Cognitive Neuroscience Newsletter

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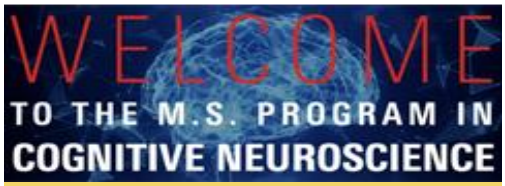

Summer/Fall 2019

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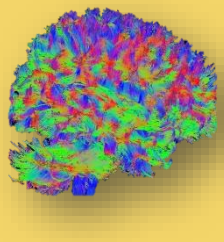


WELCOME FROM THE DIRECTOR

Welcome to the inaugural M.S. in Cognitive Neuroscience newsletter. In this edition, we highlight student and faculty research, coursework, publications, and the first recipient of the Dean's Merit Scholarship.

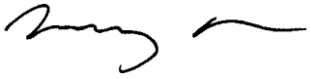
As most of our current students will affirm, their first year came with excitement, new experiences, as well as a few challenges. Their resilience and hard work has paid off, with several students graduating at the end of the fall 2019 semester. In spring 2020, when the large majority of the inaugural class will complete the program, look forward to more details on our graduates in the winter/spring 2020 edition of this newsletter.

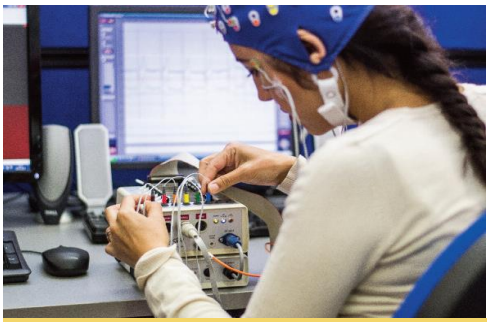
To add to our already amazing crop of current students, a new incoming cohort will join us this fall. We received a substantially larger number of applications to the program for its second year and will be welcoming 27 new students. They, too, come with excellent academic credentials and look forward to pursuing their research interests.

I am very grateful to our program's highly regarded faculty for their contributions to the program. They have and continue to serve as passionate researchers, teachers, and mentors, bringing expertise in diverse areas of Cognitive Neuroscience.

This newsletter will be issued once per semester. 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. We encourage you to participate, as it will give way to exciting and successful newsletters.

Thank you and have a wonderful start to the fall semester.





The **Fall 2019 Course Schedule** is on the M.S. in Cognitive Neuroscience website:

https://www.gc.cuny.edu/Page-Elements/Academics-Research-Centers-Initiatives/Masters-Programs/Cognitive-Neuroscience/Curriculum-and-Courses

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Cognitive Neuroscience, Esports, and Education: Daisy Reyes

Accepted into the M.S. Program in Cognitive Neuroscience in fall 2018, Daisy Reyes is the first person in her family to pursue a master's degree. As a part of this program, she has taken several courses, including Neuroscience, Neuroanatomy, and Research Methods in Cognitive Neuroscience. Through these courses, she has learned about several cognitive neuroscience topics, such as attention, decision-making, and their neural correlates; she believes that much of the knowledge that she has acquired in these courses has been applicable to her research on expertise, collaboration, decision-making, and attention in electronic sports (esports) and education. Through remarkable mentorship by Dr. Robert O. Duncan, from York College, CUNY, she has gained first-hand research experience working on her thesis, "The Cognitive, Behavioral, Affective, and Physiological Components of Social Cognition." With unconditional support from her mentor, she presented a poster on her thesis at the CUNY Games Conference on January 18, 2019, worked with researchers and game developers at the XR BrainJam, and will join the NYU BrainWaves program this spring as a neuroscience mentor.

The First Recipient of the Dean's Merit Scholarship: Vanessa Grass

The Dean's Merit Scholarship is a prestigious award covering $5,000 of tuition for two academic years. These scholarships are awarded based on merit, with only one entering fall 2019 student granted the scholarship in each of the fifteen Graduate Center master's programs. With a Master of Science in Data Science from the University of New Haven, a Bachelor of Fine Arts in Graphic Design from Columbia College Chicago, and a Bachelor of Arts in Biology from the University of Rochester, Vanessa Grass is an incoming student in the M.S. Program in Cognitive Neuroscience and the first recipient of the Dean's Merit Scholarship. Her research interests include EEG data, brain computer interface (BCIs), Alzheimer's and neurodegenerative diseases, and neurogenesis. We congratulate her for her achievement and look forward to seeing her fulfil her research and career aspirations.

An invitation from the Dean for Master's Programs, Julie Suk:
THE DEAN'S LUNCH SERIES FOR MASTER'S STUDENTS
Friday, September 6th, 12:30 PM–1:45 PM | The President's Large Conference Room | The Graduate Center | 365 Fifth Avenue
RSVP Required: https://deanslunchseries-kenney.eventbrite.com/

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Prof. Ellmore awarded $785,000 grant from NIMH to study working memory delay activity

Prof. Timothy Ellmore was recently awarded a 2-year $785,000 R56 grant from the National Institute of Mental Health to investigate delay activity, the neural activity that lingers between the presentation of a stimulus and a subsequent action or decision taken based on that stimulus. Dr. Ellmore's team will study the spatio-temporal evolution of neural delay activity in unprecedented detail using state-of-the-art simultaneous electroencephalography and functional MRI to explain how the activity patterns contribute to both working memory and long-term memory in healthy human participants. The results will lead to fundamental new insight into the brain mechanisms for how memories are consolidated, which will in turn inform how these processes break down in a variety of mental health disorders.

M.S. Program in Cognitive Neuroscience Faculty Members' 2019 Publications

Jeff Beeler

Beeler, J. A., & Dreyer, J. K. (2019) Synchronicity: The role of midbrain dopamine in whole-brain coordination. *eNeuro, 6*(2). doi: 10.1523/ENEURO.0345-18.2019

Marom Bikson

Zannou, A. L., Khadka, N., FallahRad, M., Truong, D. Q., Kopell, B. H., & Bikson, M. (2019). Tissue Temperature Increases by a 10 kHz Spinal Cord Stimulation System: Phantom and Bioheat Model. *Neuromodulation*. doi: 10.1111/ner.12980

Meiron, O., Gale, R., Namestnic, J., Bennet-Back, O., Gebodh, N., Esmaeilpour, Z., Mandzhiyev, V., & Bikson, M. (2019). Antiepileptic effects of a novel non-invasive neuromodulation treatment in a subject with early-onset epileptic encephalopathy: Case report with 20 sessions of HD-tDCS intervention. *Frontiers in Neuroscience, 13*: 547. doi: 10.3389/fnins.2019.00547

FallahRad, M., Zannou, A. L., Khadka, N., Prescott, S. A., Ratté, S., Zhang, T., Esteller, R., Hershey, B., & Bikson, M. (2019). Electrophysiology equipment for reliable study of kHz electrical stimulation. *The Journal of Physiology, 597*(8), 2131-2137. doi:10.1113/JP277654

Gebodh, N., Esmaeilpour, Z., Adair, D., Chelette, K., Dmochowski, J., Woods, A. J., Kappenman, E. S., Parra, L. C., & Bikson, M. (2019). Inherent physiological artifacts in EEG during tDCS. *NeuroImage, 185*, 408-424. doi: 10.1016/j.neuroimage.2018.10.025

Zannou, A. L., Khadka, N., Truong, D. Q., Zhang, T., Esteller, R., Hershey, B., Bikson, M. (2019). Temperature increases by kilohertz frequency spinal cord stimulation. *Brain Stimulation, 12*(1), 62-72. doi: 10.1016/j.brs.2018.10.007

Richard Bodnar

Bodnar R. J. (2019). Opioid addiction. *Peptides, 116*, 68-70. doi: 10.1016/j.peptides.2019.04.010

Bodnar R. J. (2019). Endogenous opioid modulation of food intake and body weight: Implications for opioid influences upon motivation and addiction. *Peptides, 116*, 42-62. doi: 10.1016/j.peptides.2019.04.008

Elizabeth Chua

Gaynor A.M. & Chua E.F. (2019). Transcranial direct current stimulation over the prefrontal cortex alters encoding and judgments of learning based on fluency. *Journal of Cognitive Neuroscience*, 1-16. doi: 10.1162/jocn_a_01449

Weintraub-Brevda R.R. & Chua E.F. (2019). Transcranial direct current stimulation over the right and left VLPFC leads to differential effects on working and episodic memory. *Brain and Cognition, 132*, 98-107. doi: 10.1016/j.bandc.2019.03.005

Student Spotlight
Katlyn Schroder
Current Student

"The M.S. program in Cognitive Neuroscience trains students to become researchers in cognitive neuroscience and related fields. While learning about the nervous system and the methods used to measure it through coursework, students have the opportunity to be mentored by one or more CUNY professors. Professors who are affiliated with the program study a wide variety of research topics, allowing students to gain valuable research experience in a topic of their interest. Students have access to various modern tools that are used to measure the nervous system, including EEG and fMRI."

The M.S. Program in Cognitive Neuroscience's **Fall 2019 – Spring 2020 Student Handbook** is on our website:

https://www.gc.cuny.edu/Page-Elements/Academics-Research-Centers-Initiatives/Masters-Programs/Cognitive-Neuroscience/

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Tracy Dennis-Tiwary

Myruski, S., Quintero, J. M., Denefrio, S., & Dennis-Tiwary, T. (2019). Through a screen darkly: Use of computer-mediated communication predicts emotonal functioning. *Psychological Reports 0*(0), 1-28. doi: 10.1177/0033294119859779

Robert Duncan

Duncan, R.O. (2019). Confidence and critical thinking are differentially affected by content intelligibility and source reliability: Implications for game-based learning in higher education. *Journal of Interactive Technical and Pedagogy, 15*.

Timothy Ellmore

Peña-Nogales, Ó., Ellmore, T.M., de Luis-García, R., Suescun, J., Schiess, M.C., & Giancardo, L. (2019). Longitudinal connectomes as a candidate progression marker for prodromal parkinson's disease. *Frontiers in Neuroscience, 12*:967. doi:10.3389/fnins.2018.00967

Tatiana Aloi Emmanouil

Magen H., & Emmanouil T.A. (2019). Estimation in self-initiated working memory for spatial locations. *Psychonomic Bulletin & Review, 26*(1), 315-324. doi: 10.3758/s13423-018-1514-x

Jin Fan

Wu, T., Wang, X., Wu, Q., Spagna, A., Yang, J., Yuan, C., Wu, Y., Gao, Z., Hof, P. R., Fan, J. (2019). Anterior insular cortex is a bottleneck of cognitive control. *NeuroImage, 195*, 490-504. doi: 10.1016/j.neuroimage.2019.02.042

Chen, Y., Spagna, A., Wu, T., Kim, T.H., Wu, Q., Chen, C., Wu, Y., Fan, J. (2019). Testing a cognitive control model of human intelligence. Scientific Reports, 9(1): 2898. doi:10.1038/s41598-019-39685-2

Yu Gao

Wang, M., Shou, Y., Liang, J., Lai, H., Zeng, H. Chen, L., Gao, Y. (2019). Further validation of the inventory of callous-unemotional traits in chinese children: Cross-informants invariance and longitudinal invariance. *Assessment, 00*(0), 1-13. doi: https://doi.org/10.1177/1073191119845052

Jennifer Mangels

Abraham, D., McRae, K., Mangels J.A. "A" for effort: Rewarding effortful retrieval attempts improves learning from general knowledge errors in women. *Frontiers in Psychology, 10:*1179. doi: 10.3389/fpsyg.2019.01179

Loraine K. Obler

Higby, E., Cahana-Amitay, D., Vogel-Eyny, A., Spiro, A., Albert, M.L., & Obler, L. K. (2019). The role of executive functions in object- and action-naming among older adults*. Experimental Aging Research, 45*(4), 306-330. doi: 10.1080/0361073X.2019.1627492

Lucas Parra

Huang, Y., Datta, A., Bikson, M., & Parra, L. C. Realistic volumetric-approach to simulate transcranial electric stimulation-ROAST-a fully automated open-source pipeline. *Journal of Neural Engineering, 16*(5): 056006. doi: 10.1088/1741-2552/ab208d

Iotzov, I., & Parra, L. C. (2019). EEG can predict speech intelligibility. *Journal of Neural Engineering, 16*(3):36008. doi: https://doi.org/10.1088/1741-2552/ab07feJ

Madsen, J., Margulis, E. H., Simchy-Gross, R., & Parra, L. C. (2019). Music synchronizes brainwaves across listeners with strong effects of repetition, familiarity and training. *Scientific Reports, 9*:3576.

Igual, C., Igual, J., Hahne, J. M., & Parra, L. C. (2019). Adaptive auto-regressive proportional myoelectric control. *IEEE Transactions on Neural Systems and Rehabilitation Engineering, 27*(2), 314-322.

Student Spotlight
Angelo Colmenero
Current Student

"It's been said that an education is what remains after you've forgotten everything you've learned—in this sense, the change a student undergoes is hard to see until challenges occasion its appearance. Inside and outside of academia I have been pleased to find aspects of myself subtly but distinctly changed in ways that I can attribute to this program's structure and quality of courses. In just a year, I found changes in my sense of what merits questioning, resolution of thinking, and ability to learn how to learn. With these changes in mind, I highly recommend this excellent program."

Student Spotlight
Eva Santucci
Current Student

"The Cognitive Neuroscience master's program at the Graduate Center has provided me with a variety of real world experiences that I believe will be invaluable to future career opportunities. The program was instrumental in helping to place me in a lab that fits well with my area of interest and, which has allowed me to focus my thesis research on a topic I felt strongly about investigating, while simultaneously helping me gain hands-on experience in the field. In addition to my mentor's willingness to accept me into her lab, she has extended her support of my goals and is willing to help me achieve them in a reasonable timeframe."

Thomas Preuss

Adelman, M., Chen, A.Y., Aberg, A., Neumeister, H., & Preuss, T. (2019). Social context influences sensorimotor gating in female African cichlid fish Astatotilapia burtoni. *Behavioural Brain Research, 370*, 1-7. doi: https://doi.org/10.1016/j.bbr.2019.111925

McIntyre C., & Preuss, T. (2019). Influence of stimulus intensity on multimodal integration in the startle escape system of goldfish. *Frontiers in Neural Circuits, 13*:7. doi: https://doi.org/10.3389/fncir.2019.00007

Tony Ro

Wokke, M., & Ro, T. (2019). Competitive frontoparietal interactions mediate implicit inferences. *Journal of Neuroscience, 39* (26), 5183-5194. doi: https://doi.org/10.1523/JNEUROSCI.2551-18.2019

Michel, M., Beck, D., Block, N., Blumenfeld, H., Brown, R., Carmel, D., Carrasco, M., Chirimuuta, M., Chun, M., Cleeremans, A., Dehaene, S., Fleming, S.M., Frith, C., Haggard, P., He, B.J., Heyes, C., Goodale, M.A., Irvine, L., Kawato, M., Kentridge, R., King, J.R., Knight, R.T., Kouider, S., Lamme, V., Lamy, D., Lau, H., Laureys, S., LeDoux, J., Lin, Y.T., Liu, K., Macknik, S.L., Martinez-Conde, S., Mashour, G.A., Melloni, L., Miracchi, L., Mylopoulos, M., Naccache, L., Owen, A.M., Passingham, R.E., Pessoa, L., Peters, M.A.K., Rahnev, D., Ro, T., Rosenthal, D., Sasaki, Y., Sergent, C., Solovey, G., Schiff, N.D., Seth, A., Tallon-Baudry, C., Tamietto, M., Tong, F., van Gaal, S., Vlassova, A., Watanabe, T., Weisberg, J., Yan, K., & Yoshida, M. (2019). Opportunities and challenges for a maturing science of consciousness. *Nature Human Behaviour*, *3*(2), 104-107. doi: 10.1038/s41562-019-0531-8

Ro, T. (2019). Alpha oscillations and feedback processing in visual cortex for conscious perception. *Journal of Cognitive Neuroscience, 31*(7), 948-960. doi: https://doi.org/10.1162/jocn_a_01397

Koenig, L., & Ro, T. (2019). Dissociations of conscious and unconscious perception in TMS-induced blindsight. *Neuropsychologia, 128*, 215-222. doi: 10.1016/j.neuropsychologia.2018.03.028

David Rosenthal

Rosenthal, D. (2019). Consciousness and Confidence. *Neuropsychologia, 128*, 255-265.

Michel, M., Beck, D., Block, N., Blumenfeld, H., Brown, R., Carmel, D., Carrasco, M., Chirimuuta, M., Chun, M., Cleeremans, A., Dehaene, S., Fleming, S.M., Frith, C., Haggard, P., He, B.J., Heyes, C., Goodale, M.A., Irvine, L., Kawato, M., Kentridge, R., King, J.R., Knight, R.T., Kouider, S., Lamme, V., Lamy, D., Lau, H., Laureys, S., LeDoux, J., Lin, Y.T., Liu, K., Macknik, S.L., Martinez-Conde, S., Mashour, G.A., Melloni, L., Miracchi, L., Mylopoulos, M., Naccache, L., Owen, A.M., Passingham, R.E., Pessoa, L., Peters, M.A.K., Rahnev, D., Ro, T., Rosenthal, D., Sasaki, Y., Sergent, C., Solovey, G., Schiff, N.D., Seth, A., Tallon-Baudry, C., Tamietto, M., Tong, F., van Gaal, S., Vlassova, A., Watanabe, T., Weisberg, J., Yan, K., & Yoshida, M. (2019). Opportunities and challenges for a maturing science of consciousness. *Nature Human Behaviour, 3*(2), 104-107.

Richard G. Schwartz

Levi, S. V., Harel, D., & Schwartz, R. G. (2019). Language ability and the familiar talker advantage: Generalizing to unfamiliar talkers is what matters. *Journal of Speech, Language, and Hearing Research, 62*(5), 1427-1436. doi: 10.1044/2019_JSLHR-L-18-0160

Peter Serrano

Opendak, M., Robinson-Drummer, P., Blomkvist, A., Zanca, R. M., Wood, K., Jacobs, L., Chan, S., Tan S., Woo, J., Venkataraman, G., Kirschner, E., Lundström, J. N., Wilson, D. A., Serrano, P. A., & Sullivan, R. M. (2019). Neurobiology of maternal regulation of infant fear: the role of mesolimbic dopamine and its disruption by maltreatment. *Neuropsychopharmacology, 44*(7), 1247-1257. doi: 10.1038/s41386-019-0340-9

Valerie Shafer

Yu, Y.H., Tessel, C., Han, H., Campanelli, L., Vidal, N., Gerometta, J., Garrido-Nag, K., Datta, H., & Shafer, V. L. (2019). Neural indices of vowel discrimination in monolingual and bilingual infants and children. *Ear and Hearing*. doi: 10.1097/AUD.0000000000000726

INCOMING STUDENT ORIENTATION

On August 14, 2019, incoming students attended the program's inaugural New Student Orientation. The orientation featured remarks from the program's Director, Tony Ro, and the Dean of Master's Programs, Julie Suk. Representatives from the Office of Financial Aid, Rebecca Dent, and the Library Liaison for the M.S. Program in Cognitive Neuroscience, Mason Brown, provided students with valuable information about resources available to students.

The orientation not only offered incoming students detailed course descriptions and program requirements, but also provided them with the opportunity to meet their cohort and with second-year students to gain insight and get their perspectives about the program.

Congratulations incoming cohort and welcome back second-year students!

Ortiz-Mantilla, S., Cantiani, C., Shafer, V. L., Benasich, A. A. (2019). Minimally-verbal children with autism show deficits in theta and gamma oscillations during processing of semantically-related visual information. *Scientific Reports, 9*(1): 5072. doi: 10.1038/s41598-019-41511-8

Douglas Whalen

Preston, J. L., McAllister, T., Phillips, E., Boyce, S., Tiede, M., Kim, J. S., & Whalen, D. H. (2019). Remediating residual rhotic errors with traditional and ultrasound-enhanced treatment: A single-case experimental study. *American Journal of Speech-Language Pathology*. doi: 10.1044/2019_AJSLP-18-0261.

Preston, J. L., McCabe, P., Tiede, M., & Whalen, D. H. (2019). Tongue shapes for rhotics in school-age children with and without residual speech errors. *Clinical Linguistics & Phonetics, 33(*4), 334-348. doi: 10.1080/02699206.2018.1517190

Zhu Zhigang

Wei, J., Liu, C-H., Zhu, Z., Cain, L. R., Velten, V. J. (2019). Vehicle engine classification using normalized tone-pitch indexing and neural computing on short remote vibration sensing data. *Expert Systems With Applications (ESWA), 115*, 276-286. doi: https://doi.org/10.1016/j.eswa.2018.07.073

Current Students Convene at the End of the Year Event

M.S. Program in Cognitive Neuroscience Current Students

After a long year of hard work, our students convened at the End of the Year Event to converse about their experiences in the program, share their research progress, and further develop a relationship with their cohort. In a way, this event, among others, helped shape our program into the successful program that it is today. Therefore, during this fall 2019 semester, we hope to continue to support our students through our upcoming events.

Upcoming Events

- **September 6, 2019:** Meet and Greet (MS Program in Cognitive Neuroscience, CUNY Neuroscience Collaborative (CNC) faculty and students)
- **October 23, 2019:** M.S. Program in Cognitive Neuroscience Open House
- **December (Date TBA):** Holiday Event