

# Neural Networking

## Brain Awareness Week March 13-17

By Kelly DeMars

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We had another successful Brain Awareness Week (BAW) in which we educated local students about the brain while increasing awareness about brain and neuroscience research. This is the 7th year in a row that our local Society for Neuroscience Chapter has organized BAW at the University of Florida. BAW activities culminated with a day-long conference which was a masterful meeting of magnificent minds. We began the morning with a fierce poster competition that included about 50 of the crème de la crème of undergraduate, graduate, and post-doctorate researchers. In the post-doctorate category, Dr. Changjun Yang received 1st place. Among graduate students, the winners included: 1st: Joseph Lebowitz, 2nd: Amrutha Pattamatta, 3rd: Caesar Hernandez. Undergraduate winners include: 1st: Miranda Schwabe, 2nd: Lauren Vetere (pictured below), 3rd: Dana Shively.

After the poster competition, there was a panel discussion in which successful researchers answered questions about scientific education trajectories to prepare for careers in science. Representing an academic perspective were: Drs. Jada Lewis and Ron Mandel of University of Florida and Rebecca Burwell of Brown University—and representing an industry/biotech perspective were Drs. Gerry Shaw of EnCor Biotechnology and Victor Rush of Tucker-Davis Technologies. Many scientists-in-training are concerned about the increased competition for academic positions associated with an increasing pool of post-docs, but a stagnant number of tenured/faculty jobs—particularly now with talks about potential NIH budget cuts since the NIH funds a large proportion of academic research—so students welcomed the opportunity quell some of that internal panic by asking the experts about preparing for not only academic, but also alternative career paths.

Next, we heard from Dr. Clugston, a team physician for the University of Florida Gator Football Team. Longer careers increase the risk of traumatic brain injury in NFL athletes. So hot right now: research investigating the role of concussion sustained during football/sports and chronic traumatic encephalopathy, a progressive neurodegenerative disease. Dr. Jay Clugston passed around football helmets showing the progression of helmet engineering since the 1970s while emphasizing the importance of reducing head impacts and what UF is doing to protect their football players.



Our keynote speaker Dr. Rebecca Burwell of Brown University discusses her research investigating the neural basis of memory.

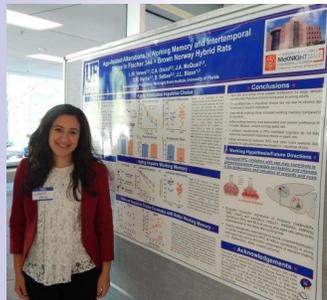
In the Data Blitz, researchers were challenged to transform years of blood, sweat, and tears into a titillating, 5-minute story of scientific investigation to mixed audience of laypeople and other scientists. Speakers included: Sean Turner and Abbi Hernandez of the Burke Lab, Kelly DeMars of the Candelario Lab, Michael Pace (pictured below) of the Borchelt Lab, Christina Moloney and Matthew Hamm of the Jada Lewis Lab, Amrutha Pattamatta of the Ranum Lab, and Caitlin Orsini, PhD of the Setlow Lab.



Michael Pace teaches an audience about his research in only 5 minutes as part of the Data Blitz.

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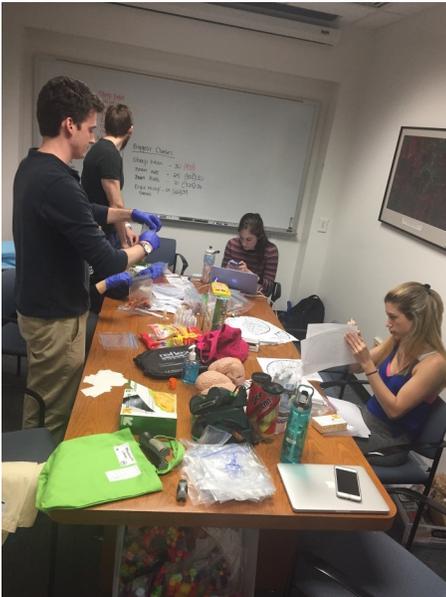
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Lauren Vetere of the Bizon-Setlow lab presents her research.

# Brain Awareness Week Continued

By Kelly DeMars



Kevin and Leslie help prepare Brain Awareness Week bags for volunteers

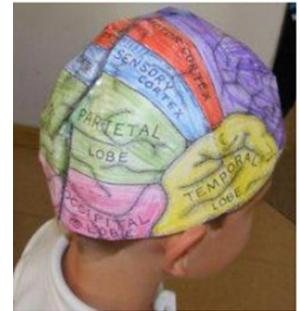
From March 13-16, Leslie Gaynor and Kevin Strang coordinated the BAW outreach efforts of over 60 volunteers, so that 101 brain awareness classes were taught to more than 2,200 elementary, middle, and high school students across 18 local schools in Gainesville, Alachua, High Springs, Hawthorne, Archer.

For younger students, volunteers taught some classes about the structure of neurons by making neurons with pipe cleaners and pom pom balls. Other classes colored brain hats that show some of the main func-

tions of the four lobes of the brain. With a little tape and some safety scissors, the children strutted down the halls with their colorful brains exposed, while other students looked on enviously.

Some classes learned about the various roles of the brain through our Five Senses & Brain Tricks class. For example, many optical illusions work since our brain tries to take short-cuts or will fill in missing information based on the surrounding context. Although sometimes we are tricked by these short-cuts, most of the time they only serve to reduce the amount of time needed to process what is in front of us.

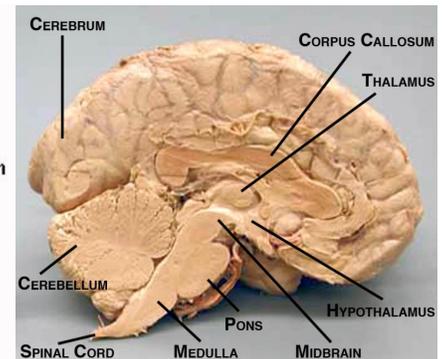
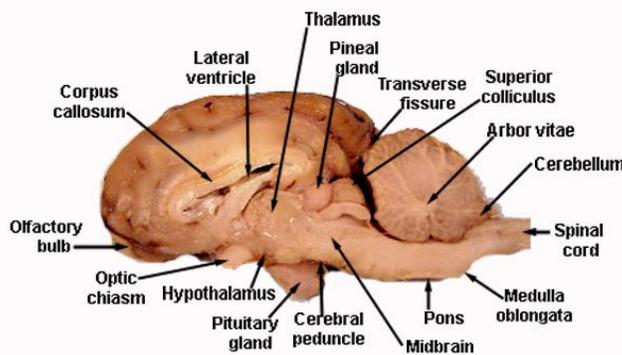
The Sheep Brain Dissection class is a very popular lecture with students. They have a lot of questions about the source of our sheep brain supply—but mostly kids ask if they can eat the fixed brains to gross out their peers. Students formed groups of 2-4 and are given gloves, a scalpel, and a sheep brain before digging in. First, we observed the surface structures visible without making cuts, like the vasculature, cranial nerves, and sulci/gyri. We then guided students through a midsagittal cut down the center of the brain to compare the locations of structures in the sheep brain with those of the human brain. It was a unique experience, and I hope students remembered how



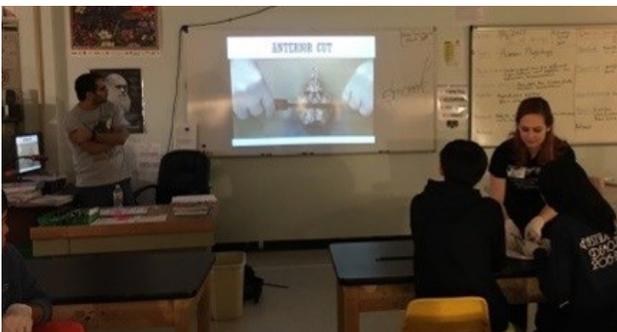
Above: Boy wears fashionable brain hat proudly. Below: This piece is an artist's rendition of a neuron using pipe cleaners as a medium.



aware of their brains they were that day. It was magical, especially because none of the sheep brains were actually eaten.



Midsagittal cut of a sheep brain (left) and a human brain (right).



Left: Graduate students Janak Gaire and Kelly DeMars show students how to make sheep brain cuts to identify specific structures at Eastside High School in Dr. Akinyode's biology class. Right: Students glove up for the sheep brain dissection because safety is important.

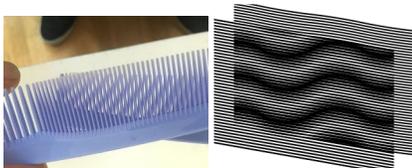


# Community Outreach in Gainesville, Florida

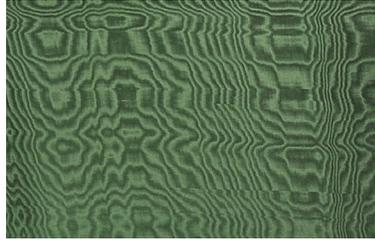
By Kelly DeMars

Our local chapter often teams up with the Cade Museum through Program Director Patty Lipka to teach kids about the brain outside of Brain Awareness Week with interactive experiments. This semester we were lucky to have the opportunity to teach kids at several events.

We usually teach children about the brain through demonstrations of optical illusions and tricks. In one of the 8-12 year old classes, most of the kids already had seen a lot of the tricks I had up my sleeve from watching Brain Games (National Geographic) on Netflix—in my defense these kids were smarter than I am. However, one thing they did not have experience with was Moire patterns. Moire patterns are due to interference patterns when two patterns overlap (see diagrams below). You might have noticed Moire patterns when driving by two sets of fences:



Or maybe in antique silks:

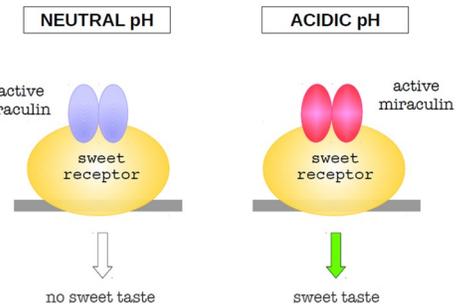


We made Moire patterns with combs—which was very exciting. The favorite experiment by far though was the miracle berry food test. Miracle berries are pretty bland in themselves, but when you chew them up a bit and let the juice coat your tongue, sour things that you within the next 30-60 minutes taste very sweet. This is because miraculin, the active ingredient in miracle berries binds to sweet receptors. In an acidic environment, miraculin activates the sweet receptors, so that when we ate pickles, lemons, limes, and tomatoes, all the food we tried tasted very sweet.

Our local chapter also enjoyed tabling at the Super Scout Science Saturday where we had a seemingly infinite amount of boy scouts and girls scouts come up to us, asking if someone could throw a ball at them while wearing our inversion goggles. I gladly obliged, but explained that although the brain is very plastic, it would take around a month of wearing our inversion goggles for their visual cortices to adjust to the change in perception. It was rewarding for everyone involved when multiple children, all wearing inversion goggles, attempted to toss and catch tennis balls with each other. We all laughed like hyenas because we love brain science.



Above: Hapless child attempts to catch a ball pelted at him while wearing our special inversion goggles. If he wore them for a month, his visual cortex would be reorganized and he would be able to catch the projectiles pelted at him. Below: Miracle berries in their natural habitat. In a low pH environment, miraculin, the active ingredient in miracle berries, binds and activates sweet receptors, so that sour things taste very sweet.



## Travel Award

By Kelly DeMars

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](mailto: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.

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*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.*



*Advancing the Understanding of  
the Brain and Nervous System*



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