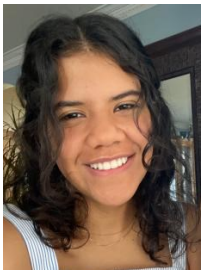
PROGRAM IN NEUROSCIENCE & COGNITIVE SCIENCE

NACS Newsletter

Volume 7 **November 2022**

Fall 2022 Incoming Class

NACS welcomed nine new students in fall 2022. The students were asked to provide a few fun facts that most people don't know about them. Please read on to learn more.



Laura Castillo

Laura just ran her first marathon this October. She started an organization to help high school students in the area with pre-college experiences.

Carlo Combista

Outside of research, Carlo loves and enjoys singing solo and/or with the choir. He also loves volunteering for children in need, and doing charity work.

Matt Jacobsen

Matt once backpacked in the Adirondacks and got lost trying to get out of the mountains, extending the trip by an extra night. He has also commuted to work by inflatable raft on the Charles River, which was much longer than a subway ride.

Jayesh Jayashankar

Jayesh enjoys pursuing outdoor activities like playing tennis, hiking and taking long bike rides. In his free time he plays chess and tries to improve upon his Spanish, which he started learning over the summer.

Mine Muezzinoglu

Mine got into hobby jogging during COVID and now enjoys both road and trail running! She attempted to repeat the 1529 Ottoman conquest and took a bus from Istanbul to Vienna with her friends this summer, stopping in some Balkan countries along the way.

Jason Putnam

Jason is a competitive runner and enjoys racing any distance, especially the mile. He also loves music, having played trumpet and trombone in his high school marching and jazz bands before shifting into music production under the stage name of Jason The Scientist.

Kavya Rajendran

Kavya has a great memory for useless facts. She thought the phoenix was a real bird for the longest time. She also went to music classes for six years, and can't sing if her life depended on it.

Ellen Roche

Ellen sings around the DC area as a soprano. She volunteers in advance of important elections to help people register and vote. She's been vegetarian since she was 7, and she wrote a sonnet every day in 2018 for fun.

Farjad Shafighi

Farjad enjoys backcountry backpacking and rock climbing. He has explored all the trails within Shenandoah National Park. He leads a rock climbing community to promote inclusion and minority engagement in rock climbing.

What's New in NACS?

Moving Forward after the External Review

The External Review of the NACS program took place virtually in October 2021. Several recommendations were made by the reviewers (Amy Lee, Susan Rivera, and David Vicario). Below are some of the changes NACS has implemented or will implement based on the recommendations:

* Created our own stipend amounts for NACS funding
* Held three 30-minute meetings for advisors; advisors required to attend one meeting
* Hold a half-day retreat in April for leadership in affiliated departments to discuss funding model for NACS
* Submit a T32 in spring 2023
* Amend the NACS Governance Document to review both UMD faculty and adjunct faculty every 3 years.

NACS Faculty Mentor of the Year Award

Elizabeth Redcay is the first recipient of the NACS Faculty Mentor of the Year Award. She was nominated by several current and former PhD advisees. Recipients of the award receive a $1000 travel award to support mentoring activities. We asked Elizabeth to identify 3 things that are absolutely essential in mentoring students:

1) ***Regular individual meetings.*** *Scheduled weekly one-on-one meetings with students, in addition to project or group meetings and email/slack, are critical in establishing open communication to get to know students' needs, interests, and goals so you can tailor your mentorship to those. These also are critical times to give feedback and guidance on professional development that would not be possible in a group setting.*

2) ***Individualized mentorship.*** *Meet students where they are at and help bring them where they want to go. Together identify their strengths and challenges, optimal working styles, and long-term goals. Be flexible in identifying what that student needs to be their best in that moment. Respect their work-life balance and mental health and advocate for them.*

3) ***Opportunities.*** *Whenever you get an invitation (for a paper, chapter, talk, etc) consider asking a mentee to lead it instead. Send students to conferences regularly and facilitate connections. Identify and connect mentors or collaborators who bring expertise you lack to let your student develop their own research or professional directions. Cultivate a community of peers and senior researchers they can regularly interact with. Provide regular opportunities to practice speaking and writing. Mentor grant applications with them as the lead. Always highlight your students' contributions in your work (e.g., name and pictures in your talks).*

Events

NACS Seminars Series
Fall 2022 and Spring 2023

NACS Faculty Meeting
December 9, 2022
May 12, 2023

NACS Student Meeting
December 9, 2022
May 12, 2023

NACS Town Hall
January 27, 2023

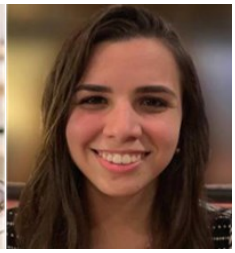
NACS-Fest
February 9 &10, 2023

NACS Research Day
April 28, 2023

VFIN Program

The Visiting Fellows in Neuroscience (VFIN) program enables cross-campus training by neuroscience graduate students and promotes enhanced collaboration between research groups in Baltimore and College Park. The VFIN program provides funding for UMB PIN students to do semester-long research rotations in College Park and for NACS students to do semester-long research rotations at UMB. The latest recipients appear below. The next call for VFIN applications will go out in Spring 2023.

Sydney Ashton
McCarthy/Roesch



Katherine Pizano
Singer/Mathur

Dr. Ricardo Araneda is a professor in the Department of Biology and a faculty member in NACS.

Dr. Ricardo Araneda received his Ph.D. in neuroscience from the Albert Einstein College of Medicine in New York, and then completed his postdoctoral training at Columbia University, where he was also an Associate Research Scientist. Ricardo is from Chile, where he received a B.S. in Biochemistry from the University of Concepcion. As a first-generation college graduate, he has a firm commitment to excellence in mentoring and training of younger scientists, in particular under-represented groups in the science fields. He was fortunate to have the chance to conduct research since his first year in college and therefore he is a strong supporter of efforts toward introducing undergraduates to research experience in neuroscience, giving lectures for the UNIV100 and Catalyst classes at UMD. In addition, he enjoys learning about the progress of students during their presentations at Bioscience Research Day and the USM Promise AGEP poster sessions, where he has served as a judge. As NACS faculty, Ricardo has been an active member, serving in the NACS Curriculum Committee, and in the past serving in the Executive and Admissions Committee; he also taught in NACS641. He has mentored former NACS students Alexia Nunez (2013) and Ruilong Hu (2020) and he is currently mentoring Kavya Rajendran. Ricardo has received The Winston Family Academic Excellence Faculty Mentor Award from the Honors College, and Graduate Faculty Mentor of the Year from the Graduate School. Ricardo leverages his knowledge on synaptic function and pharmacology to study neuromodulation in olfactory circuits in the context of behavior, healthy aging and disease. To interrogate the role of neuromodulation in olfactory circuits, his lab uses a multidisciplinary approach that includes electrophysiology, imaging, and behavior, combined with targeted expression of proteins using conditional genetics. His research interests expand to other areas as well, through collaborative work his lab is working on the development of novel technologies to study neuronal function and cell-based sensors, and to understand the mechanisms underlying the hypothalamic control of food consumption. He is a co-PI in a recently awarded NSF grant with NACS faculty, Drs. Pamela Abshire and Timothy Horiuchi. Ricardo believes this award highlights the strengths of being part of this wonderful diverse program.

What advice would you give to students who are starting out in the NACS program?

First and foremost, my advice to all students is to use all the resources available to you through the program. This is supposed an enjoyable experience and students would benefit from engaging in several of the events that NACS organizes, wherein they can meet other students and faculty. I encourage my students to take ownership of their project by staying on top of the research in their field. Finally, always be curious and try new approaches to answering your questions; for example, this could be in the form of collaborations with other labs.

Dr. Philip Wang (NACS PhD 2009) is the Director of the Graduate Partnerships Program at the National Institutes of Health.

Tell us about your current position and how you think the training experience in the NACS program helped you prepare for it.

I have had the pleasure of serving as the Director of the Graduate Partnerships Program (GPP) since May 2016. The GPP is within the Office of Intramural Training and Education (OITE) at the National institutes of Health (NIH). This is our PhD program where graduate students from all over the world can come to the NIH intramural research program to perform all of part of their graduate research (typically involving dissertation research). At any given time, we have over 400 PhD students at NIH, cumulatively representing over 100 different universities world-wide (including UMD/NACS). My goal is to help our students have the best experiences possible at NIH and provide them with the tools to succeed in whichever career path they choose in the future. Through the OITE, we provide our trainees with a wide range of career and professional development, wellness and resilience resources. Many of our resources are readily available online, and I welcome the NACS student community to visit our website at www.training.nih.gov and our OITE YouTube channel at https://www.youtube.com/c/NIHOITE to explore them. We also organize major events like the NIH Career Symposium (which the NACS community is welcome to attend, see https://www.training.nih.gov/nih_career_symposium for information on past events) and we provide opportunities to strengthen our community through regular wellness-related gatherings, and events like our annual GPP retreat and research symposium. I am also responsible for analyzing, applying, and drafting/generating NIH policies related trainees in the intramural program. Additionally, I meet with individual students regularly to help them navigate various situations. As you all know, being a graduate student in the biomedical sciences can be stressful. The most fulfilling part of my job is working with our students to help them address and overcome challenges, whether it's an administrative question related to their stipend/tuition or navigating a difficult conversation with their mentor (and everything in-between and beyond). Helping our students make progress is a great feeling.

I am an alumnus of the GPP between the NACS program and the National Institute on Deafness and Other Communication Disorders (NIDCD), NIH. My dissertation research involved studying molecular mechanism of neuronal development. My training experience at NACS was essential in helping to prepare me for my current position. I was mentored by Dr. Elizabeth Quinlan (NACS) and Dr. Robert Wenthold (NIH) and am eternally grateful to them both for helping me grow as a scientist and learn to work in a professional environment. The NACS program fosters a vibrant community, in a wonderfully nurturing environment, that provides opportunities for students to celebrate their successes and learn from mistakes. In my current role, I often reflect upon my experiences as a NACS student, and of the mentorship and opportunities that Betsy and Bob provided me. In addition to being phenomenal scientists, they taught me about the importance of ethics in science, hard work and dedication, resilience, and maintaining strong lines of communication with your mentors and peers. And I can't possibly end this spotlight without mentioning our wonderful Assistant Director of NACS, Pam Komarek! From keeping me on track as a NACS student, to attending my defense in 2009 and all our interactions ever since about NACS students that come through GPP Individual Partnerships, I learned from Pam how important program leadership and administrators are in running a successful graduate program. Thanks to the lessons learned through the NACS program, I seek to provide my students in the GPP with resources to thrive no matter what challenges or barriers they face. It's an honor to remain part of the NACS community in my current role, and I am thankful for all that NACS program has done to prepare me for my career.

In the Spotlight: NACS Alumni

Molly Hyer (NACS PhD 2016) is the Director of Research Development and Innovation for the VCU Institute of Women's Health.

Tell us about your current position and how you think the training experience in the NACS program helped you prepare for it.

I serve as the Director of Research Development and Innovation for the VCU Institute of Women's Health. The main arc of my research career has focused on sex disparities in experience-dependent plasticity of the mammalian brain that contribute to changes in cognition and affective function across the lifespan. Most recently, my work has focused on the mechanisms by which developmental stressors act as risk factors for disease states in adulthood – including psychiatric disease, drug abuse, and dementia – and how sex confers different vulnerabilities. Specifically, I investigated sex differences in the mechanisms by which environmental stressors experienced during adolescence lead to long-lasting consequences that manifest in adulthood – including diet-induced stress (consumption of a high fructose diet) or psychosocial stress that drive adult cognitive decline and neuroinflammation. My earlier work investigated plasticity of the peri- and post- natal brain of males and females and how neuroendocrine mechanisms driven by offspring interaction alter neural structure and function. In addition to my successful research career, I have established a well-rounded teaching portfolio based in pedagogical theory covering undergraduate, graduate, and medical education. I am passionate and committed to promoting diversity and inclusion among health science fields and beyond – increasing the representation of women and underrepresented groups in STEM fields through active training and engagement. Finally, I am experienced in healthcare innovation for new technologies that advance healthcare practices, disease prevention and treatment, and medical education.

My time as a NACS graduate student was an incredible and pivotal time in my career. It allowed me to blend my undergraduate work in psychology with my masters work in neuroscience into a more holistic framework. I loved being exposed to all of the varied disciplines within the NACS program. This has helped me tremendously in my current role as Director of Research Development as I work across all disciplines – from basic sciences to clinical trials to policy. My NACS training helped set the stage for my ability to think and act across disciplines to work with and facilitate interdisciplinary teams of researchers, clinicians, and community partners. I served as the student representative to the NACS executive committee and that helped me establish an understanding of program strategy and goals – an extremely important part of my current job. The coursework and teaching that I did as a NACS student set the bar for me as far as education and my own abilities as an educator – nothing will ever beat Cell and Molec with Dr. Quinlan! The close relationship that NACS has with NIH has also been instrumental in preparing me to work at an interdisciplinary level in the research community. As a NACS student I was able to go to NIH many times and collaborate with researchers there which helped me understand federal funding and priorities. And lastly I cannot talk about NACS without mentioning how incredible all the people were. My cohort (and beyond!) was fantastic and have made me the best of friends. My advisor, Dr. Erica Glasper, and the rest of my committee were incredible role models and supportive of my training. And of course nothing would have gone as well without the wonderful Pam Komarek!

Recent Student Publications

(NACS students and alumni in **bold** & *italics*; NACS faculty in **bold**)

Alkire, D., McNaughton, K. A., Yarger, H. A., Shariq, D., & **Redcay, E.** (2022). Theory of mind in naturalistic conversations between autistic and typically developing children and adolescents. *Autism*. doi: 10.1177/13623613221103699.

***Baldassano, J. F.,* & MacLeod, K. M.** (2022). Kv1 channels regulate variations in spike patterning and temporal reliability in the avian cochlear nucleus angularis. *Journal of Neurophysiology*, *127(1),* 116-129.

Barrios, S. L., ***Rodriguez, J. M.,*** & Barriuso, T. A. (2022). The acquisition of L2 allophonic variants: The role of phonological distribution and lexical cues. *Second Language Research.* doi:10.1177/02676583221099237.

Bartsch, F., Cumming, B. G., & **Butts, D. A.** (2022). Model-based characterization of the selectivity of neurons in primary visual cortex. *Journal of Neurophysiology,* 128(2), 350-363.

Callow, D. D., Pena, G. S., Stark, C. E., & **Smith, J. C.** (2022). Effects of Acute Aerobic Exercise on Mnemonic Discrimination Performance in Older Adults. *Journal of the International Neuropsychological Society,* 1-10. doi:10.1017/S1355617722000492.

***Callow, D. D.,* Purcell, J. J.**, Won, J., & **Smith, J. C.** (2022). Neurite dispersion and density mediates the relationship between cardiorespiratory fitness and cognition in healthy younger adults. *Neuropsychologia, 169,* 108207.

Grimes, W. N., Sedlacek, M., ***Musgrove, M.,*** Nath, A., Tian, H., Hoon, M.,… **Diamond, J. S.** (2022). Dendro-somatic synaptic inputs to ganglion cells contradict receptive field and connectivity conventions in the mammalian retina. *Current Biology, 32(2),* 315-328.

Harris, L. N., Creed, B., Perfetti, C. A., & ***Rickles, B. B.*** (2022). The role of word knowledge in error detection: a challenge to the broken error monitor account of dyslexia. *Annals of Dyslexia*, *72,* 384-402.

Hur, J., Kuhn, M., Grogans, S. E., Anderson, A. S., Islam, S., ***Kim, H. C.,*... Shackman, A. J.** (2021). Anxiety-related frontocortical activity is associated with dampened stressor reactivity in the real world. *Psychological Science, 33(6),* 906-924.

***Merchant, J. S., Alkire, D.,* & Redcay, E.** (2022). Neural similarity between mentalizing and live social interaction during the transition to adolescence. *Human Brain Mapping, 43(13),* 4074-4090.

Oppenheimer, K., ***Salig, L.,*** Thorburn, C., & Exton, E.(2022). Taking language science to zoom school: Virtual outreach to elementary school students. *Language and Linguistics Compass, 16(9),* e12471.

Roche, E., Rocha-Hidalgo, J., Piper, D., Neely, L., Zheng, W., Ryu, J.,… Barr, R. (2022). Presence at a distance: Video chat supports intergenerational sensitivity and positive infant affect during COVID-19. *Infancy, 27(6),* 1008-1031.

Tinnemore, A. R., Montero, L., **Gordon-Salant, S., & Goupell, M. J.** (2022). The recognition of time-compressed speech as a function of age in listeners with cochlear implants or normal hearing. *Frontiers in Aging - Neuroscience Neurocognitive Aging and Behavior.* doi: 10.3389/fnagi.2022.887581.

Vatan, T., Minehart, J. A., Zhang, C., Agarwal, V., Yang, J., & **Speer, C. M**. (2021). Volumetric super-resolution imaging by serial ultrasectioning and stochastic optical reconstruction microscopy in mouse neural tissue. *STAR Protocols, 2(4)*, 100971.

***Vazquez, D., Schneider, K. A.,* & Roesch, M. R. (**2022). Neural signals implicated in the processing of appetitive and aversive events in social and non-social contexts. *Frontiers in Systems Neuroscience, 16,* 926388.

Won, J., ***Callow, D. D.,*** Pena, G. S., Gogniat, M. A., ***Jordan, L. S., Kommula, Y.,*** & **Smith, J.C.** (2021). Hippocampal Functional Connectivity and Memory Performance After Exercise Intervention in Older Adults with Mild Cognitive Impairment. *Journal of Alzheimer's Disease, 82(3),* 1015-1031.

Won, J., ***Callow, D. D.,*** Pena, G. S., Gogniat, M. A., ***Jordan, L. S., Kommula, Y.,…*Smith, J. C.** (2021). Evidence for exercise-related plasticity in functional and structural neural network connectivity. *Neuroscience and Biobehavioral Reviews, 131,* 923-940.

Congratulations PhD Graduates!

Spring 2022

Matthew Manion Coon
Advisors: Erica Glasper & Kuan Hong Wang

Shakiba Rafiee
Advisors: Ross Miller & Tim Kiemel

Heather Pribut
Advisor: Matt Roesch

Summer 2022

Chelsea Haakenson
Advisors: Greg Ball & Robert Dooling

Zoe Ovans
Advisors: Yi Ting Huang & Jared Novick

Chethan Parameshwara
Advisors: Yiannis Aloimonos & Cornelia Fermuller

Greg Perrin
Advisor: Josh Singer

Awards and Accomplishments

Daniel Butts, Associate Professor of Biology, received an NSF Collaborative Research in Computational Neuroscience (CRCNS) award to study cortical mechanisms of color vision with Bevil Conway at the NIH. He also received an NSF "NCS Foundations" award to study active vision with Farran Briggs and Ralf Haefner at the University of Rochester.

Matt Goupell, Professor of Hearing and Speech Sciences, received an NIDCD grant, *Peripheral and central contributions to auditory temporal processing deficits and speech understanding in older cochlear implantees.* He was also made a Fellow of the Acoustical Society of America .

Jeff MacSwan, Professor of Applied Linguistics and Language Education, received the Lifetime Achievement Award from the Bilingual Education Research SIG, and the Leadership through Scholarship Award from the Second Language Research SIG, American Educational Research Association, in 2021. His new edited volume, Multilingual Perspectives on Translanguaging, was published with *Multilingual Matters* in July, 2022.

Colin Phillips, Professor of Linguistics, is a chair (for 2022) of the language section of the American Association for the Advancement of Science (AAAS)**.** Also, with Charlotte Vaughn leading the effort, he helped launch the Language Science Station at Planet Word Museum in Washington DC, along with NACS colleagues **Yi Ting Huang, Jan Edwards, and Rochelle Newman**, as well as colleagues from Gallaudet and Howard Universities.

Jeremy Purcell, Faculty Specialist in the Maryland Neuroimaging Center, and **DJ Bolger,** Associate Professor of Human Development and Quantitative Methodology, were awarded a 2-year grant from NICHD to study the brain basis of reading.

Nan Ratner, Professor in Hearing and Speech Sciences, published *A handbook on Stuttering (7th edition),* which recently received positive reviews in the *Journal of Fluency Disorders.* She co-authored *The Development of Language (10th edition)* which is now in press. Nan was awarded a First CASE grant from the National Stuttering Association for *Validating recommendations made to the parents of children who stutter;* and she received a subaward from NIDCD for *Phon Bank Integration with TalkBank.* In addition, she was invited as a keynote speaker to the International Conference on Stuttering, speaking on *The future of data sharing in fluency research,* in October 2021, and also to the Fifth Clinical Croatian Symposium on Stuttering, speaking on *Clinical implications of recovery from childhood stuttering,* in October 2022.

Elizabeth Redcay, Associate Professor of Psychology, was named 2022 NACS Faculty Mentor of the Year. She also received the 2022 BSOS Excellence in Research award.

Tracy Riggins, Associate Professor of Psychology**,** received the UMD Woman of Influence Award. She also received a grant from NIH to study infant brain development from birth through age 5 years along with **Nathan Fox,** Distinguished University Professor of Human Development, and Brenda Jones Harden (UMB School of Social Work).

Rachel Romeo, Assistant Professor of Human Development and Quantitative Methodology, received the "Rising Star" award from the Association for Psychological Science, and the Early Career travel award for researchers from/studying underrepresented populations from the International Mind Brain Education Society. In addition, she received a grant from NICHD investigating children's language experience and neurocognitive development.

Alexander Shackman, Associate Professor of Psychology, was awarded a NIMH 5-year grant: *Using theory- and data-driven neurocomputational approaches and digital phenotyping to understand RDoC acute and potential threat.* He also served as a guest Co-Editor with Miquel Fullana of Universitat Autònoma, Barcelona, on a Special Issue of *Neuroscience and Biobehavioral Reviews,* "Neurobiology of human anxiety," (2023). In addition, he will be an Associate Editor in 2023 for the *Journal of Psychopathology and Clinical Science* (formerly the *Journal of Abnormal Psychology*).

Jonathan Simon, Professor of Electrical and Computer Engineering and of Biology, was awarded a 5-year grant from the National Institute of Deafness and Communicative Disorders to investigate how the brain turns speech sounds into comprehensible language. The title of the grant is *Multilevel Auditory Processing of Continuous Speech, from Acoustics to Language.* Colleagues working on the team include **Samira Anderson, Behtash Babadi,** and **Stefanie Kuchinsky.** Also, this past summer Jonathan gave a keynote talk at the conference Cognitive Hearing Science and Communications (CHSCOM) in Linköping Sweden.

Matt Roesch Receives Prestigious Award

Matt Roesch, Professor of Psychology and NACS Director, received a Distinguished Scholar-Teacher (DST) Award, which honors a small number of faculty members each year who have demonstrated notable success in both scholarship and teaching. The award is sponsored by the Office of Academic Affairs and administered by the Associate Provost for Faculty Affairs. Dr. Roesch gave a DST talk, "This is Your Brain After Drugs: Long-term Influences on Neural Signals That Underlie Good Decision-making" on October 14, 2022.

Volunteer for Outreach!

The NACS Outreach Committee is a student-led program to bring neuroscience and cognitive science into the community. By taking science to schools and other community venues, they are fostering a potential interest in science for future generations and enhancing their abilities to communicate science to a diverse audience.

If you are interested in participating, please contact NACS students Gloria Kim (hkim1230@umd.edu) or Deena Shariq (dshariq@umd.edu).

Support NACS!

We would like to take this opportunity to remind you that you can donate to the NACS Program Gift Fund. The NACS Gift Fund is a very important source of funding for our program. We use the funds to pay for expenses that we cannot pay for using our state funds, such as appreciation gifts or awards and our recruitment event. Donating is easy and simple. To donate go to our website and click on "Give to NACS."

Follow NACS on Twitter!

Follow NACS on Twitter to help stay connected. If you are on Twitter, give us a follow to keep up with the latest NACS news. Also, if you have had a paper recently accepted, received a grant, fellowship, or award, or just think something is really cool and want to share, tag us to let us know. We want to share as many of the achievements of our students and faculty as we can!

Follow us on Twitter
@umdnacs

PROGRAM IN NEUROSCIENCE & COGNITIVE SCIENCE

Neuroscience and Cognitive Science Program | T: 301-405-8910 | Email: NACS@umd.edu
0219 Cole Student Activities Building, University of Maryland, College Park, MD 20742

Contact Information

Director: Matthew Roesch, Ph.D. (mroesch@umd.edu) | Assistant Director: Pam Komarek (pkomarek@umd.edu)
Program Management Specialist: Cathy Holm (cholm@umd.edu)
Grants Development Specialist: Joo Yun Jun, Ph.D. (jyjun@umd.edu)