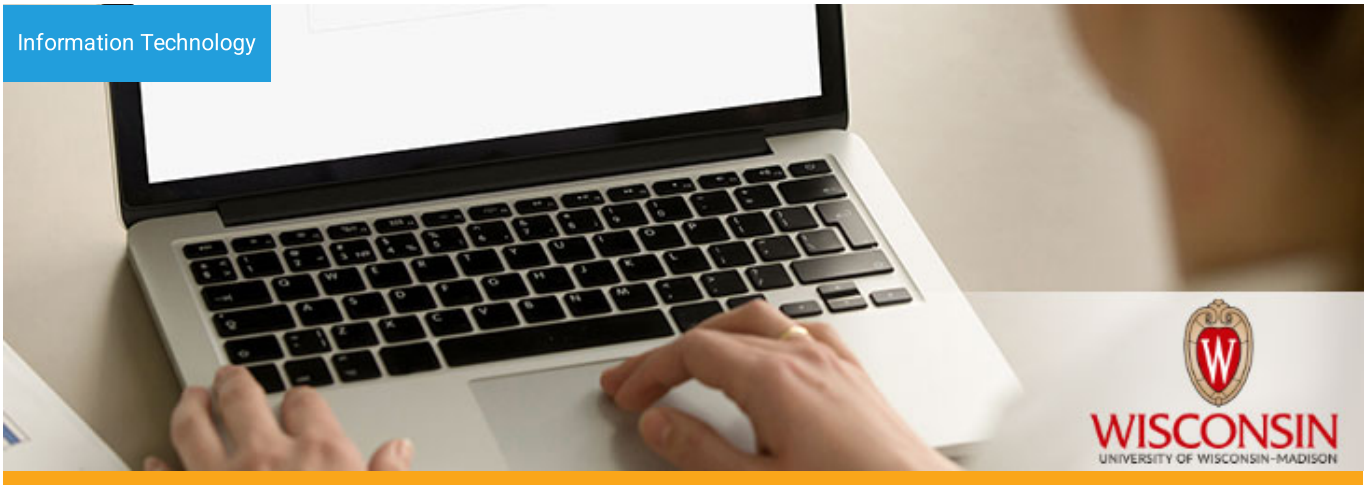
Information Technology



Bedside Diagnosis of Swallowing Disorders

View U.S. Patent No. 9,782,118 in PDF format.

WARF: P130237US01

Inventors: Matthew Hoffman, Jack Jiang, Timothy McCulloch, Zhixian Geng

The Wisconsin Alumni Research Foundation (WARF) is seeking commercial partners interested in developing software that analyzes high-resolution manometry data to assess swallowing problems.

Overview

Approximately 15 million Americans suffer from a swallowing disorder (dysphagia). People with acid reflux, a neurological disorder or cancer of the head and neck are particularly at risk. The leading cause of death in Parkinson's disease is aspiration pneumonia, a result of being unable to protect the airway during swallowing.

A type of X-ray examination called videofluoroscopy is the primary tool for assessing swallowing disorders. The method is very powerful, providing 17 diagnostic measurements. However, it exposes patients to X-rays and requires them to be moved to a radiology room.

High-resolution manometry (HRM) is a new, less burdensome technique that uses catheters to measure pressure along the length of the pharynx and esophagus. This approach is very promising and does not expose patients to radiation. Unfortunately, HRM has not been widely adopted because specialized training is needed to understand the results.

The Invention

UW–Madison researchers have developed software that helps clinicians more easily analyze HRM data. Using a specially adapted manometer inserted through the nasal tract, a series of pressure measurements can be made at different points along the pharynx and esophagus. A computer program uses pattern recognition software to identify changes in pressure when the patient swallows. This data is output as diagnostic values indicating swallowing function.

Applications

- Diagnosing swallowing disorders

Key Benefits

- Provides information on par with videofluoroscopy
- Does not expose patients to X-rays
- Can be performed easily at the bedside
- Manages complex HRM data
- Reliable and reproducible

Additional Information

For More Information About the Inventors

- Timothy McCulloch

Related Technologies

- WARF reference number P100114US01 describes an adjustable implant for treating glottic insufficiency.

Publications

- Hoffman et al. 2013. Classification of High-Resolution Manometry Data According to Videofluoroscopic Parameters Using Pattern Recognition. Otolaryngol. Head Neck Surg. 149, 126-133.

Tech Fields

- Information Technology : Computing methods, software & machine learning
- Medical Devices : Diagnostics & monitoring tools

For current licensing status, please contact Jeanine Burmania at jeanine@warf.org or 608-960-9846