to share their research and resources, but also provided some time for students to de-stress and reflect on the past semester. The M.S. Program in Cognitive Neuroscience would like to thank Ella Gregorio, Vaidehi Patel, Kendra Stephens-Jones, and Steven Wendel, our program's Social Liaisons, as they have been instrumental in the success of our events. We look forward to continuing working with them this spring 2023 semester to foster a diverse, equitable, and inclusive environment for our students, faculty, and staff.