

Oncological Imaging and Minimally invasive, Image-guided Robot-assisted Interventions

GUEST SPEAKER

Dr. Raj Gupta

Massachusetts General Hospital

When: **21st October 2011, 9.30 a.m. to 11.00 a.m.**

Where: **Institute of Microelectronics, Singapore**

11 Science Park Road, Singapore Science Park II, Singapore 117685

Topic 1

Oncologic Imaging: An Engineering Overview and Future Directions

Imaging plays a central role in all aspects of cancer management, including diagnosis, staging, treatment planning, therapy and treatment monitoring. An assortment of imaging modalities has been employed in these tasks. These include ultrasound (US), computed tomography (CT), magnetic resonance imaging (MRI), positron emission tomography (PET), nuclear medicine and molecular imaging. After a brief introduction to each of these imaging technologies, this presentation will summarise their role in cancer imaging. It will provide an overview of the strengths and weakness of each modality. Recent advances and current challenges and open problems will be discussed. While actual clinical cases will be used, the overall presentation will be geared towards scientists and engineers.

Topic 2

Minimally invasive, Image-guided, Robot-assisted Interventions

For the past 8 years, the Center for Integration of Medicine and Innovative Technology (CIMIT) and MIT have offered a course in Medical Machine design that has proven to a successful paradigm in collaboration between engineers and physicians. This presentation will briefly describe this model and illustrate the types of robotic systems that have been built using this paradigm. An overview of the new opportunities in image-guided robotic interventions will be presented. As case-studies, the presenter will go over the Robopsy (Robotic Biopsy) and Steedle (Stearable Needle) systems developed by the MGH/MIT team for image-guided biopsy and tumor ablation.

About the Speaker



Dr. Gupta earned his MD at Cornell University and his PhD in Computer Science at the State University of New York at Stony Brook. In addition to serving as the CIMIT Site Miner for MGH, he is the director of the MGH Ultra-high Resolution Volume CT Lab. An instructor in radiology at Harvard Medical School, Dr. Gupta's clinical specialties include Cardiovascular and Neuroradiology. Prior to joining MGH, Dr. Gupta was a Computer Scientist at GE Global Research Center in Niskayuna, NY, conducting research in medical imaging, non-destructive evaluation of aircraft engine parts, and computer vision. He also served on the faculty of University of Southern California, Los Angeles, in the Department of Electrical Engineering Systems.

His areas of interests include:

1. Stroke imaging
2. Neuro trauma
3. Cardiac CT
4. Thoracic outlet syndrome
5. Advanced CT applications
6. Dual Energy CT
7. Flat-panel CT
8. Oncologic imaging
9. High-resolution Bone Imaging
10. Image-guided interventions using robotic assistance

Registration

Pre-registration is required. Closing date is 17th October 2011. To register, please log on:
http://iastar.eventshub.sg/ems_wb_Details.aspx?CalID=27&EventID=413637

Location Map

