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**IEEE Galveston Bay Section**

Joint Technical Societies Chapters

Present

**"ENGINEERING in MEDICINE and BIOLOGY WEEK"**

**with special Webinars**

**on**

**MONDAY- August 1, TUESDAY-August 2, WEDNESDAY-August 3**

**MONDAY- August 1st, 11:00 AM US-Central**

**TOPIC: "An Effective Model for Early-Stage Healthcare Innovation".**

**SPEAKER: Youseph Yazdi, Ph.D., MBA**

**Johns Hopkins School of Medicine**

**PRESENTATION:**

Many models exist for early-stage innovation and problem-solving.  The healthcare system is highly complex, and traditional models often fail to produce real-world implemented solutions.  This presentation will describe in brief a model developed in our center that combines best-practices from industry and academic programs to increase the likelihood of success in healthcare innovation.

**PRESENTER:**

Dr. Yazdi is Director of the Johns Hopkins Center for Bioengineering Innovation & Design (CBID). He is also faculty in the Johns Hopkins School of Medicine, in the Department of Biomedical Engineering and holds a secondary appointment in the Johns Hopkins Carey Business School. He has over 30 years of experience in early-stage medical device innovation and design, including seminal patents in ultrasonic elastography, now widely used in breast diagnostic imaging. Before joining Johns Hopkins in 2009, Dr. Yazdi was Corporate Director of Science and Technology at Johnson & Johnson, where he focused on corporate strategies for innovation and growth in the medical devices sector.  Dr Yazdi has a PhD in Electrical Engineering from UT Austin, BS in EE from Rice University, and an MBA from the Wharton School of Business.

**Complimentary Registration on VTool**

**https://events.vtools.ieee.org/event/register/318909**

**Deadline for registration: July 30th, 5:00 PM US-Central**

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**TUESDAY, AUGUST 2nd, 11:00 AM US-Central**

**TOPIC:**  **How Robotics are Revolutionizing Rehabilitation?**

**SPEAKER: Prof Hermano Igo Krebs, Distinguished Speaker**

**PRESENTATION:**

 Capitalizing on the new understanding of brain plasticity, we introduced a paradigm shift in clinical practice in 1989 when we initiated the development of the MIT-Manus robot for neuro-rehabilitation and deployed it in the clinic. Since then we collected evidence to support the potential of enhancing and augmenting recovery following a stroke, first during the sub-acute and then the chronic phase.  Our efforts and that of others led to endorsements starting in 2010 from the American Heart Association, the American Stroke Association, and the Veterans Administration for the use of rehabilitation robots for the Upper Extremity, but not yet for the Lower Extremity. AHA recommendations were the same in the 2016 revision. Furthermore, it was demonstrated in the VA system that upper extremity robotic therapy has an economic advantage over manual therapy. More recently we completed a pragmatic study RATULS under the auspices of the National Health Service of the United Kingdom and its NIHR Health Technology Assessment Programme, which enrolled 770 stroke patients. Thus, we have developed novel robotic treatment and evaluation tools and have managed to collect experimental evidence that demonstrates the unequivocal therapeutic benefits stemming from robot-aided rehabilitation for the upper extremity as well as present shortcomings. This talk will present an overview of our past rehabilitation robotics efforts and more recent efforts addressing the identified shortcomings.

**PRESENTER:**

Dr. Hermano Igo Krebs is a Principal Research Scientist at MIT’s   
 Mechanical Engineering Department and the Director of The 77Lab

([https://urldefense.com/v3/\_\_http://the77lab.mit.edu/\_\_;!!BuQPrrmRaQ!hHJWlx4Gz9kyGCEnODw0Sok9eZrM5zWvNI7K7KMbn2G8gT8dOGtfD1Kj3Y3TJ\_xkM7-p-PwZYY3FkBpj6sFHl-YVtA$](https://urldefense.com/v3/__http:/the77lab.mit.edu/__;!!BuQPrrmRaQ!hHJWlx4Gz9kyGCEnODw0Sok9eZrM5zWvNI7K7KMbn2G8gT8dOGtfD1Kj3Y3TJ_xkM7-p-PwZYY3FkBpj6sFHl-YVtA$" \t "_blank) ).

He holds affiliate positions as an Adjunct Professor at University of Maryland School of Medicine, Department of Neurology, and as a Visiting Professor at Fujita Health University, Department of Physical Medicine and Rehabilitation (Japan), at Osaka University, Mechanical Science and Bioengineering Department (Japan), and at Loughborough University, The Wolfson School of Mechanical, Electrical, and Manufacturing Engineering (UK). He is a Fellow of the IEEE and received the 2015 IEEE-INABA Technical Award for Innovation leading to Production “for contributions to medical technology innovation and translation into commercial applications for Rehabilitation Robotics.” He was one of the founders and the Chairman of the Board of Directors of Interactive Motion Technologies from 1998 to 2016. He successfully sold it to Bionik Laboratories, a publicly traded company. He later founded 4Motion   
Robotics.

**Complimentary Registration on VTool**

**https://events.vtools.ieee.org/event/register/318839**

**Deadline for registration: Saturday, July 30th, 5:00 PM US-Central**

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**WEDNESDAY- August 3rd, 11:00 AM US-Central**

**TOPIC: Robotics and Optical Fiber Sensors for Biomedical Engineering Applications**

**SPEAKER: Prof Dr. Ansehmo Frizera,**

**Federal University of Espirito Santo (Vitoria-ES, Brazil)**

**PRESENTATION:**

The lecture will start by addressing general concepts about Biomedical Engineering and Rehabilitation Robotics. Afterward, the latest developments of optical fiber sensors for healthcare applications, including health monitoring, wearable robotics and other assistive devices' instrumentation will be presented. Finally, the presenter will address different developments and implementations of human-robot-environment interaction strategies for robotic devices to assist cognitive and motor disabilities.

**PRESENTER:**

Anselmo Frizera holds a bachelor’s degree in Electrical Engineering (2006) from the Federal University of Espirito Santo (UFES, Brazil) and a Ph.D. in Electronics (2010) from the University of Alcalá (UAH, Spain). Since 2010, he has held a permanent position as a lecturer and researcher at the Electrical Engineering Department (UFES). He is currently a Member of the Board of AITADIS, contributing to supporting the dissemination of knowledge in assistive technologies in Iberoamerica. Prof. Frizera was selected as IEEE Impact Creator (2020), IEEE/EMBS Distinguished Lecturer (2021), and acted as a mentor in IEEE/EMBS Student Mentoring Program (2021). Prof. Frizera has published more than 300 scientific articles (150+ journal papers) and trained masters and doctors in institutions in Brazil, Argentina, Italy, and Portugal. His research interests are rehabilitation robotics, optical and electronic sensors for human-machine interfaces, biomedical signal processing, and smart textiles.

**Complimentary Registration on VTool**

**https://events.vtools.ieee.org/event/register/318835**

**Deadline: Monday, Aug 1st, 5:00 PM US-Central**

GBS "EMBS Week" Coordinator:

Dr Zafar Taqvi, Chair GBS EMBS Joint Chapter, University of Houston Clear Lake

Dr Sabia Abidi, Vice Chair GBS EMBS Joint Chapter, Rice University

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