

NACS 20th Anniversary Celebration

The NACS program held a reception on May 31 and an all-day event on June 1 to celebrate the 20th Anniversary of the NACS Program. The reception took place in the new NACS space in the Cole Student Activities Building. The events on June 1 included an alumni and student breakfast meet-up, a NACS movie prepared by the BSOS video team and the NACS office, talks by NACS alumna Dr. Beth Stevens (Assistant Professor of Neurology at Harvard Medical School and Boston Children's Hospital) and Dr. Maria Chait (Associate Professor at University College London, UK), a student research blitz, an awards ceremony (Outstanding Mentor Award presented to Catherine Carr, and Outstanding Student Awards presented to Chris Heffner and Andrew Venezia), and an anniversary cake. More than 80 NACS faculty, students, and community members attended the events.





Dr. William Hodos is a Distinguished University Professor Emeritus. His research studied the anatomy and physiology of the eyes and central visual system of birds. He has also written about the theoretical basis of comparative psychology and comparative brain anatomy. He retired in 2005 but continues to teach part-time.

What is your historical perspective and/or recollection of how neuroscience started on this campus?

In 1970, after a few years of teaching here part time, I was offered a professorship in Psychology. I took up my new post full of enthusiasm for interdisciplinary research, which had been a hot new trend in the 1960s. I had come from the Walter Reed Army Institute of Research in DC where I had done my military service and was later a civilian in the Neuropsychiatry Division. The approach there was that scientists from the different units of the division (experimental psychology, neurochemistry, neuroendocrinology, neurophysiology, psychiatry) should not only speak to one another about their research, but that they should actually collaborate on joint projects. In the 1960s and 1970s this was very radical and often was not met with enthusiasm. Among the techniques used to accomplish this collaboration were (1) mandatory attendance at a weekly colloquium that featured speakers from across the spectrum of neuroscience, and (2) scientists from completely different disciplines were assigned to share an office, a lab, a microscope, or some other piece of equipment. Thus, in spite of ourselves, we began having conversations with one another and even formed interdisciplinary friendships. Soon psychologists were working with endocrinologists and neurophysiologists on joint projects.

Meanwhile, a similar interdisciplinary group was functioning at MIT. They decided that their program needed a broader and more encompassing name than just calling it “interdisciplinary research” and so they coined the term “Neuroscience” and founded the MIT Neuroscience Research Program (NRP). The NRP group and others helped to found the Society for Neuroscience. I attended its first meeting at the Mayflower Hotel in DC in 1969. There were only about 200 people in attendance — a far cry from today’s huge meetings of the Society.

In the fall of 1970, I settled into my office in Psychology in gloomy, old, Morrill Hall, which was, and still is, the oldest academic building on the campus. Shortly thereafter, the beautiful Biology-Psychology Building opened. As the story was told to me, in the days before the building was even a fleeting dream, the then chairmen of the Biology and Psychology departments happened to be close personal friends. When they learned that each of their departments was being considered for space in new buildings, they requested that their two departments be housed together in the same building. And thus the Biology-Psychology Building was conceived and born just in time to play midwife to the birth of NACS.

In the early 1970s, John Corliss, who was the Biology Chair, agreed to let me teach a graduate course in comparative neuroanatomy in Biology. Some Biology faculty sat in on the lectures and we became friends, which helped to bring together the neuroscience-oriented faculty of the two departments.

How was it transformed into the Neuroscience and Cognitive Science program?

In the late 1980s, I began asking some of my colleagues in Psychology and Biology if they were interested in starting a neuroscience program. I then discussed it with Irv Goldstein, who was the Dean of BSOS, and Paul Mazzochi, who was the Dean of the College of Life Sciences. The Deans liked the idea and gave us a modest sum of money to run a colloquium series on multidisciplinary approaches to brain-behavior research. They also gave us the title of Center for Neuroscience and appointed me as the Director. Art Popper was the Associate Director. We were, however, cautioned not to call ourselves a neuroscience “program” because that term was reserved only for degree-granting entities, which we definitely were not. My colleagues and I designed a one-credit course called Introduction to Neuroscience that provided the basics of introductory physiology, psychology, and neurochemistry. I was succeeded as Director by Avis Cohen who had the foresight to see that what was needed was a degree-granting entity that was structured as a formal academic program. She undertook the enormous task of getting degree-granting status approved by the State educational authorities. She also wisely broadened the scope of the program to include departments in the cognitive sciences and changed the name to Neuroscience and Cognitive Science Program. Thus she created the NACS program that we know today. Thank you, Avis.



Dr. Yuwei Cui (NACS PhD 2015) is a Research Staff Member at Numenta, Inc.

Can you tell us about your current position, and how you think the training experience in the NACS program helped you prepare for it?

After graduation in 2015, I joined Numenta, Inc. as a Research Staff Member. We discover operating principles of the neocortex and create next generation machine intelligence technology based on these principles. We study experimental research in neuroscience and use these to improve our theory of the cortex. Since I joined Numenta, I have presented my work at several international conferences such as Cosyne, AREADNE, IJCNN and published in peer-reviewed journals such as Neural Computation.

I benefit tremendously from my graduate training at NACS as a computational neuroscientist. I learned not only the fundamental knowledge of neuroscience and state-of-the-art skills of machine learning and artificial intelligence, but also how to collaborate with experimental neuroscientists and ensure the successful completion of research projects. This training helped me to prepare for my career as a researcher in the growing field of artificial intelligence and computational neuroscience.



Dr. Melissa Pangelinan (NACS PhD 2012) is an Assistant Professor in the School of Kinesiology at Auburn University.

Can you tell us about your current position, and how you think the training experience in the NACS program helped you prepare for it?

I finished my Ph.D. in 2012 under the direction of Dr. Jane Clark and Dr. Brad Hatfield. I completed postdoctoral training at the Rotman Research Institute, a University of Toronto affiliated hospital that specialized in cognitive neuroscience. Dr. Matt Miller, who also completed his Ph.D. in NACS, contacted me about a position in the School of Kinesiology at Auburn University in the area of motor development. The job was an ideal fit and the opportunity to work with a previous colleague and other neuroscience-trained faculty was really appealing. I just finished my first year as an assistant professor.

Although the first year in an academic position is stressful and no one feels quite prepared for the job requirements, I believe my training in the NACS program allowed me to develop many of the fundamental skills needed to be successful. Here are my suggestions for current NACS students:

First, take advantage of all grant writing opportunities. Dr. Quinlan led an NIH predoctoral grant information session during my first year. This session was incredibly informative and I learned many different strategies for writing successful grants. I also took a grant writing/professional development course in Kinesiology as a second year student.

Second, learn new neuroimaging methods and learn to program! There are many neuroimaging tools and analytic software that are available to NACS students. I was considerably more marketable because I could code and teach MATLAB.

Third, teach a seminar or workshop and/or train/mentor undergraduate and graduate students. I taught a MATLAB programming workshop that served as a framework for a graduate programming course. I also ran tutorials for EEG data collection for grad students and undergrads. These experiences helped me to determine if I liked teaching and mentoring/training students.

Fourth, go to all of the NACS talks and meet with the speakers. These speakers are some of the most influential researchers in our field. Learn from their experiences! Also, if you are asked to suggest future speakers, take advantage of this opportunity. I asked to invite and host a researcher and I ended up doing a post-doc in his lab.

Finally, serve on committees. I learned a lot about what goes on behind the scenes during faculty searches that allowed me to be a successful applicant when I went on the job market. It's also useful to learn about the strategic plans for the program or university at large. The University of Maryland, and the NACS program in particular, is very forward-thinking.

Recent Student Publications

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

- * **Blankenship, S. L., & Riggins, T.** (2015). Developmental differences in relations between parent-reported executive function and unitized and non-unitized memory representations during childhood. *Frontiers in Psychology*, 6, 1-10. doi:10.3389/fpsyg.2015.01214
- * **Blankenship, S. L., Redcay, E., Dougherty, L. R., & Riggins, T.** (2016). Development of hippocampal functional connectivity during childhood. *Human Brain Mapping*, 1-20. doi:10.1002/hbm.23353
- * **Bryden, D. W., Burton, A. C.,** Barnett, B. R., Cohen, V. J., Hearn, T. N., Jones, E. A., Kariyil R.J., Kunin A., Kwak S.I., Lee J., Lubinski B.L., Rao G.K., Zhan A., & **Roesch, M. R.** (2015). Prenatal Nicotine Exposure Impairs Executive Control Signals in Medial Prefrontal Cortex. *Neuropsychopharmacology*, 41(3), 716-725. doi:10.1038/npp.2015.197
- * **Burton, A. C.,** Nakamura, K., & **Roesch, M. R.** (2015). From ventral-medial to dorsal-lateral striatum: Neural correlates of reward-guided decision-making. *Neurobiology of Learning and Memory*, 117, 51-59. doi:10.1016/j.nlm.2014.05.003
- * **Heffner, C. C., & Slevc, L. R.** (2015). Prosodic Structure as a Parallel to Musical Structure. *Frontiers in Psychology*, 6, 1-14. doi:10.3389/fpsyg.2015.01962
- * Hernandez, A., **Burton, A. C.,** O'Donnell, P., Schoenbaum, G., & **Roesch, M. R.** (2015). Altered Basolateral Amygdala Encoding in an Animal Model of Schizophrenia. *Journal of Neuroscience*, 35(16), 6394-6400. doi:10.1523/jneurosci.5096-14.2015
- * **Hyer, M. M.,** Hunter, T. J., Katakam, J., Wolz, T., & **Glasper, E. R.** (2016). Neurogenesis and anxiety-like behavior in male California mice during the mate's postpartum period. *European Journal of Neuroscience*, 43(5), 703-709. doi:10.1111/ejn.13168
- * **Marquart, G. D.,** Tabor, K. M., Brown, M., Strykowski, J. L., Varshney, G. K., Lafave, M. C., Mueller, T., **Burgess, S.M.,** Higashijima S., & **Burgess, H. A.** (2015). A 3D Searchable Database of Transgenic Zebrafish Gal4 and Cre Lines for Functional Neuroanatomy Studies. *Frontiers in Neural Circuits*, 9, 1-17. doi:10.3389/fncir.2015.00078
- * Morrill, T., Baese-Berk, M., **Heffner, C.,** & Dilley, L. (2015). Interactions between distal speech rate, linguistic knowledge, and speech environment. *Psychonomic Bulletin & Review*, 22(5), 1451-1457. doi:10.3758/s13423-015-0820-9
- * **Riggins, T.,** Geng, F., **Blankenship, S. L., & Redcay, E.** (2016). Hippocampal functional connectivity and episodic memory in early childhood. *Developmental Cognitive Neuroscience*, 19, 58-69. doi:10.1016/j.dcn.2016.02.002
- * **Riggins, T., Blankenship, S. L.,** Mulligan, E., Rice, K., & **Redcay, E.** (2015). Developmental Differences in Relations Between Episodic Memory and Hippocampal Subregion Volume During Early Childhood. *Child Development*, 86(6), 1710-1718. doi:10.1111/cdev.12445
- * Viswanathan, S., **Sheikh, A.,** Looger, L. L., & **Kanold, P. O.** (2016). Molecularly Defined Subplate Neurons Project Both to Thalamocortical Recipient Layers and Thalamus. *Cerebral Cortex*, 1-10. doi:10.1093/cercor/bhw271

Congratulations Graduates!

Spring 2016

Amanda Chicoli Ph.D.

Advisor: Derek Paley

Jeff Chrabaszcz Ph.D.

Advisor: Mike Dougherty

Summer 2016

Ying Tan Ph.D.

Advisor: Bradley Hatfield

Alex Presacco Ph.D.

Advisors: Samira Anderson & Jonathan Simon

Kathryn Yoo Chon Ph.D.

Advisor: Nathan Fox

Andrew Venezia Ph.D.

Advisor: Stephen Roth

Diego Elgueda Ph.D.

Advisor: Shihab Shamma

Matt Swierzbinski Ph.D.

Advisor: Jens Herberholz

Mark Saffer Ph.D.

Advisor: Bradley Hatfield

Fall 2016

Molly Hyer Ph.D.

Advisor: Erica Glasper

Tao Jiang Ph.D.

Advisors: Doris Wu & Catherine Carr

Aminah Sheikh Ph.D.

Advisor: Patrick Kanold

Krystyna Solarana Ph.D.

Advisor: Patrick Kanold

Awards and Accomplishments

Samira Anderson, Assistant Professor of Hearing and Speech Sciences, was awarded an R21 NIDCD Early Career Research Award for her project, "Early identification of auditory-based language impairment in infancy."

Ricardo Araneda, Associate Professor of Biology, was awarded a grant for a "Neuroscience Outreach Workshop" from the Grass Foundation. He was also invited to give a talk in the "Meet the Expert" series at the Society for Neuroscience this November.

Catherine Carr, Distinguished Professor of Biology, was awarded the titles of Distinguished University Professor from the University of Maryland and Doctoris Honoris Causa from the University of Southern Denmark.

Didier Depireux, Associate Faculty Scientist at the Institute for Systems Research, received the inaugural Provost's Excellence Award.

Quentin Gaudry, Assistant Professor of Biology, was awarded a Whitehall Foundation Research Grant to examine the interaction of olfactory circuits and neuromodulatory neurons that innervate those circuits.

Matt Goupell, Associate Professor of Hearing and Speech Sciences, received 3 R01 grants from the NIH and NIDCD, totaling more than \$3.4 million to study how people process different aspects of sounds with cochlear implants, bionic auditory prosthesis that partially restore hearing.

Mark Hallett, Senior Investigator at the National Institute of Neurological Disorders and Stroke, was awarded the NIH Director's Award for exemplary performance while demonstrating significant leadership, skill, and ability in serving as a mentor.

Kazue Hashimoto-Torii, Principal Investigator at the Center for Neuroscience Research at the Children's National Medical Center, received an R01 grant from the NIH/NIAAA to study the roles of alcohol-inducible RNA operons in the fetal brain.

William Hodos, Distinguished University Professor Emeritus of Psychology, was awarded a Post 50th Alumni Lifetime Achievement Award from Brooklyn College of the City University of New York in recognition of his exceptional scholarly accomplishments across a long and productive career.

Nathan Fox, Distinguished University Professor of Human Development and Quantitative Methodology, is a recipient of the 2017 G. Stanley Hall Award by the American Psychological Association. Dr. Fox also received two grants from the NIH, including a Bench to Bedside grant and a Program Project grant.

William Idsardi, Professor and Chair of Linguistics, was awarded the Benjamin Meaker Visiting Professorship from the University of Bristol, UK.

Stefanie Kuchinsky, Research Assistant Professor at the Maryland Neuroimaging Center, received an R03 grant from the NIH/NIDCD for "Understanding and indexing the neural bases of listening effort."

Jeffrey Lidz, Professor of Linguistics, was awarded the Distinguished Scholar-Teacher from the University of Maryland.

Nan Bernstein Ratner, Professor of Hearing and Speech Sciences, received grants from both the NIH and NSF to study the development of language fluency. Additionally she received the Professional of the Year Award from the National Stuttering Association; the Media Outreach Champion Award from the American Speech, Language and Hearing Association; and the title of Distinguished Alumni Fellow from Temple University School of Public Health.

Elizabeth Redcay, Assistant Professor of Psychology, received an R01 award from the NIMH to examine atypical brain networks important for social processing in children with autism, and a P01 grant from NICHD to investigate the development of brain systems involved in action execution and observation.

Stephen Roth, Professor of Kinesiology, was appointed Associate Dean for Academic Affairs in the University of Maryland School of Public Health.

Kenneth Rubin, Professor of Human Development and Quantitative Methodology, was awarded the University of Maryland Distinguished Scholar-Teacher Award; the Distinguished Contributions to Understanding International, Cultural and Contextual Diversity in Child Development Award from the Society for Research in Child Development; and the Founding Fellow from the International Society for the Study of Behavioral Development.

Alex Shackman, Assistant Professor of Psychology, and colleagues Nathan Fox and Luiz Pessoa were awarded a \$3.4M NIH grant to clarify the origins of anxiety disorders and depression. Dr. Shackman also received a grant from the NIDA to study the role of anxiety-related brain circuits in tobacco dependence and withdrawal.

Jonathan Simon, Professor of Electrical and Computer Engineering and Biology, was an invited keynote speaker at the Speech Processing in Realistic Environments workshop in Groningen, Netherlands.

Lisa Taneyhill, Associate Professor of Animal and Avian Sciences, was selected by the U.S. National Academy of Sciences, Engineering and Medicine to serve on a committee that studies "Gene Drive Research in Non-Human Organisms: Recommendations for Responsible Conduct."

Susan Wray, Senior Investigator at the National Institute of Neurological Disorders and Stroke, was awarded the Special Act Award from the National Institutes of Health.

Kareem Zaghloul, Investigator at the National Institute of Neurological Disorders and Stroke, was awarded the NIH Graduate Partnership Program Outstanding Mentor Award.

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, email

outreachnacs@gmail.com

Support NACS!

We would like to take this opportunity to remind you that you can donate to the NACS Program Gift Fund. The NACS Program 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."

Upcoming NACS Events!

NACS-Fest
February 16 & 17

NACS Research Day
April 28

NACS Innovation Symposium
Summer 2017



PROGRAM IN
**NEUROSCIENCE &
COGNITIVE SCIENCE**

Neuroscience and Cognitive Science Program | T: 301-405-5218 | Email: NACS@umd.edu
0218 Cole Student Activities Building, University of Maryland, College Park, MD 20742

Contact Information

Director: Jens Herberholz, Ph.D. (jherberh@umd.edu) | Assistant Director: Pam Komarek (pkomarek@umd.edu)
Admin Assistant: Blaze Buck (bbuck@umd.edu) | Grants Development: Gaelle Kolb (gkolb@umd.edu)