



## **NEWS RELEASE:**

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### **Advancement Made in Automatic Autism Screen Increases Accuracy to 91%, Scheduled for Release This Month**

**September 2, 2009, Boulder, CO** - LENA Foundation has increased the accuracy of the LENA Autism Screen (LAS) to 91 percent for children 24 to 48 months. LAS—the first automatic and totally objective autism screen—is now as accurate or more accurate than other autism screens currently available to parents and clinicians.

"We're thrilled with this leap in accuracy, especially on the eve of the launch of LAS for parents of young children who want to screen their child for autism spectrum disorders (ASD)," said Terrance (Terry) D. Paul, president of the foundation. "LAS is truly revolutionary because the analysis is based on the child's vocalizations in the natural home environment. It will allow parents to quickly and inexpensively screen children as young as 24 months, enabling earlier interventions while reducing the anxiety of 'not knowing.'"

The LAS, scheduled for release in mid-September, will also include an automatic screen for language delays; the LAS is priced at \$200. LAS is expected to be warmly embraced by parents and clinicians in the United States, where 1 in 150 children has ASD and more than 5 percent of children have language delay. Despite the "autism epidemic" and the fact that the American Academy of Pediatrics (AAP) recommends that pediatricians screen children twice for autism by the age of two, the average age of diagnosis is 5.7 years. This diagnostic lapse adds up considerably in financial and societal costs. The estimated cost of treating a person with ASD over a lifetime ranges from \$3.5 to \$5 million; however, with early detection, such as that enabled by the LAS, it is estimated that costs can be reined in by up to two thirds, reducing that range to \$1.2 to \$1.7 million. Of course, the improvement in the quality of life enabled through earlier intervention for both autism and language delay is unquantifiable.

The new technique, which generated a significant boost in accuracy compared to the previously announced phone model, incorporates a data-driven cluster approach that utilizes k-means clustering to partition the acoustic feature space of child vocalizations. It has been known for many years that children with ASD have aberrations of voice and prosody. These differences between the vocalizations of typically developing children and children with ASD, though extremely difficult to identify with the human ear, can be identified statistically using advanced computer technology. The new technique was developed based on naturalistic full-day recordings from children diagnosed with ASD and children without ASD.

"Child vocalization decomposition could be done using either a phone model or clusters derived directly from child vocalizations," explained Dongxin Xu, Ph.D., manager of software and language engineering at the foundation. "The performances of the two methods are similar when applied individually. When combined together, the performance is significantly improved. This suggests that the two approaches capture different discriminant information for autism detection."

The LENA System comprises advanced processing software and specially designed children's clothing fitted with a lightweight LENA Digital Language Processor (DLP), a small, unobtrusive digital recorder. Designed for use in the natural home environment, the DLP can save up to 16 hours of high-quality audio, capturing all of a child's vocalizations as well as adult speech and other sounds.

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#### **About LENA Foundation**

Established in 2009, the LENA Foundation develops advanced technology for the early screening, diagnosis, research, and treatment of language delays and disorders in children and adults. Philanthropists Terry and Judi Paul formed the not-for-profit organization through a multimillion-dollar gift and the donation of assets from Infoture Inc. Over a five-year period, Infoture created the LENA (Language ENvironment Analysis) System, the world's first automatic language collection and analysis tool and the foundation's principal product. The foundation employs a team of scientists and engineers skilled in computerized speech and speaker recognition, microelectronics, statistical research, and children's language acquisition and development; they are passionately devoted to helping the foundation enhance language development worldwide.