

## **Title: *Medical Robotics and Intelligent Control Systems in the Indian Context***

(Kindly use code 4fc47 to submit a paper to this Special Session)

### **Statement of objectives and scientific targets**

To provide practical information through theoretical innovations designed to help robotic engineers and researchers integrate emerging technologies for the development of health care. Thus this session will provide a forum for the exchange of ideas in support of practice quality improvement through the field of medical robotics and intelligent control systems.

### **List of Topics**

- Intelligent Cane for Blind People.
- Control of a Flexible Needle for Percutaneous Interventions.
- Bond-Graph Based Modelling of the Master-Slave Robotic System for Minimal Invasive Surgery.
- Intelligent Control of a Biped Walking Robot.
- Estimation of States of a SMA actuated smart needle for percutaneous interventions using Extended Kalman Filtering.
- Sensing for Man Machine Adaptation.
- Medical Image/Signal Processing.
- Control Applications to Robotic Systems.

### **Corresponding Keywords**

*Surgical Robots*

*Tele-Operation*

*Percutaneous Cancerous Interventions*

*Exoskeletons*

*Control Systems and Medical Imaging*

*Sensing*

*Medical Image/Signal Processing*

*Control Applications to Robotic Systems*

### **Organizers**

1. **Dr. M. Felix Orlando**, Assistant Professor, Indian Institute of Technology Roorkee, Email: felixfee@iitr.ac.in  
*Bio-Sketch:* Dr. Felix Orlando is currently an Assistant Professor in the Department of Electrical Engineering at Indian Institute of Technology Roorkee (IITR) and fostering a research team constituting two PhD students

and a few Masters students in the field of Robotics. He carried out his Doctoral Research in the field of Rehabilitation Robotics and Hand Biomechanics at the Intelligent Systems Laboratory of Department of Electrical Engineering at Indian Institute of Technology Kanpur (IITK) under the meticulous guidance of Prof. Laxmidhar Behera, and co-guidances of Prof. Ashish Dutta and Prof. Anupam Saxena and took his PhD in 2013. He was a Post Doctoral Fellow at Case Western Reserve University, USA, between 2013-2015, researched on Medical Robotics. His current research focuses on medical robotics, rehabilitation robotics, visual servoing and biomechanics.

2. **Dr. Yogesh Vijay Hote**, Associate Professor, Indian Institute of Technology Roorkee, Email: yhotefee@iitr.ac.in

*Bio-Sketch:* Dr. Yogesh Vijay Hote is currently an Associate Professor in the Department of Electrical Engineering at Indian Institute of Technology, Roorkee. He has guided 6 Ph.D students and 4 are under process. He has also guided 30 M.Tech students. He published more than 100 research articles in referred national and international Journals and conferences. His research area includes robust controller design, model order reduction techniques and their applications in load frequency control, DC-DC converter and robotics systems.

3. **Dr. Pyari Mohan Pradhan**, Assistant Professor, Indian Institute of Technology Roorkee, Email: pmpradhan.fec@iitr.ac.in

*Bio-Sketch:* Pyari Mohan Pradhan is currently an Assistant Professor in the Department of Electronics and Communication Engineering at IITR. He has received Ph.D. degree from the Indian Institute of Technology, Bhubaneswar in 2012 and worked as a Research Fellow at Mayo Clinic, Scottsdale, USA during 2013–2014. His research interests include time-frequency analysis, signal processing and wireless communication.