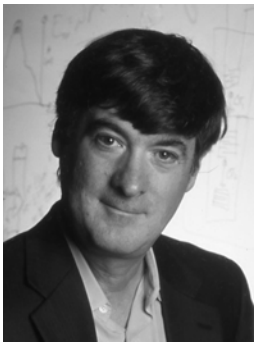
Dr. Budinger is a member of the National Academy of Engineering, a Member of the Institute of Medicine, National Academy of Sciences, and a fellow of the American Institute of Medical and Biological Engineers, among many other prestigious awards he has received.

Invited Conference Plenary Keynote Speaker

On-Body Wireless Sensing for Human-Computer Interfaces

Presentation Time and Venue: 9:45a.m. to 10:30a.m., Jun. 01, SUN, T.Y. Wong Hall, CUHK



PARADISO, Joe

Associate Professor of MIT Media Lab, Co-Director of Things That Think Consortium, and Director of the Responsive Environments Group, MIT, USA

Abstract:

In this talk, Prof. Paradiso will describe recent wearable sensor systems that they have developed for applications ranging from sports medicine to social computing, and discuss approaches being explored to extend human perception via distributed sensor networks. Technical issues that he will introduce involve adaptive energy management and power harvesting in wearable systems.

Short Biography:

Joseph Paradiso is the Sony Career Development Associate Professor of Media Arts and Sciences at the MIT Media Laboratory, where he directs the Responsive Environments group, which explores how sensor networks augment and mediate human experience, interaction and perception, and co-directed the Things That Think Consortium, a group of industry sponsors and Media Lab researchers who explore the extreme fringe of embedded computation, communication, and sensing. After receiving a BS in Electrical Engineering and Physics summa cum laude from Tufts University in 1977, Paradiso became a K.T. Compton fellow at the Lab for Nuclear Science at MIT, receiving his PhD in physics there in 1981 for research conducted at CERN in Geneva. After two years developing precision drift chambers at the Lab for High Energy Physics at ETH in Zurich, he joined the Draper Laboratory in Cambridge, MA in 1984, where his research encompassed spacecraft control systems, image processing algorithms, underwater sonar, and precision alignment sensors for large high-energy physics detectors. He joined the Media Lab in 1994, where his current research interests include embedded sensing systems and sensor networks, wearable and body sensor networks, energy harvesting and power management for embedded sensors, ubiquitous and pervasive computing, localization systems, passive and RFID sensor architectures, human-computer interfaces, and interactive media. His honors include the 2000 Discover Magazine Award for Technological Innovation, and he has authored 200 articles and technical reports on topics ranging from computer music to power scavenging.

Invited Conference Keynote Speaker *(Ordered Alphabetically)*

Advances in Neural Implants and Prostheses

Presentation Time and Venue: 5:35p.m. to 6:20p.m., Jun. 01, SUN, ERB LT, CUHK

AKAY, Metin

Fellow of Institute of Physics, Professor and Interim Chair, Harrington
Department of Bioengineering, Arizona State University, USA

Abstract:

The neuroscience has become more quantitative and information-driven science since emerging implantable and wearable sensors from macro to nano and computational tools facilitate collection and analysis of vast amounts of neural data. Complexity analysis of neural systems provides physiological knowledge for the organization, management and mining of neural data by using advanced computational tools. The neurological data are inherently complex and non-uniform and collected at multiple temporal and spatial scales. The main objective of this talk is to highlight the recent advances in wearable and implantable neural sensors/probes and computational neural science and engineering.

Short Biography:

Metin Akay received his B.S. and M.S. in Electrical Engineering from Bogazici University, Istanbul Turkey in 1981 and 1984, respectively and a Ph.D. degree from Rutgers University in 1990. He has played a key role in promoting the biomedical education in the world by writing several prestigious books and editing the Biomedical Engineering Book Series published by the Wiley and IEEE press. Prof. Akay is a recipient of the IEE EMBS Service Award, a IEEE Third Millennium Medal and the IEEE Engineering in Medicine and Biology Society Early Career Achievement Award in 1997, the Young Investigator Award of Sigma Xi Society, Northeast Region in 1998 and 2000, is a fellow of Institute of Physics, and serves on numerous editorial and advisory boards of several international journals.

Invited Conference Keynote Speaker

Hotspots on Modern Medical Imaging and Image Analysis

Presentation Time and Venue: 4:00p.m. to 4:45p.m., Jun. 01, SUN, ERB LT, CUHK

CHEN, Wu-fan

Director of the Key Lab for Medical Image Processing of Guangdong Province
Professor in the School of Biomedical Engineering, Southern Medical University, China

Abstract:

Vision Information Processing (VIP) is the important Supports of image processing. Currently, VIP has become as a leader direction in remote sense image processing (which mostly serves the government and military) and in medical Image processing (which widely serves a great numbers of patients). Medical imaging and medical image analysis techniques are the hotspots of the biomedical engineering. On one hand, different from optical imaging, modern medical imaging such as CT, MR and PET have the very complex imaging mechanisms with deep mathematic fundamental and are entirely different with each other. Advanced and novel precise techniques in medical imagine are also needed, such as design of various filters, calibration techniques for different artifacts, fast imaging methods and low dose CT reconstruction. New important applications of medical imaging are still in progress with high speed, which include special imaging technique to some diseases, multi-functional imaging equipments and special imaging devices for brain or hand. On the other hand, medical image analysis such as image segmentation and image registration as the basic medical image processing still require some novel techniques to make it more effectively. Fuzziness of physiology estimation, stochastic behavior of imaging process, and ill condition behavior of mathematic model may be the dispute problems for a long time. For more convenient, we are to quite our recent research results to illustrate above the hotspots.

Short Biography:

Wufan Chen received the B.S. and M.S. degrees in applied mathematics, computational fluid dynamics from Peking University of Aeronautics and Astronautics (BUAA), China, in 1975 and 1981, respectively. From May 1981 to March 1987, he was with the School of Aerospace, National University of Defense Technology, China. From May