LANGUAGE LINKS

Newsletter of Purdue University Child Language Research Projects

PURDUE UNIVERSITY

Department of Speech, Language, and Hearing Sciences

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SPRING 2025

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Child Phonology Lab
765-496-0345

Auditory Cognitive Neuroscience Lab
765-494-4445

Attention + Neurodevelopmental Disorders (AtteND) Lab
765-496-0204

Language Learning & Meaning Acquisition Lab (LLAMA)
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765-496-0215

Find our websites here:

Language Links is the Newsletter of the *Child Language Research Projects* in the Department of Speech, Language, and Hearing Sciences at Purdue University. Through this publication, we keep in touch with families who have participated in our research, as well as people who have referred families to our programs.

We are grateful for the contributions that you have made to our research and hope that you find this newsletter interesting and informative!

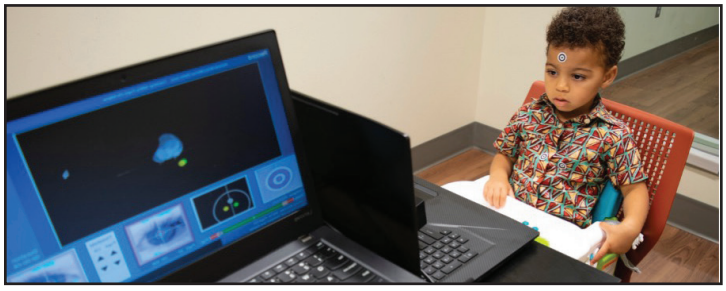
THE AUTISM DIAGNOSTIC BOTTLENECK

For caregivers seeking an autism evaluation for their child, the road can often be long and frustrating. Wait times for assessments can stretch for months – sometimes exceeding a year – depending on where a family lives. These delays can have a profound impact on both the child's development and the family's mental and emotional well-being.

With nearly 3% of children in the United States diagnosed with autism, the number of children needing to be tested for autism far exceeds the capacity of specialists trained to provide this service. This results in a diagnostic bottleneck, with children and their families sometimes waiting a year or more to be seen for testing. Early diagnosis and intervention are critical to improving outcomes for children with autism, as timely support can enhance developmental skills, reduce behavioral challenges, and increase long-term success in education and life. Because children first must have a diagnosis of autism before they can access intervention, this bottleneck creates wide-reaching consequences for autistic children and their families and the clinicians and health systems that serve them.

Finding accurate, equitable solutions to address the autism diagnostic bottleneck is a public health imperative. One approach to tackling this problem is developing new tools –for example, a diagnostic (bio)marker – that non-specialists can use to help identify autism. Diagnostic biomarkers are characteristics that provide discrete and objective indication of a diagnosis. Eye-tracking, a method that measures looking behaviors and pupil dilation, can be used to test social and non-social attention and brain patterns that may predict autism in very young children. These eye-tracking measures have been shown to differentiate young children diagnosed with autism from those with other neurodevelopmental disabilities.

Studies examine the use of eye-tracking to help diagnose autism.



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Researchers in SLHS's Attention and Neurodevelopmental Disorders (AtteND) Lab, in collaboration with colleagues from the Indiana University School of Medicine, have partnered to address this challenge. Working with primary care practitioners (PCP) across Indiana's Early Autism Evaluation Hub system, they have developed an innovative method using eye-tracking biomarkers along with PCP diagnosis to enhance autism diagnostic accuracy.

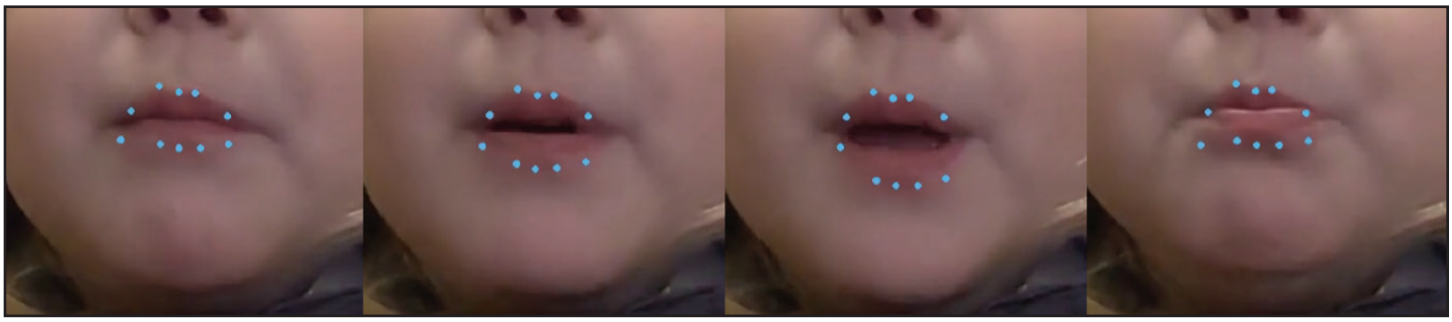
The goal of this ongoing research is to improve access to high-quality care in local communities, reducing the bottleneck, and lowering the age of diagnosis across Indiana and globally.

For more information on early autism signs:
https://www.cdc.gov/ncbddd/actearly/index.html

Research Updates

USING MACHINE LEARNING TO CAPTURE AND STUDY LIP MOVEMENTS

Did you know that speech movements are one of the fastest movements our body makes? Even for simple words like "puppy" or "mommy," your lips must close and open quickly with a precise timing. For this reason, when we study speech movements, we usually need research equipment that can capture such fast movements with great precision. One challenge, however, is that existing equipment requires attaching multiple sensors which young children do not typically tolerate. Last year, Drs. Arielle Borovsky, Kwang Kim (Speech, Language and Hearing Sciences), and Raymond Yeh (Computer Science) worked together to design a machine learning approach that can track lip movements from video recordings alone. Even though this innovative approach does not need any physical sensors, it can still provide accurate and precise lip movement measurements. We are now working on using this tool to learn more about how the brain learns and produces speech movements in toddlers, including those who stutter or have speech/language delays.



A sample video of a 3-year-old child saying "puppy." Our machine learning method tracked lip movements, placing the blue points in the video as seen in the figure above (avoiding the need for physical sensors or markers on the child's lips).

The Purdue LLAMA Lab is looking for families with children between 22 to 28 months of age to take part in a study on how sensory experiences like smell and touch affect how children learn words.

What's involved: A single, one hour visit to our child friendly research space at Purdue University, and completing online surveys. You will receive $30 for visiting the lab plus $10 for completing surveys online, and your child will receive a book.

See if your child is eligible by going to this link https://redcap.link/SenseToLearn or by contacting the LLAMA lab at 765-496-0427 or llamalab@purdue.edu. IRB-2022-1471, PI: Arielle Borovsky, 765-494-1689 or aborovsky@purdue.edu

ON-LINE STUDY FOR TODDLERS

The Purdue LLAMA Lab is looking for families with toddlers between 23 and 27 months old, who hear mostly English at home, for a fun study to help us learn how to support toddlers' word learning.
We offer flexible scheduling and the study is entirely online. The study is 1 month long and families are given $60 for participating.

Interested families should contact us at (765) 496-0427 or llamalab@purdue.edu
IRB 2023-920, P.I. Dr. Arielle Borovsky.

Summer Programs for Kids

In the Summer of 2025, SLHS researchers and clinical staff will offer programs in which children participate in federally-funded research and receive therapy, continuing to build skills over the summer when school-based services are not available. ***All activities are offered at no cost to families***. ****Call now to schedule eligibility testing!****

SuPur Friends Program

The Summer Purdue (SuPur) Friends Program is **for 9- to 12- year-old children with autism.** In SuPur Friends, children participate in pragmatic language groups, which are designed to provide opportunities to interact with peers, to learn and practice skills for social interaction, and to develop friendships. Two-hour sessions provide opportunities for participants to learn and practice skills during motivating activities. Parents have the opportunity to meet with clinical staff at the end of the program to discuss their child's progress. Compensation for participation includes a written report on results of standardized testing and $10 per hour for eligibility testing and research participation.
When and Where? The program will take place from July 15 to July 31, meeting in Lyles-Porter Hall on Purdue's campus from 9-11:30 each TWTh.

Contact: Dr. Brandon Keehn ▪ 765-496-0204 ▪ bkeehn@purdue.edu

Summer Fun program

During Summer Fun, children participate in fun and language-enriching preschool activities. Individualized communication goals are addressed daily during half-hour therapy sessions. Parents receive a written report of standardized test scores and meet with clinical staff to discuss their child's progress. Families receive $15 per session for eligibility testing and research participation.

Who is eligible? 4- and 5-year old children with a significant delay in language development but without accompanying medical problems, hearing impairment or other significant developmental delays.

When and Where? The program meets TWTh mornings from 8:45-11:30 from June 17-July 10 in Lyles-Porter Hall on Purdue's campus.

Contact: Dr. Pat Deevy
Phone: 765-496-1821
Email: deevy@purdue.edu

Kids Needed!

COGNITIVE FLEXIBILITY IN AUTISM STUDY

Ages: 8- to 14-year-old children and adolescents with autism and neurotypical children and adolescents.
Compensation: $10 per hour, 1 to 4 visits, total visit time lasting no more than 4 hours
Location: AtteND Lab at Purdue (Lyles–Porter Hall)
Contact: Yesol Kim, 765.496.0205; kim3455@purdue.edu

SPEECH LEARNING STUDY

Ages: 4–and 5–year–olds with typical speech or with speech sound disorder
Compensation: $15/session (2-3 one–hour sessions); children receive a toy per session. An assessment of your child's speech, language, and hearing is completed.
Location: Child Phonology Lab at Purdue (Lyles–Porter Hall)
Contact: Françoise Brosseau–Lapré; 765.496.0345, childspeech@purdue.edu

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