

## Main Themes

- Medical Imaging
- Computed Maxillofacial Imaging
- Image Processing and Visualization
- PACS and IHE
- Telemedicine and E-Health
- Computer Aided Diagnosis
- Computer Assisted Radiation Therapy
- Image and Model Guided Therapy
- Personalized Medicine
- Surgical Navigation
- Surgical Robotics and Instrumentation
- Surgical Simulation and Education
- Computer Assisted Orthopaedic and Spinal Surgery
- Computer Assisted Head and Neck, and ENT Surgery
- Image Guided Neurosurgery
- Minimally Invasive Cardiovascular and Thoracoabdominal Surgery
- Digital Operating Room

**Deadline for abstract/paper submission:**  
10<sup>th</sup> January 2012

[www.cars-int.org](http://www.cars-int.org)

# CARS Associated Societies



## 26<sup>th</sup> International Congress and Exhibition on Computer Assisted Radiology

Chairman: Stanley Baum, MD (USA)  
Co-chair: Carlo Bartolozzi, MD (I)



- Medical Imaging, e.g. DR, CT, MR, Virtual Endoscopy, US, SPECT, PET and Molecular Imaging
- Computer Assisted Cardiovascular Imaging
- Image Processing and Display
- Medical Workstations
- Interventional Radiology
- Minimally Invasive Spinal Therapy
- Image Guided Diagnosis and Therapy of the Prostate
- Ablation Therapies
- Image Guided Radiation Therapy
- Nanotechnology for Imaging and Therapy
- Telemedicine, E-health and Multimedia EPR
- Expert Systems and Computer Assisted Education
- Economic and Management Issues
- Security, Legal and Ethical Aspects

## 16<sup>th</sup> Annual Conference of the International Society for Computer Aided Surgery

President: Kevin Cleary, PhD (USA)



- 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
- Image Processing and Visualization
- Surgical Robotics and Instrumentation
- Surgical Navigation
- Surgical Simulation
- 3D Modelling and Rapid Prototyping
- Postoperative Result Assessment
- Surgical Education and Training
- Haptics and Multimodal Devices in Medical Applications
- Methods of Validation and Verification
- Computer-Assisted Planning
- Decision Management
- Navigated Control
- Surgical Workplace – Ergonomics

## 14<sup>th</sup> International Workshop on Computer-Aided Diagnosis

Chairman: Kunio Doi, PhD (USA)  
Co-chair: Ulrich Bick, MD (D)



- CAD for Breast, Chest, Colon, Skeletal, Liver, Brain and Vascular Imaging
- CAD for Cancer Screening
- CAD for 3D Imaging
- CAD for Differential Diagnosis
- CAD for CT, MRI, Ultrasonography, PET and Nuclear Medicine Imaging
- Image Databases for CAD
- Computer Vision, ANN and Modelling
- Computerized Detection and Characterization of Lesions in Radiological Images
- Quantitative Analysis of Image Information
- Visualization and Quantitation of 3D Images
- Intelligent Workstations and Decision Support Systems
- Observer Performance Studies and ROC Analysis
- Clinical Evaluation and Prospective Studies
- Image Quality Issues and Evaluation
- CAD in PACS Environment

## 18<sup>th</sup> Computed Maxillofacial Imaging Congress

Chairman: Allan G. Farman, PhD, DSc (USA)



- New Imaging Devices and Novel Applications
- Evidence-based Selection Criteria in Digital Maxillofacial Imaging
- Craniomaxillofacial Computer-Aided Diagnosis
- Maxillofacial Image Enhancement Algorithms
- Cranial and Maxillofacial Image Guided Surgery
- Image Navigated Dental Implantology
- Orthodontic Applications of Computed Imaging
- Endodontic Applications of Computed Imaging
- Imaging and Modelling for Maxillofacial Prosthodontics
- Cone Beam CT
- 3D and 4D Imaging
- Multi-dimensional Maxillofacial Modelling
- Virtual Reality and Dental Robotics
- Interoperability
- Maxillofacial Applications in Integrating the Healthcare Enterprise

## 30<sup>th</sup> International EuroPACS Meeting

President: Emanuele Neri, MD (I)



- PACS Architecture and Workflow
- PACS Workstation Design and Ergonomics
- PACS Integration in Surgical and Interventional Suites
- PACS-CAD Integration
- Open Source Software for PACS and Image Processing
- PACS beyond Radiology (Cardiology, Endoscopy, Ophthalmology, etc.)
- Image Distribution, Storage and Archiving Strategies
- PACS/RIS/HIS Integration Issues
- Regional PACS and Teleradiology
- Standardization (DICOM, HL7, IHE)
- PACS and E-Learning in Radiology and Medical Sciences
- Tablets in Radiology
- Managing Dose Information in PACS
- Structured Reporting

## 13<sup>th</sup> CARS/SPIE/EuroPACS Joint Workshop on Surgical PACS and the Digital Operating Room

Chairmen: Osman M. Ratib, MD, PhD (CH),  
Heinz U. Lemke, PhD (D)

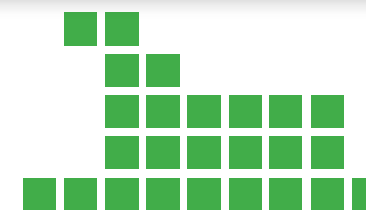
- Surgical Workflow
- Digital Operating Room
- Therapy Imaging and Model Management Systems
- Surgical PACS
- DICOM and IHE in Surgery
- Management and Assessment of OR Systems Integration
- Architectures of ORs and Imaging Suites

## 4<sup>th</sup> EPMA / IFCARS Workshop on Personalized Medicine and ICT

Chairs: O. Golubnitschaja, MD (D), Heinz U. Lemke, PhD (D)



- Model-Guided Medicine
- Patient-Specific Modelling
- Model Management
- Clinical Examples of Personalized Medicine in Oncology



# CARS 2012 COMPUTER ASSISTED RADIOLOGY AND SURGERY

26<sup>th</sup> International Congress and Exhibition



June 27-30, 2012 | Pisa, Italy

The CARS congress is the yearly occasion where medicine and technology meet to present and discuss the key innovations that shape modern medicine on a worldwide basis.

Founded in 1985, CARS has played a leading role in medical informatics for more than 25 years by focusing on research and development for computer assisted systems and their applications in radiology and surgery. Its growth and impact is due to CARS's close collaboration with the ISCAS, EuroPACS, CAR, CAD and CMI societies.

Following the long term successful cooperation, in 2012 all these prestigious scientific communities will jointly hold their annual meetings for the first time in Italy, with the 26th CARS Congress in Pisa.

The Congress will also be part of the Bioengineering Week, which will start in Rome on June 24 and move to Pisa for joining the CARS.

The CARS Congress Organizing Committee invites you to come to Pisa in June 2012, for an extraordinary event in which scientific presentations as well as friendly informal discussions will foster new visions on the future of medicine. At CARS you will have the opportunity to meet scholars and experts in the fields of radiology, surgery, engineering, informatics and/or healthcare management who have an interest in topics, such as

- image- and model-guided interventions
- advanced medical imaging
- image processing and visualization
- computer aided diagnosis
- medical simulation and eLearning
- surgical navigation and robotics
- model-guided medicine, and
- personalised medicine

New PACS applications, including IT-infrastructures adapted for the operating room as well as related results from the DICOM and IHE working groups are also within the scope of CARS. Clinical specialties represented at CARS include:

- Imaging and Interventional Radiology
- Cardiovascular and Oncologic Imaging and Interventions
- Computed Maxillofacial Imaging
- Computer Assisted Radiation Therapy
- Computer Assisted Orthopaedic and Spinal Surgery
- Computer Assisted Head and Neck, and ENT Surgery
- Image Guided Neurosurgery
- Minimally Invasive Cardiovascular and Thoracoabdominal Surgery

Please note that the deadline for paper and abstract submissions for CARS 2012 in Pisa is **January 10, 2012**.

Recent successful CARS congresses have taken place in Berlin, Paris, Tokyo, San Francisco, London, Chicago, Osaka, Barcelona, and Geneva.

We would be delighted to welcome you at CARS 2012, which will take place for the first time in Italy, in the historic university town of Pisa.

**Davide Caramella, MD**  
President of CARS 2012

**Heinz U. Lemke, PhD**  
CARS Organizer

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Davide Caramella, MD (I)

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## Hotel Reservation

We suggest to make hotel reservations as early as possible, considering that the end of June is a high season in Pisa.

# A journal for interdisciplinary research, development and applications of image guided diagnosis and therapy

**International Journal of Computer Assisted Radiology and Surgery**

A journal for interdisciplinary research, development and applications of image guided diagnosis and therapy

Editors-in-Chief:  
**Heinz U. Lemke**  
**Michael W. Vannier**

The Official Organ of  
CARS, ISCAS, EuroPACS  
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## Workshops and Special Sessions

### CARS Clinical Day

*L. Berliner, MD (USA), E. vanSonnenberg, MD (USA)*

- Minimally Invasive Spinal Surgery
- Interventional Radiology
- Computer Assisted Treatment of the Prostate
- Interventional Oncology
  - Advances in Image Guidance and Navigation
  - Advances in Treatment of Liver Tumors, including ablation

### Joint CAD / EuroPACS Workshop on Integration of CAD in PACS

*K. Doi, PhD (USA), E. Neri, MD (I)*

### 4<sup>th</sup> EuroNOTES / CARS Workshop on NOTES: An Interdisciplinary Challenge

*H. Feussner, MD (D)*

### Joint IFCARS/MPI Workshop on Model Guided Medicine

*H. Lehrach, PhD, H.U. Lemke, PhD (D)*

### Special Session on Validating New Procedures

*K. Vosburgh, PhD (USA)*

### 4<sup>th</sup> ISCAS Surgical Workshop 2012

*P. Jannin, PhD (F)*

### JICARS - Japanese Institutes of CARS - Special Sessions

*T. Dohi, PhD (J), K. Doi, PhD (J), K. Inamura, PhD (J)*

## Introductory Tutorials

### Medical Workstations and Model-guided Medicine

*M. W. Vannier, MD (USA), H. U. Lemke, PhD (D)*

### Computed Maxillofacial Imaging

*A. G. Farman, PhD, DSc (USA), S. D. Bianchi, MD (I)*

### Imaging Informatics Simulators

*H. K. Huang, DSc, FRCR (USA)*

## Tutorials

### Open Source Software

*K. Cleary, PhD (USA)*

### Surgical Process Modelling and Surgical Workflow

*T. Neumuth, PhD (D)*

June 27–30, 2012	
Wednesday, June 27	CARS Clinical Day Tutorials/Workshops IPCAI
Thursday, June 28	ISCAS EuroPACS CAD CAR CMI Exhibition
Friday, June 29	ISCAS EuroPACS CAD CAR CMI Digital Operating Room (DOR) ISCAS Surgical Workshop Exhibition
Saturday, June 30	ISCAS CAR JICARS CARS Workshops/Special Events

## Co-located Conference

The 3<sup>rd</sup> Conference on Information Processing in Computer-Assisted Intervention (IPCAI) will be co-located with CARS 2012 on June 27, 2012.

General Chairs: *N. Navab, PhD (D), P. Jannin, PhD (F)*

Program Chairs: *P. Abolmaesumi, PhD (CDN), L. Joskowicz, PhD (IL)*

## CARS in collaboration with the Bioengineering Week

[www.bioengweek2012.org](http://www.bioengweek2012.org)



In cooperation with IFCARS – the International Foundation for CARS

Update information available at [www.cars-int.org](http://www.cars-int.org)

