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CARS 2006 Computer Assisted Radiology and Surgery

June 28 – July 1, 2006, Osaka, Japan Joint Congress of CAR/ISCAS/CMI/CAD

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The International CARS Congress provides a forum to close the gap between diagnostic and interventional radiology, surgery and informatics and to encourage interdisciplinary research and development activities in an international environment.

To increase the value of healthcare for citizens, the focus of the Congress is on providing balanced and in-depth information on new diagnostic and therapeutic processes. This includes results from multidisciplinary R&D efforts, providers' experiences, patient outcomes, economic and management considerations, as well as scientific/medical validation results. It can be expected that the resulting awareness by users and providers will speed up the acceptance of CARS into clinical practice. The main emphasis of the presentations of the CARS Congress is on information technologies in radiology and surgery for clinical application fields, such as:

- ' Medical Imaging, e.g. CT, MR, US, SPECT, PET, DR, Molecular Imaging, and Virtual Endoscopy
- ' Image Processing and Display
- ' Hospital-wide PACS and Telemedicine
- ' Computer Applications for e.g. Neurosurgery, Head and Neck, Orthopaedics, Ear Nose and Throat, Cardiovascular and Thoracoabdominal Surgery, and Plastic/Reconstructive Surgery
- ' Image Guided Therapy
- ' Surgical Robotics and Instrumentation
- ' Surgical Navigation and Simulation
- ' CAD for Breast, Prostate, Chest, Colon, Liver, Brain, Skeletal and Vascular Imaging

The response to the Call for Papers for CARS 2006 in Osaka has been very encouraging. Altogether, 497 abstracts were submitted from 34 countries. With this level of submissions, CARS 2006 will provide a highly professional programme for the participants. The informal federation of societies and congresses of CARS 2006 in Osaka (ISCAS, CMI, CAD, and CAR) continues to provide the necessary cooperative framework for advancing the development and application of modern computer assisted technologies in healthcare. These four organisations with their specific scientific/medical topics complement one another. They give a worldwide lead in interdisciplinary and international cooperation, which will be the foundation of healthcare in the 21st century.

Looking at innovations in the field of CARS as a means to change processes in health care, where can we expect original research to occur in the near future? Examples of R&D areas from which innovations may be derived are:

- ' Computer assisted imaging methods and associated workflows that match and enhance the skill levels of health care professionals
- ' Radiological and surgical assist systems in oncology incorporating novel information sources, e.g. molecular imaging
- ' Surgical workflow peer-to-peer repositories of "good practice" surgical procedures
- ' Intelligent CAD systems minimizing false-positives, for example by using a comprehensive imaging repository
- ' IT methods for seamless integration of the EMR into perioperative information handling
- ' New IHE integration profiles and DICOM information objects and services to enable smooth communication between radiology and surgery
- ' Surgical PACS in the operating room as part of a hospital IT infrastructure
- ' Organ preserving image guided ablation procedure

It appears that more and more of the "high impact" innovations are being made in network environments. General IT examples of this trend are the Internet, open source developments such as OsiriX, the Insight Toolkit, Linux as well as standard activities such as DICOM, e.g. DICOM in Surgery.

These networked environments may take the form of inter-institutional project groups or open consortia. They provide a basis for interdisciplinary cooperation or real and/or virtual meeting places that allow their members to cooperate, collaborate and inter-operate. During the past 20 years, the CARS Congress has been established as an open consortium and as a hub in a network of scientific/medical organizations. It encourages and participates in joint events with these organizations in order to prepare the ground for innovative activities. These collaborative partners seek innovation and progress in the field of CARS by bringing together the "right mix" of potential innovators and lead users, selected from an interdisciplinary and international community.

The CARS Congress is closely linked to the International Journal of CARS. The Journal will present results from the CARS fields in selected proffered papers, review articles, short communications and commentaries. The journal is in a fortunate position, as it can draw from the disciplines of CARS from a 20 year tradition of its congress. CARS has also a long standing relationship with the prestigious Journal of Academic Radiology (AR), USA. The tradition of CARS to encourage and invite submission of manuscripts to AR with a high clinical and educational content in radiology will also be followed in the future. The evolution of CARS as a congress and journal and as a facilitator of innovation is an important contribution to medicine and is expected to provide benefit on a worldwide basis to the R&D community and to patients.

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