

Eurosurge workshop

EUROSURGE: A roadmap towards a European Network of Surgical Robotics laboratories

March, 6th, 2012

h 8.30-12.30 Track 6

European Robotic Forum, Odense, DK

Timetable

8.30-8.35 Welcome by **Paolo Fiorini**

8.35-8.45 **Anne Bajart**, P.O. "Robotic Surgery : Coordination of efforts in Europe"

8.45-9.05 **Elena de Momi & Alberto Vaccarella**

"Ontology for Robotic Surgery"

Abstract : Robotic Surgery is a relatively young research field. There is a general lack of integration among the research efforts from different groups all over the world. The need of a common language is becoming more and more evident to facilitate interoperability, platform integration and benchmarking. In this scenario the EuRoSurge project will foster collaboration between research groups in the field by creating a network of European laboratories that will cooperate in building an Ontology for Robotic Surgery based on a collaborative approach.

9.05-9.25 **Fabrizio Boriero & Paolo Fiorini**

"Toward a modular architecture for surgical robots"

Abstract: The current research on surgical robots increases the complexity of the techniques and the software that an architecture has to face. Within this talk some problems of surgical context will be presented and it will be shown that the modularity is necessary to solve them focusing on the implications of its use.

9.25-9.45 **Luzie Schreiter & Joerg Raczekowsky**

"Benchmarks and Validation"

Abstract: The object of the workpage 3 is to specify a portfolio of benchmarks and verification procedures for cognitive surgical robotics. This presentation delivers an overview of the state of the art of benchmarks in robotics. That include performance and dependability benchmarks. Furthermore we represent current approaches in the field of benchmarks in complex component based architectures.

9.45-10.05 **Eduard Bergés & Alicia Casals**

“Social, ethical and legal issues of modularity”

Abstract: Nowadays, multiple challenges are taking place in Europe in the field of robotics surgery, aiming to develop more autonomous, standard and affordable devices with more performances to improve surgical assistance. However, not only technical developments are to be taken into account, but also those potential barriers coming from social, ethical and legal issues, such as the correct use of patents or a clear knowledge of civil liability when talking about cognitive surgical robotics. EuRoSurge will create a specific patents database, which will support the scientific community to be aware of the development/commercialization risks and will also prepare a set of recommendations to avoid legal claims, which are not based on real technical innovation aspects and constitute fictitious barriers to ongoing or future research.

10.05-10.20 **Andras Lorincz**

“Robotic Surgepedia for EUROSURGE”

Abstract: Fast developments on multi-disciplinary high-tech fields pose serious challenges both for experts and non-experts to collect and exploit new high quality information. EUROSURGE's task is to construct a European Network of Surgical Robotics Laboratories that can meet this challenge in the field of robotic surgery. We develop a community platform called "Robotic Surgepedia" that aims to take advantage of collective intelligence and is fostered by machine recommendation systems to support EUROSURGE to reach its ambitious goals.

10.20-10.35 **Thomas Voegele**

“AI-based data analysis for improved robotic brain surgery – EU project ACTIVE”

Abstract: This talk is about projects relevant for cognitive robotic surgery. A short overview of our work in the ACTIVE project will be presented.

10.35-11.00 Coffee break

11.00-11.15 **Mohsen Mahvash & Marco A. Zenati MD MSc.**

“Toward a cognitive model for prediction of complications during surgery”

11.15-11.35 **Gurvinder S. Virk** (Professor of Robotics and the Built Environment, University of Gävle, Sweden, gurvinder.virk@hig.se; Chairman, CLAWAR Association Limited,

UK, gsvirk@clawar.org; Convenor ISO TC 184/SC 2/WG 7: Personal care robot safety; Convenor IEC SC 62A/ISO TC 184/SC 2/ JWG9: Medical electrical equipment and systems utilising robot technology)

“Standardisation in medical robots”

Abstract: The presentation gives an update on the IEC/ISO standardization activities in the emerging areas of service robotics which are aimed at developing international non-industrial robot markets; the two related but contrasting areas of safety in personal care and medical robots are described. Personal care robots are seen as “machines” whereas medical robots are seen as “medical devices” and each has different regulatory measures which must be addressed. The safety standardisation on personal care robots is developing the key regulations to enable close human-robot interaction including robot-human contact which are essential for a wide range of personal care applications (and in fact medical service tasks as well). The DIS 13482 standard has been completed and includes issues that must be addressed by robot designers and manufacturers to reduce risk; these include hazards due to robot shape, robot motion, incorrect autonomous actions, etc. The medical robot standardization work focuses on existing safety regulations for medical electrical equipment covered by the IEC 60601 family of standards, and how these may be extended to cover medical robots intended to perform surgery, rehabilitation, medical diagnosis and treatment. The key issues that medical robots bring to the medical electrical equipment area are their autonomous capabilities which make the task of formulating basic safety and essential performance requirements quite unique and challenging.

12.35-11.55 **Herman Bruyninckx**

“The BRICS software architecture”

Abstract: Since quite some years, the robotics community is producing massive tons of robotics software with free software and open source licenses, but there still is a lack of any decent software infrastructure and engineering to exploit all this functionality in an effective, efficient and deterministic way. This talk starts with a short overview of the "worst practices" in robotics software, to then move to what "better practices" could become.

11.55-12.30 **Discussion**