Technology Commercialization Opportunity

NTID® Speech Recognition Test (NSRT™)

Background and Technology Description
Current approaches to the clinical assessment of speech recognition, which use conventional word recognition tests, tend to suffer from poor or questionable reliability, validity and clinical utility.

The hearing healthcare industry needs a valid, reliable and practical measure of speech recognition reflecting an individual’s speech perception ability in actual communicative situations. Such a measure would add value to audiological assessment procedures by providing both performance and diagnostic information concerning a client’s speech perception ability. This information can assist clinicians in fitting hearing aids and predicting the benefits associated with assistive devices such as cochlear implants and also contribute to the evaluation of aural rehabilitation programs. Such a measure of speech recognition has been developed by RIT and is known as the NSRT. Based on item response theory methodology, the adaptive testing procedure enhances measurement precision because of the systematic manner in which the ability level of each examinee is determined. The NSRT contains an array of items (‘item pool’) spanning a wide range of difficulty. See the NSRT (Item) Score Scale below. Higher scores reflect greater speech recognition ability. Test items are automatically selected by a software procedure to fit a continuously updated estimate of the examinee’s speech recognition ability in actual communicative situations which include their ability to perceive speech in both quiet and noise. The software adapts to each examinee. That is, stimuli are selected “on the fly” to probe categories of speech sounds revealed as problematic earlier in the test routine.

NSRT was developed by Dr’s Joe Bochner and Wayne Garrison under funding from the National Institutes of Health with additional support from the National Technical Institute for the Deaf at Rochester Institute of Technology. The purpose of the funding was to develop a commercially viable computerized adaptive testing system to measure the speech processing abilities of persons with hearing loss.

Keywords: Hearing, Hearing Loss, Speech Recognition, Assistive Listening Devices

Technology Readiness
NSRT Software is presently at this level of readiness:

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<th>Idea</th>
<th>Concept</th>
<th>Prototype</th>
<th>Alpha Version</th>
<th>Beta Version</th>
<th>Released</th>
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RIT developers will work with licensees to finalize the development and move NSRT to a “released version.” NSRT runs on Windows 2000, XP, Vista, and Mac OS X. It also requires Adobe’s Flash Player.

Intellectual Property (IP): This technology is the subject of a U.S. patent application.
Applications
Possible applications, in addition to those cited above, include assessing communication difficulty, estimating age-related declines in speech recognition, assisting in the diagnosis of auditory system pathology, and hearing screening. In short, the computerized test-delivery system should enhance the quality of clinical services for patients and enable the providers of hearing healthcare services (i.e., audiologists and other specialists) to work in a more efficient and effective manner.

Each adaptive test requires about five minutes of administration time. The time required for one adaptive test and a small set of practice items is about 7 minutes.

Target Customers
- Hearing Healthcare Providers
- Hearing Instrument Manufacturers
- Kiosk Operators - Self Assessment

Opportunity
RIT’s Intellectual Property Management Office (IPMO) is interested in working with those parties who are qualified and interested in the commercialization of NSRT. Arrangement types include licensing the application to existing organizations or new organizations that have expertise in the field or related fields.

RIT’s involvement in this research and academic field may provide a source of leads for consulting assignments to licensees who could subsequently bid and potentially fulfill the assignment.

RIT’s researchers would intend to provide training to any licensee and to support enhancements to NSRT.

Contact
Those interested in learning more about this opportunity should contact:
Mr. William E. Bond, Director of Intellectual Property Management at RIT (585) 475-2986
bill.bond@rit.edu

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