McPartland Lab

WINTER NEWSLETTER

DIRECTOR'S WELCOME

Dear McP Lab community,

Happy New Year! This is proving to be a taxing winter for those of us in New England, with bitter cold temperatures, regular snow, and persistent ice. Our lab is toasty and warm, so please visit us for science alongside hot coffee and tea! In this newsletter, we share some ideas for entertaining your family indoors when you don't want to step outside into the frosty weather. For those brave enough to venture out, we highlight some fun community activities and events. We introduce two post-doctoral scientists launching their research careers with prestigious Hilibrand Fellowships. We summarize findings from a collaboration with other researchers at Yale to help us understand how the brain works when autistic people are actively interacting with others. We also highlight very exciting and important new lines of research in our lab. We are doing more work to help those with intellectual disability and Angelman Syndrome. We are known for our work in autism, but we recognize that our science is also relevant to these conditions. If you know families affected by intellectual disability or Angelman Syndrome, please forward this newsletter! We want to get the word out that we are working with these groups! Keep in touch and stay warm!

Sincerely,
Jamie McPartland

IN THIS ISSUE

MEET THE LAB!

BRIANNA CAIRNEY

Introduce yourself! What is your role at Yale?
Hi everyone! My name is Bri, and I am a first-year Hilibrand Postdoctoral Fellow. I grew up in Seattle, Washington, and recently graduated from Louisiana State University with a PhD in Cognitive Psychology. My favorite part of this job is that I learn something new every day! Outside of work, I enjoy reading, exploring New England, and trying all the different New Haven pizzerias.

What did you do before you joined the McPartland Lab?
I graduated from the University of Washington with a B.A. in Psychology and then worked in an autism research lab where I ran EEG and eye-tracking experiments. I moved to Baton Rouge, Louisiana in 2018 for grad school. My PhD is in cognitive psychology, and I primarily studied how different types of co-speech hand gestures support learning and memory. Using EEG and memory tests, I found that meaningful gestures help people better remember speech content by enhancing mental imagery!

What made you interested in working in this field?
Autistic kids! Caring for autistic children is what initially drew me to autism research. Working with autistic children in the research lab--particularly kids with higher support needs and/or limited expressive speech--is what motivated me to learn more about autism, research methodology, and inclusive practices. Today, the autistic community motivates me to keep learning and helps inform the research questions I am interested in testing.

JACOB MOMSEN

Introduce yourself! What is your role at Yale?
Hey there! My name is Jacob, and I am a first-year Hilibrand Postdoctoral Fellow. I grew up in Austin, Texas, and graduated with a B.A. from Trinity University in San Antonio.

What did you do before you joined the McPartland Lab?
During graduate school, I met a variety of faculty members and students working across a number of subdisciplines within cognitive and speech-language sciences. I explored my own interests in various research contexts–learning different techniques to study the brain and mental processes, including eye-tracking, EEG, and even virtual reality! My primary work and dissertation focused on developing and testing a new theory about the brain systems that help us manage our attention when we're in social settings. These ideas were designed to help explain certain differences associated with autism.

What made you interested in working in this field?
After my undergraduate studies, I worked at Blossom Center for Children providing play-based therapy for autistic children. My experiences there inspired me to continue giving back to the community through service and curiosity about the foundations of mental processes that characterize neurodevelopmental profiles such as autism. My decision to pursue a career in research happened later during my time as a research assistant, where I learned the fundamentals of cognitive neuroscience and EEG under the guidance of Dr. Nicole Wicha.

SKILL-BUILDING FAMILY FUN FOR THE WINTER MONTHS

BY DR. JULIE WOLF

With winter in full swing, we thought we'd share some activities you can do as a family to combat the winter doldrums. Here are some ideas for activities and games that are fun and have the added benefit of practicing skills that can be challenging for autistic individuals.

Game Changer

In this activity, you can choose any board game or card game that your family enjoys, but there's a twist! Before playing, decide as a family on a rule of the game that you want to change. For example, if you're playing Uno, you might decide that all wild cards now require "drawing 4." Or you might decide that "skip" cards skip over two players instead of one. This activity can help to build flexibility skills in kids who generally prefer to stick to the rules. To add more challenge (and fun!), you can do variations of this activity. For example, you could try to play a game where each player gets to change a rule every time it's their turn. This variation quickly turns to chaos, because before long it's impossible to keep track of what all of the new rules are!

Set

The card game "Set" is a great game for working on flexibility and quick thinking. This game has cards that differ in a number of features (shape, color, pattern, and number), and the goal is to search an array of cards to find a "set" of cards that are either all the same or all different on each of the four features. But you need to think quickly and find a set before anyone else does!

If the game of Set is too challenging for your child, you can also use the cards to help them learn the strategy and build flexible thinking skills. To do this, take any two cards from the deck, and ask your child to describe (or locate) the third card that would complete the set.

Codenames

Codenames is a fun guessing game that requires perspective-taking and executive functioning skills. One player gives a clue to help their teammates guess target words, while avoiding the opposing teams' words. It is available as a board game, an app, and online.

Charades

A classic game of charades is a great way to work on nonverbal communication skills!

Jackbox Games

Jackbox Games are group games played online and with a smartphone or other device, and are great fun for older kids, teens, and adults. There are many games available that can foster the development of a variety of skills. Here are some favorites:

- **Quiplash:** Complete a prompt with comedic responses to earn the most votes from other players. This game practices perspective taking and creativity.
- **Talking Points:** Give a presentation on the fly using humorous slides chosen by your teammate. This game practices public speaking, narrative organization, and flexibility.
- **The Devils and the Details:** Work together as a team to complete a variety of tasks, but watch out for teammates who might try to sabotage your efforts! This game practices teamwork, communication, and perspective taking.

SKILL-BUILDING FAMILY FUN FOR THE WINTER MONTHS

BY DR. JULIE WOLF

Barrier Games

In barrier games, two children sit facing one another with a barrier between them (or alternatively, sit facing back-to-back). One child performs a task and must communicate to their partner what they are doing, with enough detail that their partner can replicate the task. When finished, the barrier is removed, and the children can compare whether their creations are identical. You can play barrier games with a number of different materials, but here are a few possibilities that create different levels of difficulty:

- **Mr. Potato Head (easiest difficulty)**: Provide each player with a Mr. Potato Head toy and identical sets of parts. The two players must build two identical Mr. Potato Heads using only verbal communication, without seeing what the other person is doing.
- **Lego (medium difficulty):** Provide each player with a small set of Legos, making sure that each player receives an identical set. The two players must build two identical Lego constructions using only verbal communication, without seeing what the other person is doing.
- **Drawing (hardest difficulty):** One person draws a picture and instructs the other person on how to move their pencil to replicate the drawing. Labeling any object is not allowed (e.g., you cannot say “draw two eyes in the middle” but instead might say “draw a one-inch circle about ¼ of the way across the page, and another one-inch circle ¾ of the way across the page”). When finished, compare your drawings to see how they match!

You can also add to the difficulty of any of the above levels by playing a “silent” version in which the person receiving the instructions is not allowed to ask any clarifying questions.

Snow Day Fun

If you’re tired of being cooped up inside and there is snow on the ground, there are lots of ways to encourage social interaction skills while enjoying some outdoor family fun!

- For younger kids, you can work on turn-taking skills while decorating a snowman, by alternating whose turn it is to choose and place a decoration.
- Building a snowman or a snow fort can also promote teamwork, communication, and collaboration as everyone works together to plan and make decisions about the design.
- Sledding is a great social activity that you can do with friends. For kids who struggle with group social interaction, sledding provides a structured activity that can be less overwhelming than open-ended social interaction, because kids can focus on the task at hand (sledding) while still reaping the benefit of spending time with peers. There are also many ways you can encourage peer engagement while sledding, such as having two kids share a toboggan, having one child pull another child in the sled, or having sledding races to see who gets down the hill first.

RECENT DISCOVERY

Support vector machine prediction of individual Autism Diagnostic Observation Schedule (ADOS) scores based on neural responses during live eye-to-eye contact

Click here to read the full article!

Autistic individuals sometimes have difficulty with social interactions and may differ in the way they communicate with others, such as making eye contact less often. This study aimed to measure the brain activity of autistic and non-autistic adults during a live social interaction. Researchers used a technique called functional near infrared spectroscopy (fNIRS) to measure brain responses in autistic and non-autistic adults while they made eye contact with another person. The researchers then used a mathematical approach called machine learning to analyze the data. They found that they could use the brain data to classify whether the person was autistic or non-autistic. The researchers also showed that brain activity during live social interaction was related to behavioral features of autism. This study sheds light on the brain activity related to social differences in autistic individuals and may offer insights for developing new tools for diagnosing autism.

Read more summaries of recent discoveries on **our website** under Publications, Article Summaries!

THE MCPARTLAND LAB AT AMAZING-U

This past fall, some of our lab members attended the Amazing-U event for autistic children and their families. Amazing-U is an organization dedicated and committed to supporting, celebrating and bringing awareness to the unique abilities of autistic children in Bridgeport, Connecticut. The event involved dancing, music, and fun games and activities for autistic children and their families. Members of the McPartland Lab, including fellows, Shreya and Isabel, pictured to the right, spoke about opportunities to participate in research at the Yale Child Study Center.

STUDY SPOTLIGHT:

INTELLECTUAL DISABILITY AND ANGELMAN SYNDROME

BY DR. BRIANNA CAIRNEY

What is the goal of the study?

There is a growing awareness of the need to include people with intellectual disability in research. Our lab has made significant efforts to make our experiments more comfortable, accessible, and inclusive for this group, thanks in part to feedback from our participants and their families! As a result, we are learning more about kids with intellectual disability from successful neuroscience experiments. Although we work with many autistic children, we are also interested in studying other neurodevelopmental conditions. Most recently, we have added a focus on Angelman Syndrome.

What is Angelman Syndrome?

Angelman Syndrome is a rare developmental disorder marked by significant intellectual disability, as well as speech challenges, motor difficulties, and sleep problems. These features can complicate traditional behavioral testing, but our efforts to make measuring brain activity easier and more tolerable help us to accommodate the needs of children with Angelman syndrome. We hope this will let us better measure the effects of therapy.

How do we accomplish that goal?

We measure the brain in the form of electrical brain waves, as well as looking patterns with a camera that measures eye movements. These methods are non-invasive and easy for children. This allows us to study brain biology without requiring kids to talk or give complex motor responses. Our research involves engaging children with Angelman Syndrome in enjoyable activities (like watching a favorite show or movie) while we record their brain waves and eye movements, providing valuable insights while ensuring a positive and stress-free experience for our participants.

Who can participate?

If you have a child between the ages of 3 and 17 with Intellectual Disability and/or Angelman syndrome, please consider partnering with us in this important research! We will work together to design a research experience to maximize your child's comfort and enjoyment.

Check out how we measure brain waves! Children wear this "hat" and watch movies.

Did you know? February 15 is International Angelman Day!

Interested in participating?

Contact us at 203-785-6108 or email autism@yale.edu

IN THE COMMUNITY: SAFESPLASH

What is Safesplash?

Safesplash provides swimming lessons to children of all ability levels. They are dedicated to providing a safe and attentive environment, focusing on teaching lifelong swim skills. Safesplash's mission is to promote water safety, focusing on introducing skills such as self-rescue roll overs, grabbing onto the wall, calling out for help, and flutter kicks. Additionally, Safesplash has heated pools, meaning more comfort and better learning! Safesplash is located in Newington, CT, and has locations in New York as well.

Safesplash Family Fun and Events

Safesplash offers swim parties! This includes access to their warm indoor pool, a party host, a certified lifeguard, a party area, and customizable options to fit to the needs of the everyone involved. Additionally, Safesplash offers family open swim, which allows families to practice water safety and swim skills in a relaxed and kid-friendly setting.

Safesplash's Adaptive Aquatics Program

Safesplash has an adaptive aquatics program that supports swimmers who may need more support. Their adaptive aquatic classes have a specific framework and structure that helps swimmers with special abilities achieve milestones, while still allowing for flexibility and adaptation for individualized lesson plans and goals. Additionally, the adaptive aquatics classes have a 1:1 ratio, allowing the instructor to give their undivided attention to their student. Safesplash takes students of all abilities, which includes autism, ADHD, or students who have specific sensory needs. The goal of the adaptive aquatics classes is to introduce the water to the student. Some activities include cup pours over the head, bubbles, and singing songs.

To get involved, email: moreinfo@safesplash.com
Check out their website and Instagram: @safesplashswimschool

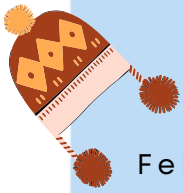
FUN WINTER ACTIVITIES IN CONNECTICUT

Powder Ridge Mountain Park and Resort: Middlefield, CT
Powder Ridge Mountain Park and Resort has a range of snow activities, including skiing, snow boarding, snow tubing, and a kid's snow play zone.
Powder Ridge Mountain Park and Resort

Connecticut Science Center: Hartford, CT
The Connecticut Science Center includes exhibits for children of all ages related to physics, engineering, life sciences, and more. They will be hosting Sensory Friendly Days throughout the year!
Connecticut Science Center

Ice skating at Ralph Walker Ice Rink: New Haven, CT
Check out their Facebook page for hours and events!
Ralph Walker Ice Rink

Mystic Aquarium: Mystic, CT
The Mystic Aquarium is home to marine mammals, fish, invertebrates, and reptiles. The Yale New Haven Health Family Lounge and First Aid Center in the aquarium serves as a sensory-friendly quiet room and is located within the Main Gallery.
Mystic Aquarium



KidsPlay Museum: Torrington, CT
The KidsPlay Museum offers sensory-friendly playtimes Feb. 23rd. Enjoy the museum in a calmer, quieter environment without the noise, crowds, and stimulation of a typical day!
Sensory Friendly Playtime

The Prospector Theater: Ridgefield, CT
The Prospector Theater offers sensory-friendly screenings with sensory bags, weighted lap pads and strobe-canceling glasses.
The Prospector Theater

Connecticut Historical Society: Hartford, CT
The Connecticut Historical Society in Hartford has created sensory bags with helpful "tools," such as sunglasses, headphones, timers, and other useful items. The bags are free and can be obtained at the admissions desk upon arrival.
Connecticut Historical Society

LEARN MORE ABOUT OUR LAB!

CHECK OUT OUR WEBSITE

INTERESTED IN PARTICIPATING? FILL OUT THIS FORM!

READ OUR LAB'S DIVERSITY STATEMENT

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