Volume 3, Issue 4 Spring 2018

Newsletter of the North Central Florida Chapter of the Society for Neuroscience

Neural Networking

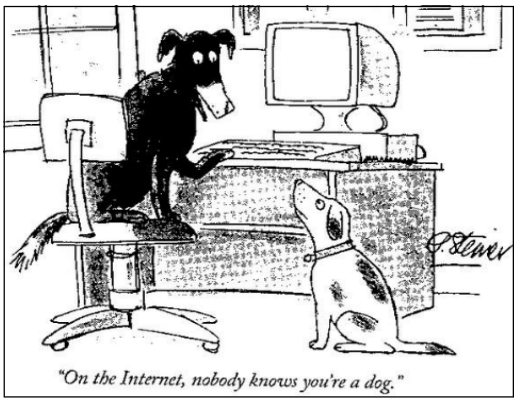
Brain Awareness Week in the Gainesville Area 2018

Inside this issue:

Brain Awareness Week (BAW) always falls on the Ides of March: this past year it was from March 12-18, and next year BAW will be from March 11-17. The Ides of March in Roman society was a time to settle debts as the Ides of March signified the first full moon of the year in the Roman calendar. We use BAW outreach to settle our own debts.

Seth Currlin settles his debt by poking a young child with toothpicks. The brain allocates more space to sensitive regions i.e. hands than to less sensitive regions i.e. arms, so that the brain's representation of the body correlates with touch sensitivity. The space between toothpicks necessary for the fingers to discriminate between the two separate points is smaller than the arm. Seth demonstrates this sensitivity threshold by asking if she feels one or two toothpicks while her eyes are closed.

I do not need to say that we are living in strange times because I know that we are not the first or the last to comment on the absurdity of the events that shape our experience. My generation grew up on the internet, where all sorts of information was available instantly if no one was using the phone. Before, you had to use a card catalog to find books containing the information you were seeking and there was no "crtl + f" once you actually found the books you wanted. The cost was high, and the reward reflected this—for the most part, you could trust the information in those tomes. The problem that arose from this explosion of information accessibility, is that now every Tom, Dick, and Harry thinks he is an expert on human-induced climate change, vaccines, stem cell research, evolution, etc. "On the internet, nobody knows you're a dog," so incorrect information seems to have the same value as correct information. How can you fact check any of the claims? Although this has recently been tagged as problematic, there are literal paywalls to accessing scientific publications. Quite a few politicians ran on anti-science platforms in 2016.



"On the Internet, nobody knows you're a dog."

A wide, accurate knowledge base is one of the few protections against misguidance and therefore a prerequisite for improving living conditions. I came to Gainesville for schooling and I plan on leaving when I finish. I am taking my increased earning potential with me away from Gainesville. The education that increased my earning potential was funded by American taxpayers. According to USA Today, in 2015, Gainesville, Fl ranked #4 of 20 of the "cities with the widest gap between the rich and the poor." The poorest 20% of Gainesville citizens earn 1.9% of total income, while the richest 20% earn 54%. While my short-term goal is to

A home schooled student learns about the brain.

Brain Awareness Week Cont.

contribute to my field of science, my long term goal is to meaningfully contribute to my community, to "leave this world better than [I] found it."

The outreach activities have not changed much since 2012, but our student-run chapter has tirelessly expanded the magnitude of our outreach activities. I do not mind teaching kids about brain tricks, how our brains control our senses, or where the hippocampus is in the sheep brain ad infinitum because students ask new questions every year (except "Can we eat this?" about the fixed sheep brains).

This past year, Ziqi and Monica coordinated activities with over 80 volunteers teaching 98 classes at 18 schools in Gainesville and neighboring towns in addition to home-schooled students and the Saturday Academy at Mt. Carmel Baptist Church. More than 2,000 students participated in our interactive presentations and experiments. The 80 volunteers brought something invaluable to kids, a glimpse at what real science looks like without a paywall. Hopefully, this shows students that might not have been exposed to these resources that science is accessible and really dang cool. STEM fields have historically suffered from a lack of diversity. I am against anti-science claims, but they were not created in a vacuum. It falls on us to climb down the ivory tower to where everyone else is living, especially since we built the ivory tower with their taxes.

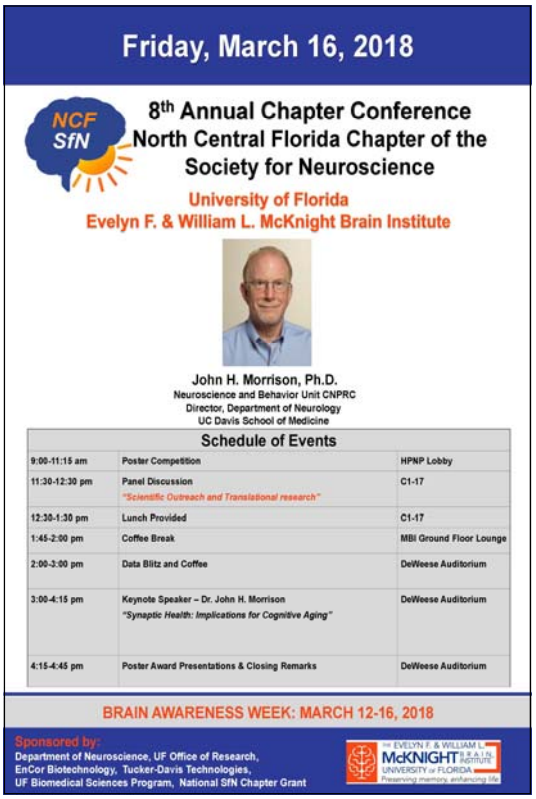
There are 3 main types of learners.

Why would you want to eat this? Did we not learn anything from the mad cow disease crisis?! Conversely, this question can serve as an organic segue into the horrors of prion-ravaged brains. Always teaching.

North Central Florida Chapter of the Society of Neuroscience Brain Awareness Week Conference

The conference began with a poster presentation competition in the HPNP Lobby with presenters vying for those sweet cash prizes. Sixty-one undergraduates, grad students, post-doctorate associates, lab technicians, and faculty presented their latest project for 18 judges comprised of post-doctorate associates and faculty. In our undergraduate category, Hannah Holik, Lindsay Altidore, and Genesys Giraldo won 1st, 2nd, and 3rd place, respectively. In the graduate category, Emily Koller, Hunter Futch, and Rachna Manek received 1st, 2nd, and 3rd place, respectively. Sruti Rayaprolu received 1st place in the post-graduate category. All winners from the graduate and post-graduate categories have publications available online for those interested in learning more about their research.

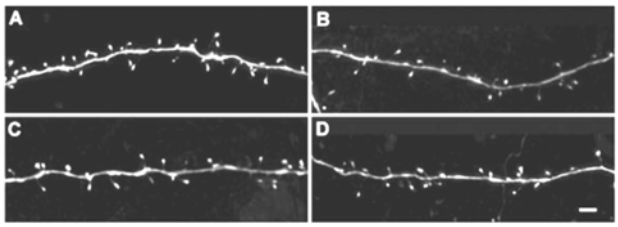
We moseyed on over to the Communicore to take part in a panel discussion with the focus on "Scientific Education for Modern Careers in Science." You can quote



BAW Conference Cont.


North Central Florida SfN Officers and Dr. John Morrison, 2018 NCF SfN Conference speaker

me when I say that this is a hot theme right now—Kelly DeMars 2018. We had a nice balance of perspectives including Dr. John Morrison, Dr. Michela Gallagher, Dr. Jennifer Bizon, and Ondine Wells, MS. Dr. Morrison, also our keynote speaker, is both a director at UC Davis and Editor-in-Chief of brainfacts.org. Dr. Gallagher, who was already on campus as she was asked to deliver the 2018 Luttge Lectureship March 15, currently directs the Neurogenetics and Behavior Center at Johns Hopkins University. Dr. Bizon works not only here in the Department of Neuroscience studying age-related cognitive decline, but also at the Center for Addiction Research and Education investigating neurobiological and behavior effects of toxins and drugs of abuse and at the Center for Smell and Taste. Ms. Wells is the Director of Education at the Cade Museum with a background in Environmental Engineering Sciences. The panel discussed their own outreach experiences which included a discussion on how to measure effective/successful outreach endeavors. After lunch, we enjoyed a Data Blitz in the DeWeese Auditorium in which participants had only 5 minutes to present their research. Presenters included Joseph Lebowitz, Michael Pace, Emily Koller, Hunter Futch, Jess-Karan (JD) Dillon, Christina Maloney, Rachna Manek, Doug Miller, and Dr. Jenny Wilkerson. We wrapped up the conference with our keynote speech, "Synaptic Health: Implications for Cognitive Aging." From his work in primates, Dr. Morrison described the cognitive and behavioral effects of dendritic spine morphology in different regions of the aging brain compared to young brains. We ended the conference presenting awards for poster session winners and with a raffle drawing. For every conference-related event, participants received a raffle ticket, so the more participation the higher the probability of winning the raffle prizes. These included an Apple watch, a portable laptop charger, and a portable phone charger, all of which would be useful while traveling for conferences.



Dendritic spines of neurons change with age and brain location. A) young dorsolateral prefrontal cortex (dlPFC) B) young visual cortex (V1) C) aged dlPFC D) aged V1

Brain Bee 2018

Our 1st place winner from last year's Brain Bee, high school student Keshav Motwani competed at the national championships in Washington, DC with the $1,500 prize money he received as the local competition winner. Although he did not place, we were proud that he represented our local chapter as our first Brain Bee Winner and believe that he has a successful career ahead of him as such an accomplished and highly intelligent individual. Thank you, Keshav! We are excited to announce that the Brain Bee will be an annual event through our chapter, and the next Brain Bee is scheduled for late fall. Questions are taken from Brainfacts.org and Neuroscience: Science of the Brain.Contact our Fall Outreach Coordinator Jolie Barter at jdbarter@ufl.edu for more details.


Kelly DeMars 2018 measuring reaction times to a light stimulus on the Spike Recorder App. Photo courtesy of The Gainesville Sun: http://www.gainesville.com/news/20180520/new-cade-museum-sparks-publics-imagination

Outreach with the Cade Museum

The Cade Museum off of Main and Depot is named after Dr. Cade, inventor of the thirst quencher Gatorade (it's got electrolytes) that he developed here at UF. His daughter, Board President and CEO of Cade Museum, Phoebe Miles has transformed the museum into an interactive art piece with the goal of inspiring young inventors, scientists, and creators to learn and explore. The Grand Opening on May 19 saw an explosion of families and children testing the 3D printers, making slime, exploring the Cade Lab, and among other things, learning about the neural control of muscles with the human-to-human interface with yours truly. The human-to-human interface allows children to use their brains to control the muscles of their parents. Electrodes on one person's arm capture forearm muscle activity which is amplified through a TENS unit and then transmitted to another set of electrodes placed on another person's ulnar nerve. This stimulation of the ulnar nerve induces a pinky, ring finger, and wrist contraction. The children love learning through electric shock.

Volunteering at the Cade Museum on Saturdays has been a rewarding experience in many ways, but mostly the passion of the educators and the excitement of the children is contagious. For more information regarding volunteering at the Cade Museum, contact the volunteer coordinator Michele Kuhn at 352-371-8001 or volunteercrd@cademuseum.org.

Travel Award

We are currently accepting applications for travel awards for dues-paying members that want to attend this year's Society for Neuroscience Conference in Washington, DC in November. We are granting $200 awards to 1 undergraduate, 1 post-doctoral associate, and 3 graduate students. Applications should be sent as a PDF to nflsfnchapter@gmail.com by Thursday June 1 by 5:00 PM. For application and eligibility details, please refer to the neuroscience department website under SFN Local Chapter and Travel Award Information at http://neuroscience.ufl.edu/sfn-north-central-fl-chapter/travel-award-information. May the odds ever be in your favor.

The North Central Florida Chapter of the Society for Neuroscience is located on the campus of the University of Florida in Gainesville, FL. Since its inception, the Chapter has been led by graduate students and postdoctoral fellows with support from faculty and administrators in the UF Department of Neuroscience. Each year we organize scientific and professional development venues for our members, visit local schools and community centers to educate about the brain and scientific research and sponsor travel awards to support attendance at the national meeting of the Society for Neuroscience.

Contact us:
http://neuroscience.ufl.edu/sfn-north-central-fl-chapter/
or
North Central Florida Chapter of the Society for Neuroscience
PO Box 100244
Gainesville, FL 32610-0244

North Central Florida Chapter of the Society for Neuroscience

Advancing the Understanding of the Brain and Nervous System

Thanks to our sponsors, faculty, and students that make our efforts worthwhile!

UF McKnight Brain Institute University of Florida

UF Center for Smell and Taste

UF Department of Neuroscience College of Medicine

EnCor Biotechnology Inc.

UF Office of Research University of Florida

TDT Tucker-Davis Technologies New Frontiers in Neuroscience

BANYAN BIOMARKERS®