UNIVERSIDAD TECNICA
FEDERICO SANTA MARIA

EX UMBRA IN SOLEM

SEMINAR INVITATION

Salón de Actos Edificio T, Casa Central, Valparaíso,
Universidad Técnica Federico Santa María

Thursday, January 10, 2013
08:30-12:00 hrs

"New approaches for assessing and treating voice disorders"

Prof. Robert E. Hillman
Harvard Medical School, Center for Laryngeal Surgery and Voice Rehabilitation,
Massachusetts General Hospital

08:30-09:30 hrs

"Recent advances in laryngeal high-speed videoendoscopy"

Dr. Daryush D. Mehta
Harvard Medical School & Center for Laryngeal Surgery and Voice Rehabilitation,
Massachusetts General Hospital

09:30-10:30 hrs

"Uncovering Clinically Relevant Medical Knowledge"

Prof. John V. Guttag
MIT Department of Electrical Engineering and Computer Science

11:00-12:00 hrs

Please confirm your participation via email to: matias.zanartu@usm.cl

New approaches for assessing and treating voice disorders

Robert E. Hillman, Ph.D., CCC-SLP

Harvard Medical School and Center for Laryngeal Surgery and Voice Rehabilitation,
Massachusetts General Hospital

08:30-09:30 hrs

Abstract:

This presentation provides an overview/update of new technologies and techniques being developed by a multidisciplinary group of speech language pathologists, surgeons, and scientists at Massachusetts General Hospital and MIT to improve the assessment and treatment of voice disorders. These new innovations include: 1) voice ambulatory monitoring and biofeedback for assessing and treating voice disorders, 2) photoangiolytic lasers to treat vocal fold pathology and preserve vocal function, 3) locally injected Avastin to diminish the recurrence of laryngeal papilloma while preserving vocal function, and 4) a new neural prosthetic approach for improving electrolarynx-based communication in laryngectomy patients. Ongoing efforts to develop an implant that can restore vibratory function to damaged vocal folds will also be described.

Short Bio:

Robert E. Hillman received his Bachelor's (1974) and Master's (1975) degrees in speech-language pathology from the Pennsylvania State University and his PhD degree (1980) in speech science from Purdue University. He is currently the Co-Director and Research Director of the Center for Laryngeal Surgery and Voice Rehabilitation at the Massachusetts General Hospital in Boston, Professor of Surgery at Harvard Medical School and Director of Research Programs at the MGH Institute of Health Professions. A major focus of Dr. Hillman's research is the development of methods for assessing and treating laryngeal voice disorders. He has received over 10 major awards for his work including the Honors of the American Speech-Language-Hearing Association (2011) which is the highest award that the Association can bestow to "recognize individuals whose contributions have been of such excellence that they have enhanced or altered the course of the Professions."

Recent advances in laryngeal high-speed videoendoscopy

Daryush D. Mehta, Ph.D.
Harvard Medical School and Center for Laryngeal Surgery and Voice Rehabilitation,
Massachusetts General Hospital

09:30-10:30 hrs

Abstract:

Clinical voice specialists make critical diagnostic, medical, therapeutic, and surgical decisions by integrating visual observations of vocal fold tissue motion with auditory-perceptual assessments of voice quality. However, the details of the relationship between vocal fold tissue motion and the voice produced are not fully understood. Our group has developed laryngeal high-speed videoendoscopy (HSV) systems to investigate these relationships in normal and disordered voice production. HSV technology enables the acquisition of high-resolution color endoscopic images of vocal fold vibration at rates up to 10,000 frames per second. As we better understand the robustness of relationships between vocal fold vibratory properties and acoustic characteristics, voice surgeons and clinicians can focus their assessment and treatment efforts on aspects of the phonatory process that have the most impact on voice function and quality.

Short Bio:

Daryush Mehta received the B.S. degree in electrical engineering (summa cum laude) from University of Florida, Gainesville, in 2003, the S.M. degree in electrical engineering and computer science from the Massachusetts Institute of Technology (MIT), Cambridge, MA, in 2006, and the Ph.D. degree from MIT in speech and hearing bioscience and technology in the Harvard–MIT Division of Health Sciences and Technology, Cambridge, in 2010. Dr. Mehta currently holds appointments at Massachusetts General Hospital (Assistant Biomedical Engineer, Department of Surgery) and Harvard Medical School (Instructor in Surgery) in Boston. He continues research efforts into the clinical analysis of normal and disordered voice production with particular emphasis on high-speed video imaging of the vocal folds, advanced statistical signal processing algorithms and ambulatory monitoring of daily voice use. The overall goal hope is to aid voice surgeons and speech-language pathologists in better understanding the mechanisms of normal and disordered voice production.

Uncovering Clinically Relevant Medical Knowledge

John V. Guttag, Ph.D.
MIT Department of Electrical Engineering and Computer Science

11:00-12:00 hrs

Abstract:

The day-to-day practice of medicine is based largely on a combination of the personal experience of those making the decisions and non-patient-specific information derived by applying conventional statistical methods to large clinical trials. With the boom in the collection of clinical information in computationally accessible formats, it is now possible to use advanced machine learning and data mining techniques to put clinical decision making on a sounder more patient-specific basis. That is the mission of the Data-driven Medical Research Group at MIT's Computer Science and Artificial Intelligence Laboratory. This talk will present some results of two of the group's projects: risk stratification post acute coronary syndrome and prediction of healthcare associated infections. Related techniques are being applied to inferring vocal hyperfunction from signals gathered using an ambulatory monitor.

Short Bio:

Professor Guttag received a bachelor's degree in English from Brown University in 1971, and a master's degree in applied mathematics from Brown in 1972. In 1975, he received a doctorate in computer science from the University of Toronto. He was a member of the faculty at the University of Southern California from 1975-1978, and joined the MIT faculty in 1979. From 1993 to 1998, Professor Guttag served as Associate Department Head for Computer Science of MIT's Electrical Engineering and Computer Science Department. From January of 1999 through August of 2004, Professor Guttag served as Head of that department. Professor Guttag currently co-heads the Computer Science and Artificial Intelligence Laboratory's Networks and Mobile Systems Group. This group studies issues related to computer networks, applications of networked and mobile systems, and advanced software-based medical instrumentation and decision systems. Professor Guttag's current research is centered on the application of advanced computational techniques to medicine. Current projects include prediction of adverse medical events, prediction of response to therapies, non-invasive monitoring and diagnostic tools, and tele-medicine. He has also done research, published, and lectured in the areas of sports analytics, software defined radios, software engineering, mechanical theorem proving, and hardware verification.