

TELESURGERY

March, 26- 31, 2006

Flamingo Oasis Hotel
Benidorm, Spain



Program Chair:
Alicia Casals

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Aims and Topics

Teleoperation is a multidisciplinary technology that appeared fifty years ago by the requirements of the nuclear industry. Since its apparition, teleoperation has been applied in many areas: space, underwater,... In last years, a increasing interest has existed in the scientific community to applied teleoperation systems to medical surgery, appearing a new research area named telesurgery. Telesurgery allows surgeons to perform remote surgical operations using robots and haptic interfaces. The key objective of this medical robotic technique is to develop "a partnership between man (the surgeon) and machine (the robot) that seeks to exploit the capabilities of both to do a task better than either can do alone". The benefits of developing this technology could be very important for the society. However, there are technical aspects very complex that must be successfully solved to achieve that the telesurgery becomes a reality.

This Winter School is primarily addressed to young researchers (PhD and advanced Master students) interested on Telesurgery and their underlying techniques. The participants will get in touch with other young researchers in the field and have the opportunity to improve their knowledge through the tutorials given by experts.

Programme

The lectures will be organized in three parts:

- Telerobotics fundamentals (1 day): robotic telemanipulation, control systems in teleoperation, haptics, slave robots;
- Telesurgery concepts (2 days): telesurgery systems, surgery simulation, visual and force sensing in telesurgery, human machine interaction in telesurgery;
- Applications (2 days): minirobots in telesurgery, orthopaedic telesurgery, neurosurgery and telesurgery.

Lecturers

The Winter School will involve a set of international experts in the field. The list of confirmed lecturers is the following:

- Alicia Casals (Politechnical University of Catalonia, Spain).
- Mamoru Mitsuishi (The University of Tokyo, Japan).
- Claudio Melchiorri (University of Bologna, Italy).
- Rafael Aracil (Politechnical University of Madrid, Spain).
- Leo Joskowicz (The Hebrew University of Jerusalem, Israel).
- André Bauer (Founder and Medical Director, Marbella High Care).
- Hervé Delingette (INRIA, Sophia-Antipolis, France).
- Tobias Ortmaier (Deutsches Zentrum fuer Luft- und Raumfahrt e.V, Germany).

In addition to lectures by such well-known experts, the winter school will include practical exercises. The organisers of these activities at the UMH Labs are the following:

- José M. Azorin
- José M. Sabater
- Nicolás M. García
- Carlos Pérez

Organization

The school will take place in a resort hotel on the Mediterranean coast for one complete week March, 2006.

Attendance is limited to 30 students. Registration fee is 300 euros, covering course material, accommodation and meals.

The official language of the school is English.

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