Final Program

CARS 2009

Computer Assisted Radiology and Surgery

23rd International Congress and Exhibition

June 23–27, 2009

Estrel Hotel, Berlin, Germany

Main Themes

- Medical Imaging
- Cardiovascular Imaging
- Computed Maxillofacial Imaging
- Image Processing and Display
- PACS and IHE
- Telemedicine and E-Health
- Computer Aided Diagnosis
- Computer Assisted Radiation Therapy
- Model Guided Therapy
- 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

23rd International Congress and Exhibition on Computer Assisted Radiology
Chairman: Stanley Baum, MD (USA)
Co-chair: Bernd Hamm, MD (D)

13th Annual Conference of the International Society for Computer Aided Surgery
President: Gero Strauss, MD (D)

27th International EuroPACS Meeting
President: Osman M. Ratib, MD, PhD (CH)

11th International Workshop on Computer-Aided Diagnosis
Chairman: Kunio Doi, PhD (USA)
Co-chair: Ulrich Bick, MD (D)

15th Computed Maxillofacial Imaging Congress
Chairman: Allan G. Farman, PhD, DSc (USA)

8th Annual Meeting of CURAC Deutschen Gesellschaft für Computer- und Roboter-Assistierte Chirurgie
President: Volkmar Falk, MD (CH)

10th 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)

For detailed information please visit

www.cars-int.org

CARS 2009 Program Overview

Tuesday, June 23, 2009

Estrelsaal A
- CURAC
- 08:00 Tutorial on Patient-Specific Model
- Break
- 10:00 Tutorial on Navigated Control
- Break
- CURAC
- 14:00 5th CURAC / CARS / DGBMT Joint WS on MGT
- Break
- 16:00 5th CURAC / CARS / DGBMT Joint WS on MGT
- 17:00 Panel Discussion on Model-Guided Therapy
- 18:30 CURAC Social Event

Wednesday, June 24, 2009

Estrelsaal A
- Clinical Day
- 08:00 Minimally Invasive Spinal Surgery
- Break
- 10:00 Interventional Radiology
- Break
- 11:30 Interventional Radiology
- Break
- Clinical Day
- 14:00 Interventional Oncology

Estrelsaal B
- CARS/CURAC
- 08:00 Tutorial on MWS
- 09:00 Tutorial on Surgical Workflow
- Break
- CARS/CURAC
- 14:00 EuroNOTES / CTAC / CARS Natural Oriface Translation Endoscopic Surgery

Estrelsaal C1/2
- CARS/CURAC
- 08:00 Tutorial on Open Source Software
- 12:00 Tutorial on Assessment of Medical Image Processing for CAS

Estrelsaal C3/4
- CARS/CURAC
- 08:00 Tutorial on Visualization and Virtual Reality in Medicine

Industrial / Poster Exhibition

16:00 Visit of Exhibition

17:00 CARS 2009 Opening

Welcome Reception

Thursday, June 25, 2009

Estrelsaal A
- ISCAS
- 08:00 Computer Assisted Head and Neck, and ENT Surgery
- Break
- 10:00 Computer Assisted Head, Neck, and ENT Surgery
- Break
- 11:30 Cardiovascular Surgery
- Break
- ISCAS
- 14:00 Computer Assisted Neurosurgery
- Break
- 16:00 Minimally Invasive Surgery

Estrelsaal B
- EuroPACS
- 08:00 Tutorial on PACS
- 09:00 Image Distribution and Integration Strategies
- Break
- 11:00 Telemedicine and Standards
- Break
- 13:00 EuroPACS General Assembly
- EuroPACS
- 14:00 Tutorial on CAD-PACS Integration
- 15:00 Workflow and Data Flow in Radiology

Estrelsaal C1/2
- CAD
- 09:00 Tutorial on CAD
- Break
- 10:30 Special Session on Breast CAD
- Break
- CAD
- 14:00 BCAD
- 14:30 Special Interactive Session on Breast CAD
- Break
- 16:00 Panel Discussion

Estrelsaal C3/4
- CAR
- 08:00 Computed Tomography
- 09:00 Magnetic Resonance
- Break
- 11:00 Ultrasound
- Break
- CMI
- 14:00 Imaging of the Teeth and Adjacent Structures
- CAR
- 16:30 Computer Assisted Radiation Therapy

Industrial / Poster Exhibition

EuroPACS Social Event

Friday, June 26, 2009

Estrelsaal A
- ISCAS
- 08:00 Computer Assited Orthopaedic Surgery
- Break
- 11:00 Image Processing and Visualization
- 13:00 ISCAS General Assembly
- ISCAS
- 14:00 1st ISCAS Surgical Workshop on Computer-Aided ENT and Maxillofacial Surgery

Estrelsaal B
- EuroPACS
- 08:00 PACS – Beyond Radiology
- 09:30 IHE & Data Sharing in UK
- CARS
- 10:30 CARS / SPIE / EuroPACS Digital Operating Room
- Break
- CARS
- 14:00 CARS / TicSalut / EuroPACS Educational Course on the DOR
- Break
- 16:00 CARS / TicSalut / EuroPACS Educational Course on the DOR
- 17:30 Panel Discussion

Estrelsaal C1/2
- CAD
- 09:00 Special Session on Thoracic CAD
- Break
- 10:30 Special Session on Thoracic CAD
- Break
- CAD
- 14:00 ACAD
- Break
- 15:30 Special Session on CAD for MR and PET

Estrelsaal C3/4
- CMI
- 08:30 Orthodontics, Dentofacial Orthopedics and Airway
- Break
- 10:30 Imaging and Treating Temporomandibular Joint Conditions
- Break
- 13:30 Tutorial on CMI
- CMI
- 14:00 Tutorial on CMI
- 14:30 Image-Guided Craniofacial Surgery
- Break
- 16:00 Image-Guided Craniofacial Surgery

Industrial / Poster Exhibition

ISCAS Social Event

Saturday, June 27, 2009

Estrelsaal A
- ISCAS
- 08:00 Surgical Robotics and Instrumentation
- Break
- 10:00 Surgical Navigation
- Break
- ISCAS
- 14:00 Surgical Modelling, Simulation and Education
- Break
- 16:00 Surgical Modelling, Simulation and Education

Estrelsaal B
- JICARS
- 08:00 Special Session Intelligent Surgical Instruments Project
- Break
- 10:00 Special Session on CARS in Knowledge Cluster
- Break
- CARS
- 13:00 Special Session on TMJ / TMD
- 15:15 Data Flow and Integration of Computer and Robot Assisted Surgical Procedures

Estrelsaal C1/2
- CARS
- 08:00 Patient Specific Modelling
- EPMA / CARS
- 10:30 Concepts, Methods and Tools for PM
- Break
- 11:30 Concepts, Methods and Tools for PM
- Break
- IFCARS
- 14:00 IFCARS Academy Educational Day

Estrelsaal C3/4
- CAR
- 08:00 Image Processing and Display
- Break
- 10:00 Image Processing and Display
- Break
- CAR
- 14:00 Image Processing and Display
- 16:00 DICOM WG 24

Room Paris
- CARS
- 09:00 EFMI Working Group Medical Image Processing Workshop on Computer-Aided Detection and Diagnosis Demonstrations

This program overview is subject to alteration

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- Interventional Oncology - Part 2 - Recent Advances - IO-2 8

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- Tutorial on Surgical Workflow 7
- Tutorial on Open Source Software: Should I Join the Open Source Movement? 7
- Tutorial on Assessment of Medical Image Processing for CAS 7
- Tutorial on Visualization and Virtual Reality in Medicine 7
- 1st EuroNOTES / CTAC / CARS Workshop on NOTES: An Interdisciplinary Challenge 6
- 1st ISCAS Surgical Workshop on Computer-Aided ENT and Maxillofacial Surgery 16
- 2nd CARS / TicSalut / EuroPACS Educational Course on the Digital Operating Room 16
- JICARS – Japanese Institutes of CARS – Special Sessions 18
- 1st EPMA / CARS Workshop on Personalized Medicine and ICT 19
- Special Session on TMJ / TMD 20
- EFMI Working Group Medical Image Processing Workshop on Computer-Aided Detection and Diagnosis Demonstrations 20
- Workshop on Data Flow and Integration of Computer and Robot Assisted Surgical Procedures 20
- IFCARS Academy Educational Day 21

23rd International Congress on CAR
- Computed Tomography – CT 11
- Magnetic Resonance – MR 11
- Ultrasound – US 11
- Computer Assisted Radiation Therapy – CART 13
- Image Processing and Display – IPD 19/21

8th Annual Meeting of CURAC – Deutsche Gesellschaft für Computer- und Roboter-Assistierte Chirurgie e. V.
- Tutorial on Patient-Specific Model 6
- Tutorial on Navigated Control 6
- 5th CURAC / CARS / DGBMT Joint Workshop on Model Guided Therapy 6
- Panel Discussion 6

13th Annual Conference of ISCAS
- Computer Assisted Head and Neck, and ENT Surgery – ENT-HN 10
- Cardiovascular Surgery – CVS 10
- Computer Assisted Neurosurgery – CANS 12
- Minimally Invasive Surgery – MIS 12
- Computer Assisted Orthopaedic Surgery – CAOS 14
- Image Processing and Visualization – IPV 14
- Surgical Robotics and Instrumentation – SRI 18
- Surgical Navigation – SN 18
- Surgical Modelling, Simulation and Education – SMSE 20

27th International EuroPACS Meeting
- Tutorial on Enterprise-wide PACS 10
- Image Distribution and Integration Strategies – IDIS 10
- Telemedicine and Standards – TM-ST 10
- Tutorial on CAD-PACS Integration 12
- Workflow and Data Flow in Radiology – WF 12
- PACS – Beyond Radiology – BR 14
- IHE and Data Sharing in the UK 14

11th International Workshop on CAD
- Tutorial on CAD 11
- Special Session on Breast CAD – BCAD 11/13
- Special Interactive Session on Breast CAD 13
- Special Session on Thoracic CAD – TCAD 15
- Special Session on Abdominal CAD – ACAD 17
- Special Session on CAD for MR and PET – CADMP 17

15th Computed Maxillofacial Imaging Congress
- Imaging of the Teeth and Adjacent Structures – ITS 13
- Orthodontics, Dentofacial Orthopedics and Airway – ODOA 15
- Imaging and Treating Temporomandibular Joint Conditions – ITT 15
- Tutorial on CMI: 3D Computed Maxillofacial Imaging: Approaches to Cone Beam CT Practice 15
- Image-Guided Craniofacial Surgery – IGCS 17

10th CARS / SPIE / EuroPACS Joint Workshop on Surgical PACS and the Digital Operating Room
- Digital Operating Room 14

CARS – Computer Assisted Radiology and Surgery
- Patient Specific Modelling – PSM 19

Poster Session 22

General Information

Dates and Venue

June 23–27, 2009
Estrel Hotel
Sonnenallee 225
12057 Berlin, Germany
www.estrel.com

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In collaboration with

CURAC – Deutsche Gesellschaft für Computer-und Roboter-Assistierte Chirurgie
SPIE – Society of Photo Optical Engineers
EFMI – Working Group Medical Image Processing
EPMA – European Association for Predictive, Preventive and Personalised Medicine
DGBMT – Deutsche Gesellschaft für Biomedizinische Technik
Foundation TicSalut

Hotel Reservation

A limited number of hotel rooms for CARS congress participants are reserved at the Estrel Hotel. Room reservations should be made as early as possible to ensure a reservation at the congress hotel. All rates are in Euro for a standard room per night including German VAT and service charges.
For the CARS group reservation please contact the hotel directly:

Estrel Hotel Berlin
Sonnenallee 225
12057 Berlin, Germany
Email: reservierung@estrel.com
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Visit the CARS website for further hotel options.

Conference Language

English

Conference Organization

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Exhibitions

June 24–26, 2009
Integrated into the events of the congress:
Technical Exhibition
companies demonstrate their products, systems and services
Scientific Exhibition „work-in-progress“
research institutions display innovative projects on CAR, PACS, CAS, CAD and CMI

Exhibition Hours

Wednesday, June 24	9:00–18:00
Thursday, June 25	9:00–18:00
Friday, June 26	9:00–18:00

Poster Session Hours

Wednesday, June 24 through
Saturday, June 27, 2009, 9:00–18:00

Poster Awards

Thursday, June 25, 18:00

List of past and present CARS Exhibitors and Sponsors

3dMD (USA)
3mensio Medical Imaging BV (NL)
Accuray Europe (F)
Advanced Media, Inc. (J)
Advanced System, Co. Ltd. (J)
Agfa HealthCare (B)
Alma IT Systems (E)
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DELTA Engineering GmbH (D)
Diagnostic Imaging (USA)
Dolphin Imaging (E)
Dr. Sennewald Medizintechnik GmbH (D)
EIZO GmbH (D) (formerly Siemens AG, A&D)
EIZO Nanao Corp. (J)
Elekta (S)
ELK Corp. (J)
Elsevier Science (NL)
EST, Engineering SystemsTechnologies (D)
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FIT GmbH (D)
Foresight Imaging (USA)
Fujifilm Europe GmbH (D)
GE Yokogawa Medical Systems, Ltd. (J)
Geometric Ltd. (IND)
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Hectec GmbH (D)
Hitachi Medical Systems GmbH (D)
iCAD, Inc. (USA)
Imaging Sciences International (USA)
Indra Sistemas, S.A. (E)
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Intrasense (F)
Invivo (USA)
ISCAS
J. Morita Europe GmbH (D)
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Multimodal Technologies, Inc. (USA)
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Nihon Denshi-Ohyo, Co. Ltd. (J)
NordicImagingLab AS (N)
Northern Digital Inc. (J)
Ono & Co., Ltd. (J)
Perfint Healthcare Pvt. Ltd. (IND)
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Philips Speech Solutions, S.A. (E)
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R2 Technology, Inc. (USA) (now Hologic, Inc.)
RTC Rapid Technologies GmbH (D)
SeeReal Technologies GmbH (D)
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Virtalis Ltd. (UK)

CPD Credits have been applied for.
Please visit the CARS website www.cars-int.org for update program information.

No liability can be accepted for any errors.
The program is subject to alteration.

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Tuesday, June 23, 2009 08:00–18:30

8th Annual Meeting of CURAC – Deutsche Gesellschaft für Computer- und Roboter-Assistierte Chirurgie e. V.
President: Volkmar Falk, MD (CH)

Estrelsaal A

08:00 Welcome to CURAC 2009

President: Volkmar Falk, MD, PhD

08:10 Tutorial on Patient-Specific Model

Heinz U. Lemke, PhD, Technical Univ. of Berlin (D)
Volkmar Falk, MD, PhD, Univ. Hosp. Zurich (CH)

09:45 Break

10:00 Tutorial on Navigated Control

Tim C. Lüth, PhD, Technical Univ. Munich (D)
Gero Strauss, MD, Univ. Hosp. Leipzig (D)

11:45 Break

14:00 5th CURAC / CARS / DGBMT Joint Workshop on Model Guided Therapy

Session Chair: Thomas Schmitz-Rode, MD (D)

14:00 Interventional and transapical valve replacement - a case for model based surgery
V. Falk, Univ. Hosp. Zurich (CH)

14:15 Patient modelling for cardiology and heart surgery
O. Dössel, Univ. of Karlsruhe (D)

14:30 Action and workflow driven user interfaces for computer aided interventions
N. Navab, Technical Univ. of Munich (D)

14:45 Challenges in software development for model guided therapy
H.-O. Peitgen, Fraunhofer MEVIS, Bremen (D)

15:00 Cut less - see more: the role of IT for modelling and supporting surgical workflows
C. Bulitta, Siemens AG Healthcare Sector, Erlangen (D)

15:15 The surgical view on a digital patient model
G. Strauss, Univ. Hosp. of Leipzig (D)

15:30 Modelling in radiation therapy
W. Schlegel, German Cancer Research Center, Heidelberg (D)

15:45 Break

16:00 Cooperation issues for R&D model guided therapy
H. U. Lemke, Technical Univ. of Berlin (D)

16:15 Funding possibilities for biomedical imaging research in the EU's 7th framework programme
P. Jehenson, European Commission, Brussels (B)

16:30 Potential funding possibilities for biomedical imaging and associated research within the NIH and specifically NIBIB programs
J. W. Haller, National Inst. of Health, Bethesda, MD (USA)

16:45 Panel Discussion on Model-Guided Therapy

Moderators: Thomas Schmitz-Rode, MD (D)
Heinz U. Lemke, PhD (D)

17:30 CURAC Mitgliederversammlung

18:30 CURAC Social Event

Wednesday, June 24, 2009 14:00–16:00

1st EuroNOTES / CTAC / CARS Workshop on NOTES: An Interdisciplinary Challenge
Chairman: Hubertus Feussner, MD (D)
Co-Chair: Andreas Melzer, MD, DDS (UK)

Estrelsaal B

14:00 Natural Orifice Transluminal Endoscopic Surgery – NOTES

Session Chairs: Hubertus Feussner, MD (D)
Andreas Melzer, MD, DDS (UK)

14:00 On the threshold to NOTES: the key role of technology
Invited Speaker: H. Feussner, Klinikum rechts der Isar, Munich (D)

14:15 The role of patient specific modelling in NOTES
Invited Speaker: H.U. Lemke, Technical Univ. of Berlin (D)

14:30 MR-compatible flexible endoscope for Natural Orifice Transluminal Endoscopic Surgery (NOTES)
S. Naka, Y. Kurumi, K. Sato, K. Murakami, H. Shiomi, T. Tani S. Morikawa, Shiga Univ. of Medicine, Otsu, H. Haque, GE Yokogawa Medical Systems, Hino (J)

14:45 Electromagnetic tracking of a flexible endoscope for comprehensive evaluation of different access routes for NOTES
A. Schneider, D. Wilhelm, H. Feussner, Klinikum rechts der Isar, Munich (D)

15:00 Experiment of a tele-controled endoscopic surgical robot system between Japan and Thailand
A. Hattori, N. Suzuki, The Jikei Univ. School of Medicine, Y. Fujino, Y. Ueda, NTT Communications Corp., Tokyo S. Ieiri, T. Maeda, K. Tanoue, M. Hashizume, Kyushu Univ. Hosp., K. Konishi, Kyushu Univ., Fukuoka (J), P. Navicharern, Chulalongkorn Univ., Bangkok (T)

15:15 New endoscopic robot system for NOTES that enables activation of 4 robotic forceps for free surgical maneuvers
N. Suzuki, A. Hattori, The Jikei Univ. School of Medicine, Tokyo, K. Tanoue, S. Ieiri, H. Kenmotsu, M. Hashizume, Kyushu Univ. Hosp., K. Konishi, Kyushu Univ., Fukuoka (J)

15:30 Flexible versus rigid instruments: not only a technological challenge
Invited Speaker: A. Melzer, Univ. Dundee and St. Andrews (UK)

15:45 Engineering challenges for NOTES instruments
Invited Speaker: G.-Z. Yang, Imperial College of Science, Technology, and Medicine, London (UK)

16:00 End of Session

CARS/CURAC Workshops, Tutorials and Special Events

Estrelsaal B
08:00 Tutorial on Medical Workstations – MWS

Michael W. Vannier, Univ. of Chicago Medical Center (USA)
Heinz U. Lemke, Technical Univ. of Berlin (D)

09:00 End of Tutorial

Estrelsaal B
09:00 Tutorial on Surgical Workflow

Oliver Burgert, PhD, Univ. of Leipzig (D)
Laurent Riffaud, MD, Hosp. Pontchaillou, Rennes (F)

The term "Surgical Workflow (S-WF)" is used in a variety of contexts and for different purposes, each having one thing in common: Modeling the processes in the Operating room. The approaches to this are manifold: From human or technical observation of the surgical processes and their abstract modeling to the manual description of complex surgical cases there are different ways to acquire S-WFs. The Worksflows themselves are used to answer specific clinical questions, for requirements engineering for software systems or to drive higher level clinical applications.
The tutorial gives an introduction to the field of Surgical Workflow Analysis. The major steps for successfully using the methodology are presented: Process recording, process modeling, process visualization, process analysis. In addition to theoretical aspects, the speakers give examples from their experience in analyzing over 700 clinical processes from various surgical domains for different purposes.

Special registration required.

12:00 End of Tutorial

Estrelsaal C1/2
08:00 Tutorial on Open Source Software: Should I Join the Open Source Movement?

Kevin Cleary, PhD, Georgetown Univ. Medical Center, Washington, DC (USA)

Open source software development is an increasingly popular software development model, particularly in the research community. The availability and use of open source software is rapidly increasing everywhere, including within the computer assisted radiology and surgery community. However, as with most technologies, open source software is not a "cure-all", but rather one option for software development in medical devices. In this tutorial, we will start with an introduction and overview of the open source software field, including a discussion of what the term open source means, the licensing issues, and the business models. We will then survey the landscape of existing open source tools, with a particular emphasis on tools for the computer assisted radiology and surgery domain. We will next present an example open source implementation, the Image-Guided Surgery Toolkit (IGSTK). We will conclude with a demonstration of IGSTK and discuss the issues involved in using open source software in the clinical domain.

14:00 Introduction and overview
K. Cleary, PhD, Georgetown Univ. Medical Center, Washington, DC (USA)

14:40 Survey of open source tools
A. Enquobahrie, PhD, Kitware, Inc., Clifton Park, NY (USA)

15:20 Break and private discussions

15:40 Example implementation (IGSTK)
P. Cheng, MS, Georgetown Univ. Medical Center, Washington, DC (USA)

16:20 Demonstration and group discussion

Special registration required.

12:00 End of Tutorial

CARS/CURAC Workshops, Tutorials and Special Events

Estrelsaal C1/2
12:00 Tutorial on Assessment of Medical Image Processing for CAS
Validation in Medical Image Processing Tools for CAS

Pierre Jannin, PhD, Univ. of Rennes (F)

This tutorial will introduce the basic knowledge of assessment terminology and methodology, especially in the context of medical image processing for Computer Assisted Surgery. The tutorial will first outline the complexity and diversity of assessment in such clinical context. Tools and classifications will be introduced to manage this complexity. The main components of an assessment study in medical image processing for CAS will be described as well as methods for making easier the design and report of such assessment studies. Main examples will concern image guided surgery.

Special registration required.

16:00 End of Tutorial

Estrelsaal C3/4
08:00 Tutorial on Visualization and Virtual Reality in Medicine

Bernhard Preim, PhD, Otto-von-Guericke-Univ. Magdeburg (D)
Charl Botha, PhD, Delft Univ. of Technology (NL)

Efficient and high-quality visualization have a great potential for enhancing treatment planning and intra-operative support. In this tutorial, we will introduce surface and direct volume rendering and explain how advanced methods can be efficiently employed. Specific examples of advanced methods include smooth reconstructions of surface data from medical volume data, visualization of vascular structures and virtual endoscopy. Many examples and stress clinical applications will be provided. Selected applications, such as computer-assisted shoulder replacement, diagnosis of coronary artery disease and virtual colonoscopy will be presented and demonstrated in more detail. These detailed examples show how techniques are integrated with other methods, in particular from image analysis and simulation, to solve real problems. Finally, we will discuss strategies of assessing the impact of visualization techniques on treatment planning.

Special registration required.

12:00 End of Tutorial

Wednesday, June 24, 2009 08:00–18:00

CARS Clinical Day
Chairmen: Leonard Berliner, MD (USA)
Eric vanSonnenberg, MD (USA)

Estrelsaal A
08:00 Minimally Invasive Spinal Surgery – MISS
Session Chairs: John C. Chiu, DDSc, MD (USA), H.K. Huang, DSc (USA)

08:00 Evolving Minimally Invasive Spine Surgery (MISS) and technological consideration
Invited Speaker: J. C. Chiu, California Center for Minimally Invasive Spine Surgery, Newbury Park, CA (USA)

08:15 MRI guided applications of signal inducing bone cements on a spine phantom
F. Wichlas, R. Schilling, C. Seebauer, U. Teichgräber, H. Bail, Charité – Univ. Medicine, Berlin (D)

08:30 Enhancing pedicle screw placement with pre-surgical image-based planning and patient-specific 3D anatomic models
K. Augustine, A. Stans, J. Morris, P. Huddleston, J. Matsumoto, D. Holmes, R. Robb, Mayo Clinic, Rochester, MN (USA)

08:45 Navigational high-resolution 3D ultrasound in spine tumour surgery – technical assessment
T. Selbekk, G.A. Tangen, O.V. Solberg, SINTEF, O. Solheim, G. Unsgard, Y. Nygard, St. Olav Univ. Hosp., Trondheim (N)

09:00 What is the maximum echo time for thermometric monitoring during percutaneous laser disk decompression?
U. Wonneberger, F. Streitparth, T. Walter, J. Rump, U. Teichgräber, Charité – Univ. Medicine, Berlin, B. Schnackenburg, Philips GmbH, Hamburg (D)

09:15 Technical feasibility and clinical efficacy of 3D-navigation in posterior spinal instrumentation
J.-S. Jarvers, T. R. Blattert, C. Josten, Univ. of Leipzig, S. Katscher, Helios Clinic Borna (D)

09:30 Break

09:45 Interventional Radiology – IR
Session Chairs: Leonard Berliner, MD (USA), Eric vanSonnenberg, MD (USA)

09:45 MR-compatible wireless communication system for the interventional open high-field MRI
J. Rump, F. Güttler, U. Teichgräber, Charité – Univ. of Medicine, Berlin (D)

10:00 New optical navigation system for image guided biopsies and ablations: initial in-vitro, animal and human evaluation
Y. Schwarz, G. Aviram, Tel Aviv Sourasky Medical Center, J. Sosna, Hadassa Hosp., Jerusalem, P. Gilboa, ActiViews Ltd, Haifa (IL), U. Shreter, ActiViews Inc., Mequon, WI (USA)

10:15 MR-guided Laser-induced Interstitial Thermal Therapy (LITT) using real-time automatic passive tracking of a flexible instrument holder
P. Zamecnik, A. J. Krafft, F. Maier, C. Zechmann, M. Bock, German Cancer Research Center, Heidelberg, A. de Oliveira, Siemens Medical Solutions, Erlangen, A. Winkel, Invivo Germany GmbH, Schwerin (D)

10:30 Fast verification of electrode access paths for CT-guided RFA planning and targeting
A. Weihusen, C. Schumann, J. Bieberstein, C. Rieder, B. Geisler, S. Zidowitz, H.-O. Peitgen, Fraunhofer MEVIS, O. Konrad, MeVis Medical Solutions AG, Bremen (D)

10:45 Evaluation of online thermometry during MR-guided intervention in a high field open system at 1.0 T
K. Jungnickel, G. Gaffke, K. Lohfink, F. Fischbach, M. Ludewig, O. Großer, J. Ricke, K. Will, A. Omar, Otto von Guericke-Univ., Magdeburg, J. Bunke, Philips Healthcare, Hamburg (D)

11:00 Optimal visualization and 3D-asymmetry quantification for postoperative result assessment of hepatic radiofrequency ablations
R. Wiemker, Philips Research Hamburg, C. Bangard, S. Rösgen, R. Wahba, M. Hellmich, J. Fischer, D. L. Stippel, K.J. Lackner, Univ. Hosp. Cologne (D)

11:15 Break

CARS Clinical Day
Chairmen: Leonard Berliner, MD (USA)
Eric vanSonnenberg, MD (USA)

Estrelsaal A
11:30 Interventional Radiology – IR
Session Chairs: Leonard Berliner, MD (USA), Eric vanSonnenberg, MD (USA)

11:30 Total computerized control of transcutaneous tissue acquisition
J. Janssens, R. Schulz-Wendtland, G. Mendoza, Univ. of Hasselt (B)

11:45 Percutaneous transhepatic cholangiography training simulator with real-time breathing motion
P.F. Villard, F. Bello, Imperial College London, F.P. Vidal, N.W. John, Univ. of Wales, Bangor, C. Hunt, S. Johnson, Manchester Business School, D. Gould, The Royal Liverpoool and Broadgreen Hosp. (UK)

12:00 Real-time tracking of liver motion and deformation using fine needle
R. Shekhar, P. Lei, F. Moeslein, Univ. of Maryland, Baltimore, MD (USA)

12:15 Macroscopic blood flow visualization using boids
S. Pop, C. Hughes, N. John, Bangor Univ. (UK)

12:30 Real-time Seldinger technique simulation in complex vascular models
V. Luboz, F. Bello, Imperial College London, C. Hughes, N.W. John, Univ. of Wales, Bangor, D. Gould, The Royal Liverpoool and Broadgreen Hosp. (UK)

12:45 Break

14:00 Interventional Oncology – Part 1
Focus on Lung Cancer – IO-1
Session Chair: Leonard Berliner, MD (USA)

14:00 Lung cancer: epidemiology and treatment options
A. Sung, New York Methodist Hosp., Brooklyn, NY (USA)

14:15 Introduction to tumor ablation therapies and technologies
P. Morrison, Brigham and Women's Hosp., Boston, MA (USA)

14:30 Lung cancer: role of tumor ablation
E. vanSonnenberg, Arizona State Univ., Phoenix, AZ (USA)

14:45 Lung cancer: interventional pulmonology
A. Sung, New York Methodist Hosp., Brooklyn, NY (USA)

15:00 Interventional Oncology – Part 2
Recent Advances – IO-2
Session Chair: Eric vanSonnenberg, MD (USA)

15:00 Interventional oncology: palliative IR procedures
L. Berliner, New York Methodist Hosp., Brooklyn, NY (USA)

15:15 Advanced technologies in the interventional radiology suite of the future
K. Cleary, Georgetown Univ. Medical Center, Washington, DC (USA)

15:30 Hepatic malignancies: role of ablation and embolization
E. I. Cohen, Georgetown Univ. Medical Center, Washington, DC (USA)

15:45 Case-based approach to tumor ablation: patient selection and treatment decision making
E. vanSonnenberg, Arizona State Univ., Phoenix, AZ (USA)

Panel Discussion

CPD credits have been applied for.

CARS 2009 Opening

Estrelsaal A/B
17:00 CARS 2009 Opening

Welcome

Heinz U. Lemke, PhD
Organizer CARS 2009

Bernard L. Crowe, BA, MPH
Honorary President CARS 2009

Stanley Baum, MD
Chairman, Computer Assisted Radiology, 23rd International Congress and Exhibition (CAR)

Gero Strauss, MD
President, 13th Annual Conference of the International Society for Computer Aided Surgery (ISCAS)

Osman M. Ratib, MD, PhD
President, 27th International EuroPACS Meeting (EuroPACS)

Kunio Doi, PhD
Chairman, 11th International Workshop on Computer-Aided Diagnosis (CAD)

Allan G. Farman, PhD, DSc
Chairman, 15th Computed Maxillofacial Imaging Congress (CMI)

Keynote Lectures

From patient-specific modelling to model-based evidence in medicine
M. W. Vannier, Univ. of Chicago (USA)

Visions of creative design for human computer interaction with models
B. Buxton, Microsoft Research (USA)

Invited Lectures

Darwin, selection, survival, cooperation and CARS
S. J. Golding, Univ. of Oxford (UK), E. Beckmann, Lanmark, Beaconsfield (UK)

CT imaging of the mummy Meresamun with 64- and 256-slice scanners
M. W. Vannier, Univ. of Chicago (USA)

CARS 2009 Computer Assisted Radiology and Surgery
23rd International Congress and Exhibition
Estrel Hotel, Berlin, Germany, June 23 - 27, 2009

Joint Congress of CAR, ISCAS, CMI, CAD, EuroPACS and CURAC

The International Congress of CARS aims to provide 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 health care for the citizens, the focus of the International Congress of CARS 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
- Cranial and Maxillofacial Image Guided Surgery
- Surgical Workflow
- Surgical DICOM and IHE
- Digital Operating Room

The response to the Call for Papers for CARS 2009 in Berlin has been very positive. Altogether, 569 submissions were received from 40 countries. With this level of submissions, CARS 2009 in Berlin will provide a highly professional program for the participants.

The informal federation of societies and congresses of CARS 2009 in Berlin (ISCAS, EuroPACS, CURAC, 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 six organizations with their specific scientific/medical topics complement one another. They give a world-wide lead in interdisciplinary and international cooperation which will be the foundation of healthcare in the 21st Century.

The CARS Congress is closely linked to the International Journal of CARS. The Journal presents 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 24 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.

Heinz U. Lemke, PhD, CARS Organizer
Technical University of Berlin, Germany and
University of Southern California, Los Angeles, USA

Thursday, June 25, 2009 08:00–14:00

13th Annual Conference of the International Society for Computer Aided Surgery
President: Gero Strauss, MD (D)

Estrelsaal A

08:00 Computer Assisted Head and Neck, and ENT Surgery – ENT-HN
Session Chairs: Gero Strauss, MD (D), Wolfgang Freysinger, PhD (A)

08:00 Development and implementation of an integrated image-guided surgery system based on a prototype C-arm for high-performance cone-beam CT
J. Siewerdsen, M. Daly, H. Chan, J. Irish, Princess Margaret Hosp., Toronto, Ontario, S. Nithiananthan, N. Hamming, Univ. of Toronto (CDN)

08:15 Demons deformable registration for cone-beam CT-guided procedures in the head and neck: multi-scale implementation, optimization, and characterization
S. Nithiananthan, K. Brock, J. Siewerdsen, Univ. of Toronto, J. Irish, Princess Margaret Hosp., Toronto, Ontario (CDN)

08:30 A new low-dose protocol for dose reduction by the production of a CT for navigation
T. Berger, M. Hofer, G. Strauss, A. Dietz, E. Dittrich, M. Reiss-Zimmermann, Univ. of Leipzig (D)

08:45 Newly developed surgical navigator for endoscopic sinus surgery based on 3D measurements using white light scanner
S. Yamamoto, H. Mineta, Hamamatsu Univ. School of Medicine, A. Miura, K. Mochizuki, T. Nakamura, Amelio Inc., T. Takai, E. Hayashimoto, Pulstec Industrial Co., Ltd., J. Hotta, Zodiac Co., Ltd., Y. Suzuki, NST Co., Ltd., Hamamatsu, M. Orimoto, H. Saitoh, Nagashima Medical Instruments Co., Ltd., Tokyo (J)

09:00 A new visualisation device for ENT-surgery: Panoramic Visualisation System (HD-PVS)
M. Hofer, G. Strauss, A. Dietz, M. Strauss, Univ. Hosp. of Leipzig, E. Dittrich, Univ. of Leipzig (D)

09:15 Intraoperative measurement in endonasal surgery (Volume Control System, VCS)
G. Strauss, Univ. Hosp. Leipzig, S. Hipp, Karl Storz GmbH & Co. KG, Tuttlingen (D)

09:30 Break

10:00 Experimental experience with the use of an active robotic camera holding system in head and neck surgery
J. Kristin, P. Lohnstein, F. Knapp, J. Schipper, T. Klenzner, Univ. of Düsseldorf (D)

10:15 First clinical experiences with the new endoscope manipulator system for endo- and transnasale sinus surgery
M. Krinninger, M. Markert, T. Kraus, T. Lüth, Technical Univ. Munich, G. Strauss, A. Dietz, Univ. Hosp. Leipzig (D)

10:30 A robot-guided minimally invasive approach for cochlear implant surgery: preliminary results of a temporal bone study
O. Majdani, T. Rau, T. Lenarz, M. Leinung, Medical Univ. of Hannover, S. Baron, H. Eilers, B. Heimann, Leibniz Univ., Hannover, S. Bartling, German Cancer Research Center, Heidelberg (D)

10:45 Manual accuracy in middle ear surgery in comparison with a miniature master slave device
A. Runge, M. Hofer, R. Haase, G. Strauss, A. Dietz, Univ. Hosp. Leipzig, E. Dittrich, T. Neumuth, Univ. of Leipzig, M. Thomas, T. Lüth, Technical Univ. Munich (D)

11:00 Navigated control for ENT-surgery: a critical balance after 50 patients
G. Strauss, M. Hofer, Univ. Hosp. Leipzig, T. Lüth, Technical Univ., Munich (D)

11:15 Break

11:30 Cardiovascular Surgery – CVS
Session Chair: Volkmar Falk, MD, PhD (CH)

11:30 Patient-specific modeling of the carotid arteries for surgical simulation
M. Freiman, M. Natanzon, N. Broide, L. Joskowicz, L. Weizman, The Hebrew Univ. of Jerusalem, J. Sosna, Hadassah Hebrew Univ. Medical Center, Jerusalem, E. Nammer, O. Shilon, Simbionix Ltd., Lod (IL)

11:45 Roboticaly assisted minimally invasive aortic valve replacement under MRI guidance
D. Mazilu, M. Li, A. Kapoor, K. Horvath, National Inst. of Health, Bethesda, MD (USA)

12:00 Automated soft tissue manipulation with mechatronic assistance using endoscopic Doppler guidance
S. Jacobs, V. Falk, Univ. Hosp. Zurich (CH)

12:15 3D ultrasound for catheter ablation guidance in the left atrium
A. B. Koolwal, F. Barbagli, D.H. Liang, Stanford Univ., C.R. Carlson, Hansen Medical, Mountain View, CA (USA)

12:30 Break

27th International EuroPACS Meeting
President: Osman M. Ratib, MD, PhD (CH)

Estrelsaal B

08:00 Tutorial on Enterprise-wide PACS
H. K. Huang, Univ. of Southern California, Los Angeles, CA (USA)

09:00 Image Distribution and Integration Strategies – IDIS
Session Chairs: Osman M. Ratib, MD, PhD (CH), Roald Bergström, PhD (N)

09:00 Solutions for the sharing of medical images and related information in multi-center research studies: semantic aspects and interoperability issues
Invited Speaker: B. Gibaud, Univ. of Rennes (F)

09:15 Integrating medical imaging in EDC (Electronic Data Captures) systems used in clinical trials
A. Urbank, Perceptive Informatics, Berlin (D)

09:30 Anonymization of DICOM 3.0 PACS studies for clinical trials
B. Waters, G. Bose, K. Natarajan, Univ. Hosp. of Birmingham (UK)

09:45 Panoramix: a content-based health record system
A. Wichert, P. Santos, H. Galhardas, IST – Technical Univ. of Lisbon (P)

10:00 E-atlas of photodynamic images
D. Spinczyk, J. Murawski, E. Pietka, Silesian Univ. of Technology, Gliwice, W. Latos, S. Kwiatek, A. Krawczyk-Krupka, A. Sieron, Silesian Medical Univ., Bytom (PL)

10:15 StudyFlow: a music player album concept
M. Anderson, M. McFarland, G. Kovacs, McKesson Medical Imaging Group, Richmond, British Columbia (CDN)

10:30 Break

11:00 Telemedicine and Standards – TM-ST
Session Chairs: Jarmo Reponen, MD (FIN), Peter Mildenberger, MD (D)

11:00 Interoperability and cross-boarder exchange of patient data
Invited Speaker: J. Reponen, Univ. of Oulu (FIN)

11:15 Federation of 7 communities for telemedicine purposes: HEALTH OPTIMUM project clinical and governance approach
A. Rebeschini, C. Dario, M. Gabrieli, C. Saccavini, S. Mancin, Arsenàl.IT, Treviso (I)

11:30 Relevance of the Tyrolean teleradiology-network for acute neuro-patients
P. Soegner, F. Koppelstaetter, G. Feuchtner, Univ. Hosp. of Innsbruck (A)

11:45 A strongly-typed addressing string for DICOM content
D. Guo, Oracle Corp., Nashua, NH (USA)

12:00 Notification system of completed diagnostic reports by using IHE ITI EUA function in the PACS environment
Y. Ando, M. Mukai, T. Tanikawa, A. Kobayashi, T. Kamada, National Inst. of Radiological Sciences, Chiba, H. Fujii, National Cancer Center Hosp. East, Kashiwa, N. Tsukamoto, Saitama Medical Univ. International Medical Center, K. Arakawa, Computer System Lab Co., Tokyo (J)

12:15 DIN 6868-159: a German standard for quality assurance in teleradiology
U. Engelmann, German Cancer Research Center, Heidelberg, B. Seidel, Normenausschuss Radiologie NAR im DIN, Erlangen (D)

12:30 Computer assisted methods and telemedicine applications in orthopaedics
Invited Speaker: W. Glinkowski, Medical Univ. of Warsaw (PL)

12:45 Break

13:00 EuroPACS General Assembly

11th International Workshop on Computer-Aided Diagnosis

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

Estrelsaal C1/2

09:00 Tutorial on CAD

Ulrich Bick, MD, Charité, Berlin (D)
Kunio Doi, PhD, The Univ. of Chicago (USA)

10:00 Break

10:30 Special Session on Breast CAD – BCAD

Session Chairs: Ulrich Bick, MD (D), Ruey-Feng Chang, PhD (RC)

10:30 Computer-aided diagnosis in breast MR: current status and future potential
Invited Speaker: G. Newstead, The Univ. of Chicago (USA)

11:00 Effectiveness of digital CAD in marking the cancer on mammograms at diagnosis and prior years
Invited Speaker: S. Destounis, R. Morgan, M. Skolny, A. Arieno, Elizabeth Wende Breast Care, LLC, Rochester, NY (USA)

11:30 Computer-Aided Detection (CAD) of missed breast cancers with computed radiography for mammography
R. Brem, J. Rapelyea, The George Washington Univ. Medical Center, Washington, DC, J. Hoffmeister, M. Sallam, M. Collins, iCAD, Inc., Nashua, NH (USA)

11:45 Detection of architectural distortion in prior mammograms of interval-cancer cases
R.M. Rangayyan, S. Banik, S. Prajna, J.E.L. Desautels, Univ. of Calgary (CDN)

12:00 3-D fuzzy tumor detection for whole breast ultrasound
R.-F. Chang, T.-H. Chen, Y.-W. Shen, National Taiwan Univ., C.-S. Huang, National Taiwan Univ. Hosp., Taipei (RC), W.K. Moon, Seoul National Univ. Hosp. (ROK)

12:15 Break

Computer Assisted Radiology 23rd International Congress and Exhibition

Chairmen: Stanley Baum, MD (USA)
Co-Chair: Bernd Hamm, MD (D)

Estrelsaal C3/4

08:00 Computed Tomography – CT

Session Chair: Martin J. Lipton, MD, FACR, FACC (USA)

08:00 A dual-resolution Cone Beam CT technique for 3D breast imaging- scatter reduction, dose saving, and image quality improvement
C. Shaw, C. Lai, Y. Shen, L. Chen, T. Han, S. Ge, Y. Yi, x. Liu, Y. Zhong, H. Zhang, T. Wang, G. Whitman, W. Yang, Univ. of Texas, Houston, TX (USA)

08:15 A novel design of dynamic phi-collimator of CT system to trace target scanning area and reduce patient dose
W. Wang, J. Du, J. Kong, Siemens HealthCare, Shanghai (CHN)

08:30 Evaluation of a new metal artifact correction technique on computed tomographic imaging in neuroradiology
A. Douglas-Akinwande, S.G. Jennings, C.Y. Ho, K. Hamada, Indiana Univ. School of Medicine, Indianapolis, IN, K. M. Brown, Philips Healthcare, Cleveland, OH (USA)

08:45 Image processing to clearly visualize both sentinel lymph nodes and body silhouette on the lymphoscintigram
H. Fujii, National Cancer Center, Kashiwa, T. Ikeda, Teikyo Univ., Y. Kitagawa, Keio Univ., T. Nakahara, A. Kubo, Keio Univ., M. Kitajima, International Univ. of Health and Welfare, Tokyo, Y. Ando, National Inst. of Radiological Sciences, Chiba (J), C. Suzuki, Karolinska Univ., Stockholm (S)

09:00 Magnetic Resonance – MR

Session Chair: Frits Barneveld Binkhuysen, MD, PhD (NL)

09:00 A proposed novel methodology for optimisation of sequences in MRI imaging: optimising the flip angle
S. Drisis, D. Moura, J. Alexiou, Univ. Libre de Bruxelles (B)

09:15 Quadratic phase offset error correction of velocity-encoded magnetic resonance imaging data
M. Delles, R. Unterhinninghofen, R. Dillmann, Univ. of Karlsruhe, F. Rengier, S. Ley, H.-U. Kauczor, Univ. Hosp. of Heidelberg, H. von Tengg-Kobligk, German Cancer Research Center, Heidelberg (D)

09:30 Combined MR imaging for anatomical and functional knee joint model
B. Chen, T. Lambrou, M. Fry, A. Todd-Pokropek, Univ. College London (UK)

09:45 Prediction of cancer treatment effectiveness using DCE-MRI and expert classification rules
M. Bruynooghe, SenoCAD Research, Alkmaar (NL), C. Farges, C. De Bazelaire, Hosp. Saint-Louis, Paris (F)

10:00 Automated combined voxel based kinetic analysis of DCE- and DSC MRI in brain lesions
H. Laue, H. Hahn, Fraunhofer MEVIS, Bremen, F. Giesel, C. Zechmann, L. Gerigke, P. Zamecnik, M. Essig, A. Afshar-Oromieh, C. von Gall, U. Haberkorn, German Cancer Research Center, Heidelberg (D), R. Talanow, The Cleveland Clinic Foundation (USA)

10:15 Diffusion-weighted image analysis in pediatric metabolic brain diseases
J. Alirezaie, S. Zarei Mahmoodabadi, Ryerson Univ., P. Babyn, A. Kassner, E. Widjaja, The Hosp. for Sick Children, Toronto, Ontario (CDN)

10:30 Break

10:45 Ultrasound – US

Session Chair: Steven C. Horii, MD (USA)

10:45 Developing a new tool for automatic analysis of IVUS images: from border detection to plaque characterization
S. Avansari, A. Roodaki, S.H. Rezatofighi, S. K. Setarehdan, Univ. of Tehran (IR), A. Taki, N. Navab, Technical Univ. Munich (D)

11:00 Quality improvements for ultrasound-based cerebral perfusion analysis
C. Kier, A. Mertins, Univ. of Lübeck, K. Meyer-Wiethe, G. Seidel, Univ. Hosp. of Schleswig-Holstein, Lübeck (D)

11:15 3D augmented reality simulator for neonatale cranial sonography
D. Markov-Vetter, J. Muehl, D. Schmalstieg, Technical Univ. of Graz, E. Sorantin, M. Riccabona, Medical Univ. Graz (A)

11:30 Decision support software to aid in the diagnosis of pneumothorax by ultrasound: can we beat novice scanners?
V.E. Noble, C. Morse, Massachusetts General Hosp., Boston, MA, T. Szabo, Boston Univ. (USA)

11:45 Break

Thursday, June 25, 2009 14:00–18:00

13th Annual Conference of the International Society for Computer Aided Surgery
President: Gero Strauss, MD (D)

Estrelsaal A
14:00 Computer Assisted Neurosurgery – CANS
Session Chairs: Richard D. Bucholz, MD, FACS (USA), Jürgen Meixensberger, MD (D)

14:00 An intelligent atlas-based planning system for keyhole neurosurgery
E. De Momi, P. Tirelli, G. Ferrigno, Politecnico di Milano, N.A. Borghese, Univ. degli Studi di Milano (I)

14:15 Development of neurosurgical image-guided robot system using biplanar fluoroscope
Y.S. Kim, B.J. Yi, J. I. Park, Hanyang Univ. Medical Center, Seoul (ROK)

14:30 Free hand elastography for resection of gliomas. Preliminary results.
M. Scholz, S. Möller, J. Thissen, C. Löhnert, P. Spangenberg, A. Harders, Knappschafts-krankenhaus, Bochum-Langendreer (D)

14:45 Navigational high-resolution 3D ultrasound in transsphenoidal surgery of pituitary tumours – technical assessment
T. Selbekk, G.A. Tangen, O.V. Solberg, SINTEF, O. Solheim, G. Unsgard, J. Cappelen, St. Olav Univ. Hosp., L. Lövstakken, T.F. Johansen, Norwegian Univ. of Science and Technology, Trondheim (N)

15:00 Effect of brain shift on the creation of functional atlases for deep brain stimulation surgery
S. Pallavaram, B.M. Dawant, P.-F. D'Haese, Vanderbilt Univ., M. Remple, J.S. Neimat, C. Kao, P. E. Konrad, Vanderbilt Medical Center, Nashville, TN (USA)

15:15 An integrated tool for automated visualization of subdural electrodes in epilepsy surgery evaluation
S. Wagner, J. Kuss, T. Meyer, M. Kirsch, U. Morgenstern, Technical Univ. Dresden (D)

15:30 Brain neuromodulation: strategies from sensory neuroprostheses to optimize the neural-electrical interface
R. Andrews, NASA Ames Research Center, Campbell, CA (USA)

15:45 Break

16:15 Minimally Invasive Surgery – MIS
Session Chair: Peter M. Schlag, MD, PhD (D)

16:15 Calibration of electromagnetically tracked endoscope for video-CT registration and virtual navigation
S. X. Liu, L. Gutierrez, D. Stanton, Philips Research North America, Briarcliff Manor, NY (USA)

16:30 A lesion marking system in virtual gastroscopy
W. Wu, J. Liu, Y. Lu, D. Sun, H. Duan, Zhejiang Univ., Hangzhou (CHN)

16:45 Interactive determination of robust safety margins for oncologic liver surgery
C. Hansen, S. Zidowitz, M. Hindennach, A. Schenk, H. Hahn, H.-O. Peitgen, Fraunhofer Mevis, Bremen (D)

17:00 A sub-millemetric, 0.25 mN resolution fully integrated fiber-optic force sensing tool for retinal microsurgery
I. Iordachita, M. Balicki, J. Kang, R.H. Taylor, Johns Hopkins Univ., J. Handa, P. Gehlbach, Johns Hopkins Hosp., Baltimore, MD (USA), Z. Sun, Nanyang Technological Univ., Singapore (SGP)

17:15 End of Session

27'h International EuroPACS Meeting
President: Osman M. Ratib, MD, PhD (CH)

Estrelsaal B
14:00 Tutorial on CAD-PACS Integration
H.K. Huang, Univ. of Southern California, Los Angeles, CA (USA)

15:00 Workflow and Data Flow in Radiology – WF
Session Chairs: Mansoor Fatehi, MD (IR), Ewa Pietka, PhD, DSc (PL)

15:00 Physicians in CAD life-cycle
Invited Speaker: E. Pietka, Silesian Univ. of Technology, Gliwice (PL)

15:15 PACS and CAD – an aid to productivity gains in large scale national screening programs
L Sim, B. Crowe, HISA, Canberra, NSW (AUS)

15:30 An integrated platform for development and clinical use of CAD software: building and utilization in clinical environment
Y. Nomura, N. Hayashi, Y. Masutani, T. Yoshikawa, M. Nemoto, S. Hanaoka, E. Maeda, K. Ohtomo, The Univ. of Tokyo Hosp. (J)

15:45 Reducing report turnaround time using Six Sigma
L. Zhang, K.-J. Klose, C. Wecker, Univ. Hosp. of Giessen and Marburg (D)

16:00 An ontology driven peer-reviewed radiology search engine
R. Talanow, The Cleveland Clinic (USA)

16:15 Structuring of Japanese free-text diagnostic reports by using RadLex terminology
H. Fujii, National Cancer Center, Kashiwa, Y. Ando, National Inst. of Radiological Sciences, Chiba, N. Tsukamoto, Saitama Medical School, Hidaka, O. Kawaguchi, A. Kubo, Keio Univ., Tokyo, H. Futami, H. Yamagishi, H. Kaneko, M. Osada, K. Kurosaki, Toshiba Medical Systems, Ohtawara (J)

16:30 Radiology information system: a workflow-based approach
X. Lu, H. Nie, Z. Huang, J. Zhang, Zhejiang Univ., Hangzhou (CHN), W.M.P. van der Aalst, Eindhoven Univ. of Technology (NL)

16:45 IRIS: a workflow-based interventional radiology information system
M. Fatehi, S. Akhlaghpoor, M. Alinaghizadeh, Noor Medical Imaging Center, A. Shakouri Rad, Tehran Univ. of Medical Sciences (IR)

17:00 End of Session

Thursday, June 25, 2009 14:00–18:00

11th International Workshop on Computer-Aided Diagnosis
Chairman: Kunio Doi, PhD (USA)
Co-Chair: Ulrich Bick, MD (D)

Estrelsaal C1/2
14:00 Special Session on Breast CAD – BCAD
Session Chairs: Rangaraj M. Rangayyan, PhD (CDN), Hiroshi Fujita, PhD (J)

14:00 Computer-aided diagnosis for breast lesions in 3D power Doppler ultrasound: dependent on vascularity, age and volume
Y -L. Huang, C.-C. Hsu, Tunghai Univ., D.-R. Chen, Changhua Christian Hosp., Taichung (RC)

14:15 Case-based clinical decision support for breast cancer diagnosis using dynamic contrast-enhanced MRI images
Y. Xu, L. Boroczky, M. Lee, J. Drysdale, L. Arbash Meinel, Philips Research North America, Briarcliff Manor, NY (USA), T. Buelow, Philips Research Europe, Hamburg (D)

14:30 Special Interactive Session on Breast CAD
Session Chairs: Robert A. Schmidt, MD (USA), Ulrich Bick, MD (D)

14:30 Real-time demonstration of CAD in reading unknown cases by a radiologist without and with use of commercially available CAD systems in mammography
G. Newstead, R. Engelmann, The Univ. of Chicago, J. Shiraishi, Univ. of Chicago Hosp., J. Marshall, Hologic, Inc., Sunnyvale, CA, S.V. Destounis, The Elizabeth Wende Breast Clinic, Z. Huo, Carestream Health Inc., Rochester, NY (USA), C. J. G. Evertsz, MeVis Research GmbH, Bremen (D)

15:30 Break

16:00 Panel Discussion
Session Chairs: Robert A. Schmidt, MD (USA), Kunio Doi, PhD (USA)

16:00 Clinical needs, clinical evaluation, technical evaluation and technical requirements for development of practical CAD systems
S.V. Destounis, The Elizabeth Wende Breast Clinic, Rochester, NY, J. Marshall, Hologic, Inc., Sunnyvale, CA, A.P. Reeves, Cornell Univ., Ithaca, NY, Z. Huo, Carestream Health Inc., Rochester, NY, R. Brem, George Washington Univ., Washington, DC (USA), C.J.G. Evertsz, MeVis Research GmbH, Bremen (D)

18:00 End of Session

18:15 Cheese and Wine Reception

15th Computed Maxillofacial Imaging Congress
Chairman: Allan G. Farman, PhD, DSc (USA)

Estrelsaal C3/4
14:00 Imaging of the Teeth and Adjacent Structures – ITS
Session Chairs: Csaba Dobo-Nagy, DDS, MSc (H), Reyes Enciso, PhD (USA)

14:00 Bone and teeth segmentation for 3D reconstruction applied to dental cone beam CT image
Y. Hayakawa, A. Kondo, M. Sagawa, Y. Miyoseta, W.J. Tang, Kitami Inst. of Technology (J)

14:15 Accuracy of in-vitro assessment of caries lesion parameters with micro-CT – a simulation based study
M. Kovács, R. Danyi, M. Erdélyi, P. Fejérdy, C. Dobó-Nagy, Semmelweis Univ., Budapest (H)

14:30 Characterization of root canal curvatures by description of the axis based on microCT imaging
C. Dobo-Nagy, P. Fejerdy, Semmelweis Univ. A. Kovacs, Univ. of Technology and Economics, Budapest, J. Szabo, Debrecen Univ. (H)

14:45 A very fast method for the segmentation and visualization of teeth in volumetric CT-scan data of the head
R. Aghaeizadeh Zoroofi, H. Akhoondali, Univ. of Tehran (IR)

15:00 Center line detection from dental micro CT image sets
B. Benyo, L. Szilagyi, Budapest Univ. of Technology and Economics, C. Nagy-Dobo, Semmelweis Univ., Budapest (H)

15:15 Classification and numbering of teeth in multi-slice CT images using wavelet-Fourier descriptor
M. Hosntalab, A.A. Tehrani-Fard, Azad Islamic Univ., Tehran, R. Aghaeizadeh Zoroofi, G. Shirani, Univ. of Tehran (IR)

15:30 Improving treatment decisions from radiographs – effect of a decision aid
P.A. Mileman, Academic Centre for Dentistry Amsterdam, W.B. van den Hout, Leiden Univ. Medical Center (NL)

15:45 Quantification of local polymerisation shrinkage from 3D Micro CT images of dental composites
P. Rösch, Augsburg Univ. of Applied Sciences, Y.-C. Chiang, K.-H. Kunzelmann, Ludwig-Maximilians-Univ. Munich (D)

16:00 Semi-automated 3D lesion volumetric model in periodontal diagnostics using modern CBCT technology
J. Fleiner, D. Rotte, S. Gmehling-Kamm, D. Schulze, Univ. Hosp. of Freiburg (D)

16:15 The visualization of the dental tissue components by quantitative MRI using ultra-short echo times (UTE)
V. Rasche, C. Hofmann, B. Haller, Univ. Hosp. Ulm, J. Ulrici, E. Hell, Sirona Dental Systems GmbH, Bensheim (D), S. Boujraf, Univ. of Fez (MA)

16:30 End of Session

Computer Assisted Radiology 23rd International Congress and Exhibition
Chairmen: Stanley Baum, MD (USA)
Co-Chair: Bernd Hamm, MD (D)

Estrelsaal C3/4
16:30 Computer Assisted Radiation Therapy – CART
Session Chairs: Kiyonari Inamura, PhD (J), Wolfgang Schlegel, PhD (D)

16:30 A workflow approach to radiosurgical treatment planning
A. Schläfer, Univ. of Lübeck (D)

16:45 A novel approach to measurement of patient motion during radiotherapy treatment delivery using an optical surface sensor
G. Price, C. Moore, T. Marchant, P. Sharrock, The Christie NHS Foundation Trust, Manchester (UK)

17:00 A volume graphics driver for Geant4-based radiotherapy simulation
A. Kimura, Ashikaga Inst. of Technology, S. Tanaka, Ritsumeikan Univ., Kusatsu, T. Sasaki, High Energy Accelerator Research Organization, Tsukuba (J)

17:15 3D ultrasound-guided motion compensation for intravascular radiation therapy
R. Bruder, A. Schweikard, Univ. of Lübeck (D), T. Cai, CyberHeart Inc., Menlo Park, CA (USA)

17:30 Simultaneous body surface reconstruction and corresponding skin feature recovery during radiotherapy using Fourier profilometry
C. Moore, G. Price, T. Marchant, P. Sharrock, Christie Hosp., Manchester (UK)

17:45 Synchronization of real-time optical surface sensing with cone beam CT acquisition for image guided radiotherapy
T. Marchant, G. Price, P. Sharrock, C. Moore, The Christie NHS Foundation Trust, Manchester (UK)

18:00 End of Session

Friday, June 26, 2009 08:00–14:30

13th Annual Conference of the International Society for Computer Aided Surgery

President: Gero Strauss, MD (D)

Estrelsaal A
08:00 Computer Assisted Orthopaedic Surgery – CAOS

Session Chairs: Chiaki Hamanishi, MD, PhD (J), Leo Joskowicz, PhD (IL)

08:00 Novel hybrid kinematics with small dimensions and large workspaces make medical robots convenient for orthopaedic surgery
M. Schwarz, P. Pott, Univ. Hosp. of Mannheim, S. Heute, P. Weiser, Univ. of Applied Sciences, A. Wagner, E. Badreddin, Univ. of Heidelberg, Mannheim (D)

08:15 Semi-automatic bone fracture reduction in surgical planning
B. Erdöhelyi, E. Varga, Univ. of Szeged (H)

08:30 Automatic distraction osteogenesis with a bone mounted hexapod robot
R. Wendlandt, A.-P. Schulz, Univ. Hosp. of Schleswig-Holstein, Lübeck, K. Seide, BG Unfallkrankenhaus, Hamburg, J. Müller, Hamburg Univ. of Technology (D)

08:45 3D/3D ultrasound registration for panoramic volume reconstruction
J. Schers, C. Plaskos, PRAXIM, J. Troccaz, C. Fouard, TIMC-IMAG, La Tronche, O. Palombi, Univ. of Grenoble (F)

09:00 A comparison of conventional guidewire alignment jigs with imageless computer navigation in hip resurfacing
M. Olsen, M. Chiu, P. Gamble, R. Boyle, N. Tumia, E. Schemitsch, St. Michael's Hosp., Toronto, Ontario (CDN)

09:15 The influence of posterior tibial slope on antero-posterior stability in the ACL insufficient medial unicompartmental knee replacement
P. Sussmann, S. Preiss, Schulthess Klinik, Zurich (CH), A. Pearle, D. Kendoff, Hosp. for Special Surgery, New York, NY (USA)

09:30 Computer-assisted planning for mosaic arthroplasty
M. Kunz, S. Devlin, J.F. Rudan, S.D. Waldman, J. Stewart, Queen's Univ., Kingston, Ontario, M. Hurtig, Univ. of Guelph (CDN)

09:45 Three-dimensional alignment measurement of total knee arthroplasty using multiple X-ray images
T. Yamazaki, M. Tamaki, K. Futai, T. Tomita, H. Yoshikawa, K. Sugamoto, Osaka Univ. Graduate School of Medicine, Osaka (J)

10:00 Computer assisted evaluation of the pivot shift phenomenon for post-operative assessment of anterior cruciate ligament reconstruction
N. Hagemeister, D. Labbe, J. de Guise, École de Technologie Supérieure, V. Godbout, Hosp. Notre-Dame, G. Grimard, Hosp. Ste-Justine, Montreal, Quebec (CDN)

10:15 Break

10:45 Image Processing and Visualization – IPV

Session Chairs: Richard A. Robb, PhD (USA), Naoki Suzuki, MD, PhD (J)

10:45 A surface model for intraoperative soft tissue registration
S. Röhl, S. Speidel, G. Sudra, Univ. of Karlsruhe, T. Gehrig, B.P. Müller-Stich, C. Gutt, R. Dillmann, Univ. of Heidelberg (D)

11:00 Target registration error in point-based rigid-body registration: a worst-case analysis
R.R. Shamir, L. Joskowicz, The Hebrew Univ. of Jerusalem (IL)

11:15 Respiratory organ deformation of the esophagus in a large animal model for image-guided interventions
F. Nickel, H. Kenngott, A. Kolb, B.P. Müller-Stich, C. Gutt, C. Sommer, B. Radeleff, Univ. Hosp. Heidelberg, J. Neuhaus, H.-P. Meinzer, J. Kast, German Cancer Research Center, Heidelberg (D)

11:30 Segmentation of cerebral blood vessels in 3D intraoperative ultrasound angiographic data (3D-iUSA)
C. Chalopin, R. Mayoral, Univ. of Leipzig, D. Lindner, Univ. Hosp. Leipzig (D)

11:45 Analysis of the available work space for keyhole surgery at the lateral skull base
M. Riechmann, J. Raczkowsky, H. Wörn, Univ. of Karlsruhe, P. Lohnstein, T. Klenzner, J. Schipper, Univ. Hosp. of Düsseldorf (D)

12:00 Automatic generation of context visualizations for cerebral aneurysms from MRA datasets
M. Neugebauer R. Gasteiger, B. Preim, Otto von Guericke-Univ. Magdeburg, O. Beuing, Univ. Hosp. Magdeburg, V. Diehl, Klinikum Bremen Nord (D)

12:15 Performing fast 3D reconstruction of the knee from biplanar X-ray images through moving least squares deformation for surgical planning.
T. Cresson, B. Godbout, D. Branchaud, R. Chav, Y. Chaibi, B. Aubert, W. Skalli, J. A. De Guise, École de Technologie Supérieure, Montreal, Quebec (CDN)

12:30 A novel dynamic approach to surgical outcome assessment in breast reconstructive surgery
P. Patete, M. Riboldi, G. Baroni, Politecnico di Milano, G. Catanuto, A. Spano, M. Nava, Fondazione IRCCS Ist. Nazionale dei Tumori, Milan, M.F. Spadea, Univ. degli Studi Magna Graecia, Catanzaro (I)

13:00 ISCAS General Assembly

27th International EuroPACS Meeting

President: Osman M. Ratib, MD, PhD (CH)

Estrelsaal B
08:00 PACS – Beyond Radiology – BR

Session Chairs: Davide Caramella, MD (I), Erwin Bellon, MSc, PhD (B)

08:00 Images outside radiology and their impact on PACS
Invited Speaker: E. Bellon, Univ. Hosp. Leuven (B)

08:15 Six months of experience with a XDS-based communication platform for radiology in the Western Norway Health Care Region
A. Aslaksen, S. Störkson, Haukeland Univ. Hosp., Bergen (N)

08:30 Prehospital real-time streaming of ultrasound video – proof of concept test
V B. Attwood, Oxford Univ. (UK), E. Noble, A. Liteplo, Massachusetts General Hosp., Boston, MA, A. Kyle, MedDevice Concepts, Andover, MA (USA)

08:45 Utilization of a PACS system by the referring physicians
R. Fründ, Univ. of Regensburg (D)

09:00 EMR and the total integrated PACS with reports and scanned data on a server based computing
H. Kondoh, S. Kuwata, K. Teramoto, Tottori, Univ. Hosp., Yonago (J)

09:15 Regional PACS and EPR
J. Fernández-Bayó, UDIAT Diagnostic Center, Sabadell (E)

09:30 IHE and Data Sharing in the UK

Session Chair: Richard Harries, MD (UK)

09:30 Overcoming the barriers to sharing images and reports in the UK
Invited Speaker: N. Dugar, Doncaster Royal Infirmary (UK)

09:45 The IHE solution for sharing clinical data
Invited Speaker: R. Harries, Northern Lincolnshire & Goole NHS Trust, Grimsby (UK)

10:00 Break

10th 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)

Estrelsaal B
10:30 Digital Operating Room – DOR

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

10:30 The design and use of interfaces for image-guided surgery
Invited Speaker: R. E. Ellis, Queen's Univ., Kingston, Ontario (CDN)

10:45 Synchronization of surgical data in a distributed computer system
P. Malarme, D. Wikler, N. Warzée, Univ. Libre de Bruxelles (B)

11:00 Systems monitoring and diagnosis of Digital Operating Room (DOR) equipment using Supervisory Control and Data Acquisition (SCADA) technology
S. Bohn, M. Leßnau, O. Burgert, Univ. of Leipzig (D)

11:15 Navigated mapping of streamed sensor data
S. Franke, S. Bohn, O. Burgert, M. Gessat, Univ. of Leipzig, G. Strauss, Univ. Hosp. of Leipzig (D)

11:30 Image-access within the operating room based on multi-level strategy
F. Klumb, D. Bandon, C. Duret, A. Rosset, A. Geissbühler, O. Ratib, Univ. Hosp. of Geneva (CH)

11:45 Image-guided interventions: a path to increased use in the torso
Invited Speaker: K. G. Vosburgh, Brigham & Women's Hosp., Boston, MA (USA)

12:00 Patient information management in the DOR
Invited Speaker: O. M. Ratib, University Hospital of Geneva (CH)

12:15 Break

Friday, June 26, 2009 08:00–14:30

11th International Workshop on Computer-Aided Diagnosis
Chairman: Kunio Doi, PhD (USA)
Co-Chair: Ulrich Bick, MD (D)

15th Computed Maxillofacial Imaging Congress
Chairman: Allan G. Farman, PhD, DSc (USA)

Estrelsaal C1/2

09:00 Special Session on Thoracic CAD – TCAD
Session Chairs: Anthony P. Reeves, PhD (USA), Junji Shiraishi, PhD (USA)

09:00 CAD system for automated analysis and visualization for follow-up 3D chest CT images
Invited Speaker: K. Mori, H. Naito, Y. Nakamura, T. Kitasaka, Y. Suenaga, Nagoya Univ., H. Honma, Sapporo Medical Univ., M. Mori, Sapporo Kosei General Hosp., H. Takabatake, Minami Sanjyo Hosp., H. Natori, Keiwakai Nishioka Hosp., Sapporo (J), D. Rueckert, Imperial College London (UK)

09:30 Quantitative analysis of emphysema and airways from CT images
Invited Speaker: A. Reeves, B. Keller, D. Yankelevitz, C. Henschke, Cornell Univ., Ithaca, NY, G. Barr, Columbia Univ., New York, NY (USA)

10:00 Break

10:30 Special Session on Thoracic CAD – TCAD
Session Chairs: Kensaku Mori, PhD (USA) , Paulo Mazzonicini Azevedo-Marques, PhD (BR)

10:30 Discriminative power of 3D features for computer-aided detection of lung nodules on multi-detector computed tomography: a comparison of dedicated features and generic features
S. Matsumoto, Y. Ohno, D. Takenaka, K. Sugimura, Kobe Univ. Graduate School of Medicine, H. Yamagata, Toshiba Medical Systems Corporation, Otawara (J)

10:45 Performance of an prototype Computer Aided Diagnosis (CAD) tool for the volumetric assessment of lymph nodes at multidetector-row CT data
P. Herzog, K. Nikolaou, M. Reiser, Univ. Hosp. of Munich, Grosshadern, J. Kim, M. Kietzmann, G. Binnig, Definiens AG, Munich (D)

11:00 CAD-PACS integration: a framework for pattern recognition of diffuse lung disease in HRCT
P. Azevedo-Marques, A. Macedo, H. Pessotti, Univ. of Sao Paulo, Ribeirao Preto, S. Salomao, A. Traina, M. da Silva, Univ. of Sao Paulo, Sao Carlos (BR)

11:15 Assessing the change in emphysema parameters in current and former smokers using CAD for emphysema quantification on serial low-dose CT scans
H. Roberts, A. McGregor, Z. Dong, A. Pereira, I. Sitartchouk, R. Menezes, O. Weinheimer, C.P. Heussel, Univ. Health Network, Toronto, Ontario (CDN), H.-U. Kauczor, Univ. Hosp. of Heidelberg (D)

11:30 CAD applied to diagnose pulmonary embolism at MS-CT – results from a double blinded study
A. Malich, J. Feger, C. Roth, D. Hentrich, Suedharz-Hosp. Nordhausen (D)

11:45 Automatic construction of a statistic model of calcified aorta areas
H. Shinozaki, H. Hontani, Nagoya Inst. of Technology, T. Takeda, Tukuba Univ., Y. Watanabe, Yamagata Saisei Hosp. (J)

12:00 Break

Editorial Board Meeting of the International Journal of CARS:

Friday, June 26, 2009 **07:00**

Estrelsaal C3/4

08:30 Orthodontics, Dentofacial Orthopedics and Airway – ODOA
Session Chairs: Allan G. Farman, MD, DMD, PhD (USA), Silvio D. Bianchi, MD (I)

08:30 A method for the evaluation of reliability of coordinate system based on maxillofacial anatomical landmarks on cone-beam computed tomographic data
E. Ariji, M. Kimura, H. Nawa, S. Goto, Aichi-Gakuin Univ. School of Dentistry, Nagoya, A. Katsumata, Asahi Univ. School of Dentistry, Hozumi (J)

08:45 Craniofacial skull reconstruction from MRI using morphological hole filling
L.T. Hiew, S.H. Ong, F.W.C. Foong, P.S. Goh, W.L. Nowinski, National Univ. of Singapore (SGP)

09:00 Towards an automated reconstruction of jaw tissues using fuzzy connectedness image segmentation
V. Naranjo, R. Llorens, M. Alcaniz, S. Albalat, Univ. Politecnica de Valencia (E)

09:15 Predicting obstructive sleep apnea with cone-beam CT
R. Enciso, M. Nguyen, G.T. Clark, Univ. of Southern California, Los Angeles, CA (USA)

09:30 A retrospective CBCT evaluation of the placement of temporary anchorage devices in orthodontics
M. Muller-Delgado, H. Hamid, C.H. Kau, J.D. English, S. Winkelmann, The Univ. of Texas, Houston, TX (USA)

09:45 Validation of soft tissues simulation for maxillofacial orthognathic surgery planning from CBCT data
L. Lancellotti, A. Bianchi, S. Amadori, C. Marchetti, M. DiMartino, A. Sarti, Univ. of Bologna (I), L. Muyldermans, Materialise NV, Leuven (B)

10:00 Break

10:30 Imaging and Treating Temporomandibular Joint Conditions – ITT
Session Chairs: Yoshihiko Hayakawa, PhD, MSc (J), Cornelia Kober, PhD (D)

10:30 Influence of mastication muscles on biomechanical stability of mandible – 3D FEA analysis
L. Bonitz, E.-P. Franz, S. Weihe, S. Hassfeld, Klinikum Dortmund (D)

10:45 Mathematical description of the forward movement of the mandibular condyle
J. Angyal, J. Szabó, Univ. of Debrecen, L. Pataky, Semmelweis Univ., Budapest (H)

11:00 Three dimensional analysis of correlation between condylar movement and facial morphology
D.-S. Kim, W.-J. Yi, S.-J. Hwang, S.-C. Choi, S.-S. Lee, S.-P. Lee, T.-I. Kim, W.-J. Lee, Seoul National Univ. (ROK)

11:15 Real time visualization of articular disc movement in human temporomandibular joint
C. Kober, Hamburg Univ. of Applied Sciences, R. Sader, Univ. of Frankfurt (D), B.-I. Berg, C. Leiggener, H.-F. Zeilhofer, Univ. Hosp. Basel L. Gallo, Univ. of Zurich, C. Buitrago Tellez, Spital Zofingen (CH)

11:30 Proposal of Novel control system that consists of massage path generator and virtual compliance calculator for maxillofacial massage robot
H. Ishii, H. Koga, Y. Obokawa, J. Solis, A. Takanishi, Waseda Univ., Tokyo, A. Katsumata, Asahi Univ., Gifu (J)

11:45 Break

13:30 Tutorial on CMI: 3D Computed Maxillofacial Imaging: Approaches to Cone Beam CT Practice
Allan G. Farman, The Univ. of Louisville Health Sciences Center (USA)
Silvio D. Bianchi, Univ. of Torino (I)

Friday, June 26, 2009 14:00–18:00

1st ISCAS Surgical Workshop on Computer-Aided ENT and Maxillofacial Surgery

Chairmen: Georg Eggers, MD (D)
Pierre Jannin, PhD (F)

Estrelsaal A

14:00 Introductory Session

G. Eggers, Univ. Hosp. Heidelberg (D)

14:30 Current Applications in ENT Surgery

14:30 Use and abuse of navigation in skull base surgery
J. Schipper, Univ. Hosp. Düsseldorf (D)

14:50 The clinical and educational application of navigation system in otorhinolaryngology
K. Tomoda, Kanazawa Medical Univ. (J)

15:10 CT-MRI-fusion guidance in transnasal endoscopic approaches to clivus, pituitary and beyond
H.R. Stammberger, M.Mokry, H. Braun, G. Clarici, V. Gellner, W. Koele, V. Tomazic, Univ. Hosp. Graz (A)

15:30 Break

16:00 Current Applications in CMF Surgery

16:00 Teleplanning and simulation in computer assisted surgery
K. Schicho, Univ. Hosp. Vienna (A)

16:20 Surgical simulation and CAD/CAM generation of surgical splints in orthognathic surgery: the Barcelona experience with 15 consecutive cases
S. Aboul-Hosn, Hosp. Plato, Barcelona (E)

16:40 Computer aided methods in cranio-maxillofacial reconstruction
R.A. Mischkowski, Univ. Hosp. Cologne (D)

17:00 Current Trends in Computer Aided Surgery

17:00 Navigated control in skull base surgery
G. Strauss, Univ. Hosp. Leipzig (D)

17:15 Intraoperative 3D imaging of the facial skull vs intraoperative navigation
D. Schulze, Univ. Hosp. Freiburg (D)

17:30 Round Table: Pitfalls in IGS, Evaluation and Validation

18:00 End of Session

2nd CARS / TicSalut / EuroPACS Educational Course on the Digital Operating Room

Estrelsaal B

14:00 Educational Course on the DOR

Session Chairs:
Javier Herrero Jover, MD (E), Joan Cornet i Prat (E), Davide Caramella, MD (I)

14:00 The digital operating room
J. Herrero Jover, Centro Medico Teknon, Barcelona (E)

14:15 Therapy Imaging and Model Management System (TIMMS)
H.U. Lemke, Technical Univ. of Berlin (D)

14:30 Mechatronic intelligent systems for the OR of the future
K. Cleary, Georgetown Univ. Medical Center, Washington, DC (USA)

14:45 DICOM WG24 – informatics standards in the OR
A. Pollmann, Zimmer GmbH, Winterthur (CH)

15:00 Integrated neurosurgery OR
H. Iseki, Tokyo Women's Medical Univ. (J)

15:15 Integrated OR suites
D. Spencer, Stryker EMEA, Newbury (UK)

15:30 Virtual and augmented neurosurgery planning and navigation
L. Serra, National Neuroscience Inst., Singapore (SGP)

15:45 Break

16:00 Image visualization and surgical planning
M. A. González Ballester, Alma IT Systems, Barcelona (E)

16:15 Surgical simulation and planning
D. Caramella, Univ. of Pisa (I)

16:30 Computer-aided surgical training and telesurgery
M. Hashizume, Kyushu Univ. (J)

16:45 Integration of systems in the OR
D. Garcia Trigo, Indra Sistemas, S. A., Alcobendas (E)

17:00 Surgical workflow management in the OR
C. Bulitta, Siemens AG Medical Solutions, Erlangen (D)

17:15 Information integration in the OR
H. K. Huang, Univ. of Southern California, Los Angeles, CA (USA)

17:30 Panel Discussion

18:00 End of Session



Friday, June 26, 2009 14:00–18:00

11th International Workshop on Computer-Aided Diagnosis

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

Estrelsaal C1/2

14:00 Special Session on Abdominal CAD – ACAD

Session Chairs: Hirouki Yoshida, PhD (J), Emanuel Neri, MD (I)

14:00 Electronic bowel cleansing in CT colonography: current techniques and clinical applications
Invited Speaker: H. Yoshida, M. Zalis, J. Näppi, Harvard Medical School, Boston, MA, W. Cai, Massachusetts General Hosp. (USA)

14:30 Clinical impact of CAD for CT colonography
Invited Speaker: E. Neri, Univ. of Pisa (I)

15:00 Break

15:30 Special Session on CAD for MR and PET – CADMP

Session Chairs: Hirouki Yoshida, PhD (J), Martin Fiebich, PhD (D)

15:30 Validation of a CT-colonography CAD system on the IMPACT multicenter trial data
A. Bert, S. Agliozzo, R. Baggio, L. Correale, S. Delsanto, I. Dmitriev, L. Morra, im3D S.p.A., P. Della Monica, D. Regge, Inst. for Cancer Research and Treatment, Torino (I)

15:45 Shape-driven fuzzy-connectedness segmentation of multiple sclerosis lesions
J. Kawa, E. Pietka, Silesian Univ. of Technology, Gliwice (PL)

16:00 Computer aided diagnosis of lumbar intervertebral disc degeneration in spine MRI
S. Michopoulou, R. Speller, A. Todd-Pokropek, Univ. College London (UK), L. Costaridou, A. Kazantzi, E. Panagiotopoulos, G. Panayiotakis, Univ. of Patras (GR)

16:15 Abnormality detection in lumbar discs from clinical MR images with a probabilistic model
V. Chaudhary, R.S. Alomari, J.J. Corso, Univ. at Buffalo, G. Dhillon, ProScan Imaging Buffalo, Williamsville, NY (USA)

16:30 Development of ensemble based lesion detection method for body trunk FDG-PET/CT images
M. Nemoto, Y. Nomura, Y. Masutani, S. Hanaoka, T. Yoshikawa, N. Hayashi, N. Yoshioka, K. Ohtomo, The Univ. of Tokyo Hosp. (J)

16:45 Improving performance of automated detection systems for 3D PET oncology imaging by use of resampled training images
C. Lartizien, S. Tomei, S. Marache, Univ. of Lyon (F)

17:00 End of Session

15th Computed Maxillofacial Imaging Congress

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

Estrelsaal C3/4

14:30 Image-Guided Craniofacial Surgery – IGCS

Session Chairs: Stefan Hassfeld, MD, MDS (D), Zafrulla Khan, DDS, MS (USA)

14:30 A new cone-beam CT for preoperative planning in the maxillofacial region
M. Ariu, R. Mirabella, A. Pasini, MyRay, Imola, V. Loffreda, F. Toni, M. Cavina, G. Battista, R. Canini, L. Bussi, G. Pellegrino, C. Marchetti, Univ. of Bologna (I)

14:45 Comparative accuracy of non-invasive and invasive registration methods for computer-aided oral implant surgery
G. Widmann, R. Stoffner, P. Schullian, R. Widmann, M. Keiler, A. Zangerl, W. Puelacher, R. Bale, Innsbruck Medical Univ. (A)

15:00 3D volumetric measurements of soft-tissue changes after rhinoplasty in CLP patients
T. Maal, B. van Loon, J. Plooij, P. Spauwen, S. Berge, Radboud Univ. Nijmegen (NL)

15:15 Evaluation of radiographic findings in conebeam computed tomography volumes of patients with bisphosphonate induced osteonecrosis of the jaws
S. Kottal, K. Fleisher, New York Univ. College of Dentistry (USA)

15:30 Break

15:45 Medico legal evaluation of mal-placed implants by cone beam CT
J. Neugebauer, L. Ritter, T. Dreiseidler, D. Rothamel, R.A. Mischkowski, J. E. Zöller, Univ. of Cologne, G. Zündorf, SICAT GmbH & Co KG, Bonn (D)

16:00 A 3D environment for oral implant planning and simulation
T. Chiarelli, E. Lamma, Univ. of Ferrara, T. Sansoni, Era Scientific s.r.l., Ferrara (I)

16:15 Visualization of osseointegration of maxilla and mandible dental implants
J. Meyer, Univ. of California, Irvine, CA (USA)

16:30 A novel laboratory training and evaluation technique of computer-aided oral implant surgery
G. Widmann, R. Stoffner, M. Keiler, A. Zangerl, W. Puelacher, R. Bale, Innsbruck Medical Univ. (A)

16:45 End of Session

Saturday, June 27, 2009 08:00–14:00

13th Annual Conference of the International Society for Computer Aided Surgery
President: Gero Strauss, MD (D)

JICARS – Japanese Institutes of CARS
Chairmen: Takeyoshi Dohi, PhD (J)
Kunio Doi, PhD (USA)
Kiyonari Inamura, PhD (J)

Estrelsaal A
08:00 Surgical Robotics and Instrumentation – SRI

Session Chairs: Takeyoshi Dohi, PhD (J), Tim C. Lüth, PhD (D)

08:00 A non-invasive robotic system for urological applications
S. Chauhan, Nanyang Technological Univ., Singapore (SGP)

08:15 The DeltaScope – an endoscope camera manipulator system for the ENT surgery
T. Kraus, M. Krinninger, T.C. Lueth, Technical Univ. Munich, Garching, G. Strauss, A. Dietz, Univ. Hosp. of Leipzig (D)

08:30 Setup and experimental trial for robot-assisted laser cochleostomy
J. Burgner, L. Kahrs, J. Raczkowsky, H. Wörn, Univ. of Karlsruhe, F.B. Knapp, J. Schipper, T. Klenzner, Univ. Hosp. Düsseldorf (D)

08:45 Development of volume-controllable pressure sensing balloon – in vivo brain pressure monitoring experiment
J. Okamoto, H. Okayasu, M. Fujie, Waseda Univ., Tokyo, H. Iseki, Tokyo Women's Medical Univ. (J)

09:00 Vertebral robotic puncture for minimally invasive spinal surgery: puncture accuracy evaluation for vertebral model
S. Onogi, M. Gotoh, Y. Nakajima, E. Kobayashi, I. Sakuma, The Univ. of Tokyo, T. Koyama, K. Yonenobu, Osaka Minami Medical Center, Y. Tamura, Toyonaka Municipal Hosp., Osaka, N. Sugano, Osaka Univ. (J)

09:15 Corpora aliena: can Radio-Frequency-IDentification (RFID) solve the problem?
M. Kranzfelder, A. Schneider, H. Feussner, Klinikum rechts der Isar, Munich (D)

09:30 Break

10:00 Surgical Navigation – SN

Session Chairs: Ramin Shahidi, PhD (USA), Kevin Cleary, PhD (USA)

10:00 The virtual reality tool VirSSPA in planning DIEP microsurgical breast reconstruction
P. Gacto-Sánchez, T. Gomez-Cia, D. Sicilia, C. Suárez, C. Parra, J.M. De la Higuera, Virgen del Rocio Univ. Hosp., Sevilla, B. Acha, C. Serrano, Univ. de Sevilla (E)

10:15 Automatic image-to-world registration based on x-ray projections in cone-beam CT-guided interventions
J. Siewerdsen, M. Daly, N. Hamming, J. Irish, Univ. Health Network, Toronto, Ontario (CDN)

10:30 Enhanced 3D integral videography overlay system for surgical navigation
H.H. Tran, H. Yamashita, H. Liao, K. Masamune, T. Dohi, The Univ. of Tokyo (J)

10:45 Fluoroscopy-based X-ray navigation with electromagnetic tracking for orthopedic applications: accuracy and feasibility study
Y. Yarom, L. Joskowicz, The Hebrew Univ. of Jerusalem (IL)

11:00 Alignment after navigated and conventional TKA – a prospective, randomized, CT-controlled trial
J. Lützner, K.P. Günther, S. Kirschner, Univ. Hosp. Carl Gustav Carus, Dresden, F. Krummenauer, Univ. Witten/Herdecke (D)

11:15 The accuracy and reliability of imageless computer navigation for hip resurfacing arthroplasty
M. Olsen, M. Chiu, P. Gamble, N. Tumia, R. Boyle, E. Schemitsch, St. Michael's Hosp., Toronto, Ontario (CDN)

11:30 Multimodal image registration of VCT and OCT images: a step towards high accuracy in surgical navigation
H. Eilers, M. Wienke, T. Ortmaier, Gottfried Wilhelm Leibniz Univ., Hannover, O. Majdani, M. Leinung, Hannover Medical School (D)

11:45 Feasibility of a real-time virtual reality navigation system utilizing open magnetic resonance imaging for safe and accurate excision of a breast tumor
M. Tomikawa, J. Hong, K. Konishi, M. Higashi, S. Ieiri, K. Tanoue, S. Shiotani, E. Kiao, Y. Maehara, M. Hashizume, Kyushu Univ., Fukuoka (J)

12:00 Path planning for reducing tissue damage in minimally invasive brain access
A. Popovic, K. Trovato, Philips Research North America, Briarcliff, NY (USA)

12:15 Break

Estrelsaal B
08:00 Special Session on Intelligent Surgical Instruments Project: An Ongoing Japanese Initiative for Fusion of Sensors, Robotic Devices and Endoscopes

Session Chairs: Kiyoyuki Chinzei, PhD (J), Makoto Hashizume, MD, PhD, FACS (J)

08:00 Overview of the project
M. Hashizume, Kyushu Univ., K. Chinzei, National Inst. of Advanced Industrial Science and Technology (AIST), Fukuoka (J)

08:15 Safety system for future surgery
K. Chinzei, National Inst. of Advanced Industrial Science and Technology (AIST), Fukuoka (J)

08:30 Surgical control center
H. Iseki, T. Suzuki, Tokyo Women's Medical Univ. (J)

08:45 Intelligent surgical instruments in neurosurgery
H. Fujimoto, J. Arata, Nagoya Inst. of Technology (J)

09:00 Intelligent surgical instruments in thoracic surgery
I. Sakuma, The Univ. of Tokyo (J)

09:15 Intelligent surgical instruments in general surgery
M. Hashizume, Kyushu Univ., Fukuoka (J)

09:30 Break

Estrelsaal B
10:00 Special Session on CARS in Knowledge Cluster Gifu-Ogaki, Japan: Robotics Advanced Medical Cluster

Session Chairs: Masakatsu G. Fujie, PhD (J), Hiroshi Fujita, PhD (J)

10:00 Overview of the project
Y. Kinosada, Gifu Univ, M.G. Fujie, Waseda Univ., Tokyo (J)

10:15 Advanced robotic technology in the surgical field
J. Okamoto, K. Toyoda, K. Kawamura, H. Okayasu, Y. Kobayashi, M. G. Fujie, Waseda Univ., Tokyo (J)

10:30 Development of advanced medical training system using robot technology
H. Ishii, Y. Noh, J. Solis, A. Takanishi, Y.K. Park, M. Umezu, Waseda Univ., Tokyo (J)

10:45 CAD systems for brain MR, breast ultrasound and retinal fundus images
H. Fujita, Gifu Univ. (J)

11:00 MyEHR: system to supoort longitudinal health records management and medical services in safety
Y. Kinosada, Gifu Univ. (J)

11:15 Assistive robotics for the upper limb movement
K. Yano, Gifu Univ. (J)

11:30 Break

Room Paris
09:00 CAD Demo Workshop on Computer-Aided Detection and Diagnosis EFMI WG Medical Image Processing

Program see page 20

Saturday, June 27, 2009 08:00–14:30

CARS – Computer Assisted Radiology and Surgery

Estrelsaal C1/2
08:00 Patient Specific Modelling – PSM

Session Chairs: Leonard Berliner, MD (USA), Heinz U. Lemke, PhD (D)

08:00 Representation of uncertainties in the patient specific model
Invited Speaker: L. Berliner, New York Methodist Hosp., Brooklyn, NY (USA)

08:15 3-D-panendoscopy
A. Boehm, M. Fischer, G. Strauss, A. Dietz, Univ. Hosp. of Leipzig, B. Preim, J. Dornheim, Univ. of Magdeburg (D)

08:30 A simulation based diagnostic software tool for aortic aneurysms
T.C. Gasser, Royal Inst. of Technology (KTH), J. Swedenborg, Karolinska Inst., Stockholm, M. Auer, VASCOPS GmbH, Graz (A)

08:45 An intersubject variable regional anaesthesia simulator with a virtual patient architecture
S. Ullrich, T. Frommen, T.M. Deserno, T. Kuhlen, RWTH Aachen Univ., O. Grottke, R. Rossaint, RWTH

09:00 Building of a relational database containing clinical follow-up information from a nested patient population affected from a cardiac disease with a poorly unterstood etiology
R. Pistulli, H. Schmidt, K. Küspert, B. Brehm, H.R. Figulla, Friedrich-Schiller-Univ. Jena (D)

09:15 Break

1st EPMA / CARS Workshop on Personalized Medicine and ICT

Chairmen: Olga Golubnitschaja, MD (D)
Heinz U. Lemke, PhD (D)

Estrelsaal C1/2
10:30 Concepts, Methods and Tools for Personalized Medicine

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

09:30 Mission of the „European Association for Predictive, Preventive & Personalised Medicine"
V. Costigliola, European Medical Association, Brussels (B)

09:45 Imaging biomarkers
M.W. Vannier, Univ. of Chicago Medical Center (USA)

10:00 Application of proteomics and genomics technologies as screening tools for the detection of potential predictive biomarkers in beta-cell failure
J. Koehn, D. Turhani, K. Krapfenbauer, Medical Univ. of Vienna (A)

10:15 Strategies in standardization of predictive biomarkers: standards for proteomics and imaging analysis
K. Krapfenbauer, D. Turhani, J. Koehn, Medical Univ. of Vienna (A)

10:30 Biomarkers for prediction and targeted prevention of Alzheimer's disease
S. A. Mandel, Technion – Israel Inst. of Technology, Haifa, I. Halperin, Tel-Aviv Sourasky Medical Center, A.D. Korczyn, Tel-Aviv Univ. Medical School, Ramat-Aviv (IL)

10:45 Novel imaging technologies in early glaucoma diagnostics: potential prediction in sub-population of vasospastic individuals
O. Golubnitschaja, K. Yeghiazaryan, Rheinische Friedrich-Wilhelms-Univ. Bonn (D), J. Flammer, Univ. Hosp. Basel (CH)

11:00 Break

11:15 Multimarker strategies: are we ready for prime time?
D. Gruson, Labco Diagnostics, Brussels (B)

11:30 Circulating Nucleic Acids in Plasma and Serum (CNAPS) in predictive medicine
P.B. Gahan, King's College London (UK)

11:45 Can cancer therapy ever be harmful? Prediction of pro-invasive molecular events in treated gliomas
D. Trog, K. Yeghiazaryan, H.H. Schild,O. Golubnitschaja, Univ. Hosp., Bonn (D)

12:00 Computer assisted interpretation of routine results in the predictive laboratory diagnostics
M. Kapalla, J. Varga, D. Kapallova, Negentropic Systems s.r.o., Ruzomberok (SK)

12:15 From patient profiling to patient specific modelling
H.U. Lemke, Technical Univ. of Berlin (D)

12:30 The role of insurance in predictive and personalised medicine
J. Fritze, German Association of Private Health Insurers, Cologne (D)

12:45 Break

Computer Assisted Radiology 23rd International Congress and Exhibition

Chairmen: Stanley Baum, MD (USA)
Co-Chair: Bernd Hamm, MD (D)

Estrelsaal C3/4
08:00 Image Processing and Display – IPD

Session Chairs: Hans-Peter Meinzer, PhD (D), Yoshinobu Sato, PhD (J)

08:00 Development of a commercial cross-platform DICOM viewer based on open-source software
L. Kabongo, I. Macia, C. Paloc, VICOMTech, Donostia-San Sebastian (E)

08:15 Is it possible to obtain the 3D visualization of human spine using ultrasound imaging?
I.K.E. Purnama, Inst. Teknologi Sepuluh Nopember, Surabaya (RI), M.H.F. Wilkinson, Univ. of Groningen, A.G. Veldhuizen, P.M.A. van Ooijen, D.E.O. Dewi, G.J. Verkerke, Univ. Medical Center Groningen (NL)

08:30 Virtual colonoscopy using modern hardware: from axial images to interactive 3D navigation
K. Pataridis, T. Bowles, Medstamp Ltd., Oxford, S. Golding, Univ. of Oxford (UK)

08:45 Motion compensated iterative CT reconstruction of a cardiac region of interest using elastic image registration
A. A. Isola, M. Grass, T. Köhler, Philips Technologie GmbH Forschungslaboratorien, Hamburg (D), W.J. Niessen, Erasmus Medical Center, Rotterdam (NL)

09:00 4D reconstruction of the patent foramen ovale from rotational X-ray acquisitions
A. Neubauer, Philips Research, Briarcliff Manor, NY, J. Carroll, Univ. of Colorado Denver, Aurora, CO (USA), K. Erhard, D. Schaefer, M. Grass, Philips Research Europe, Hamburg (D)

09:15 Real-time total variation minimization using the GPU
T. Matsuda, F. Ino, K. Hagihara, Osaka Univ., Toyonaka (J)

09:30 Voronoi probability maps for seed region detection in abdominal CT images
M. Kelly, J. Furst, D. Raicu, N. Cooper, DePaul Univ., Chicago, IL (USA)

09:45 Break

10:15 Image Processing and Display – IPD

Session Chairs: Kensaku Mori, PhD (J), Andrew E. Todd-Pokropek, PhD (UK)

10:15 Seeded N-D medical image segmentation by cellular automaton on GPU
C. Kauffmann, Notre-Dame Hosp., N. Piché, Object Research System, Inc., Monteal, Quebec (CDN)

10:30 Integrating automatic and interactive method for coronary artery segmentation: let the PACS workstation think ahead
C. Wang, Ö. Smedby, Linköping Univ. (S)

10:45 Evaluation of partial volume effects in computer tomography for the improvement of coronary artery segmentation
M. Orkisz, M.A. Zuluaga, Univ. of Lyon, Villeurbanne (F), M. Hernández Hoyos, Univ. de los Andes, Bogota (CO)

11:00 Patient-specific atlas-guided pancreas segmentation from three-dimensional contrast-enhanced computed tomography
A. Shimizu, T. Kimoto, H. Kobatake, Tokyo Univ. of Agriculture and Technology, Koganei, S. Nawano, International Univ. of Health and Welfare, Tokyo, K. Shinozaki, National Kyusyu Cancer Center, Fukuoka (J)

11:15 Bayesian rule-based approach to the segmentation of trabecular bone CT images
E. Rokita, G. Taton, Jagiellonian Univ. Medical College, D. Kwietniak, Jagiellonian Univ., Krakow (PL)

11:30 A fully automatic segmentation method for myocardial boundaries of left ventricle in tagged MR images
Y. Zhang, B. Matuszewski, Univ. of Central Lancashire, Preston (UK), A. Histace, Cergy Pontoise Univ. (F)

11:45 Automatic segmentation of whole fetal heart chambers from echocardiography
I. Dindoyal, T. Lambrou, J. Deng, A. Todd-Pokropek, Univ. College London (UK)

12:00 Break

Saturday, June 27, 2009 14:00–17:00

13th Annual Conference of the International Society for Computer Aided Surgery
President: Gero Strauss, MD (D)

CARS Workshops, Tutorials and Special Events

Estrelsaal A
14:00 Surgical Modelling, Simulation and Education – SMSE

Session Chairs: Randy Evan Ellis, PhD (CDN), Javier Herrero Jover, MD (E)

14:00 ELITE – a new surgical training model for minimally invasive surgery
A. Fiolka, S. Gillen, H. Feussner, Klinikum rechts der Isar, Munich (D)

14:15 First results of using new assessment methods in minimal access surgery VR-training
M.-T. Boll, H. Maaß, H.K. Cakmak, U. Kühnapfel, Forschungszentrum Karlsruhe (D)

14:30 Improving education on C-arm operation and radiation protection with a computer based training and simulation system
O.J. Bott, Univ. of Applied Sciences and Arts, Hannover, M. Wagner, C. Duwenkamp, Technical Univ. of Braunschweig, N. Hellrung, u_m_i Informatik GmbH, Braunschweig, K. Dresing, Univ. of Medicine, Göttingen (D)

14:45 Patient-specific computer simulation of arterial flow for endovascular intervention of vertebral arteries
H. Ho, K. Mithraratne, G. Sands, P. Hunter, Univ. of Auckland (NZ), H. Schmid, RWTH Aachen Univ. (D)

15:00 Force reflecting algorithm in tumour resection simulation procedures
J.M. Sabater, M.L. Pinto, F.J. Badesa, J.M. Azorin, C. Perez, Univ. Miguel Hernandez, Elche, R. Saltaren, Univ. Politecnica de Madrid (E)

15:15 PhyNeSS: a physics-driven neural networks-based surgery simulation system with force feedback
S. De, Rensselaer Polytechnic Inst., Troy, NY (USA)

15:30 Break

15:45 The combination of automatic segmentation, preformed implants, intra-operative navigation and intraoperative imaging in primary orbital wall reconstruction – description of a new method
F. Wilde, J. Hilbert, A. Schramm, Military and Academic Hosp. Ulm, M. Metzger, R. Schmelzeisen, Univ. Hosp. Freiburg, N.-C. Gellrich, Hannover Medical School (D), L. Kamer, AO Foundation, Davos, B. Hammer, Hirslanden Medical Center, Aarau (CH)

16:00 Patient-specific laparoscopic surgery planning system based on virtual pneumoperitoneum technique
K. Mori, M. Kito, M. Fujiwara, Nagoya Univ., K. Misawa, Aichi Cancer Center, Nagoya, T. Kitasaka, Aichi Inst. of Technology, Toyota (J)

16:15 How to make a spine surgery simulator using a neurosurgical navigation system
M. Oh, J.B. Bellotte, R. Hartl, Allegheny General Hosp., Pittsburgh, PA (USA)

16:30 Simulation and planning of tracheal endoprostheses interventions using a computer tool – design and surgical evaluation
M. González Ballester, J. López Álvarez, J. Herrero Jover, Alma IT Systems, Barcelona, J. López Villalobos, N. Ginel Canamaque, M. López Porras, F.J. de la Cruz Lozano, J. Martin Juan, Hosp. Univ. Virgen del Rocio, Sevilla (E)

16:45 Metadata: the surprise witness in a medical malpractice trial
T. McLean, Third Millennium Consultants, LLC, Shawnee, KS (USA)

17:00 End of Session

Estrelsaal B
13:00 Special Session on TMJ / TMD

Session Chairs: Cornelia Kober, PhD (D), Yoshihiko Hayakawa, PhD (J)

13:00 A recent study concerning the functional anatomy of the TMJ
U. Stratmann, Univ. of Münster (D)

13:15 Temporomandibular joint imaging
T. Sano, Tokyo Dental College (J)

13:30 A mechanobiological model of the TMJ: response of the disc to plowing
L.M. Gallo, M.R. Correro, V. Colombo, Univ. of Zurich (CH)

13:45 Reconstruction of the temperomandibular joint with the free fibula micro-vascular flaps without and with surgical guides
J.-M. Hirsch, A. Thor, E. Messo, R. Acosta Roja, Uppsala Univ. (S), C. Leiggener, H.-F. Zeilhofer, Z. Krol, Univ. of Basel, C.H. Buitrago-Tellez, Zofingen Hospital (CH)

14:00 Innovative surgical concepts in treating TMD
C.A. Landes, A. Ballon, F. Schübel, R. Sader, Univ. of Frankfurt (D), C.S. Leiggener, Univ. of Basel (CH)

14:15 Total temporomandibular joint reconstruction: an innovative prosthesis
C.S. Leiggener, P. Jürgens, H.-F. Zeilhofer, Univ. of Basel (CH), C.A. Landes, B. Saldamli, Univ. of Frankfurt (D)

14:30 Efficient support of TMJ diagnosis and therapy by computer aided visualization and simulation
C. Kober, Hamburg Univ. of Applied Sciences, R. Sader, Univ. of Frankfurt (D), B.-I. Berg, C.S. Leiggener, H.-F. Zeilhofer, Univ. of Basel (CH), Y. Hayakawa, Univ. of Kitami, Hokkaido (J)

15:00 End of Session

Room Paris
09:00 CAD Demo Workshop on Computer-Aided Detection and Diagnosis EFMI WG Medical Image Processing

Session Chairs:
Alexander Horsch, PhD (D), Thomas Wittenberg, PhD (D), Vytenis Punys, PhD (LT), Matthias Elter, MSc (D)

This workshop consists of live demonstrations of research prototypes of computer aided detection and/or diagnosis systems for medical fields and applications including (but not limited to) mammography, breast MRI, lung CT, colon CT, endoscopy, dermatology, haematology, liver, brain and vascular imaging.

Computer aided detection of abdominal aortic aneurysms
J. Dehmeshki, Kingston Univ. (UK)

A computer-assisted diagnosis system for endoscopic image interpretation
A. Kage, C. Münzenmeyer, Fraunhofer Inst. für Integrierte Schaltungen, Erlangen (D)

A Knowledge-based system for the Computer-Aided Diagnosis (CADx) of mammographic lesions
M. Elter, Fraunhofer Inst. für Integrierte Schaltungen, Erlangen (D)

CAD for a novel 3-D volumetric whole-breast ultrasound imaging system
H. Fujita, D. Fukuoka, C. Muramatsu, T. Hara, Gifu Univ. (J)

The VBNA-CAD system for lung nodule detection in lung CT
I. Gori, Bracco Imaging SpA, Milan, F. Bagagli, N. Camarlinghi, M.E. Fantacci, A. Retico, Univ. and INFN, Pisa (I)

CT colonography CAD with sameday fecal tagging
A. Bert, im3D SpA, Torino (I)

HemaCAM computer-assisted microscopy for hematology
D. Steckhan, Fraunhofer Inst. für Integrierte Schaltungen, Erlangen (D)

CAD scheme for lung nodules detection on helical CT images
P. Garcia Tahoces, J.J. Suárez Cuenca, M. Souto, M.J. Lado, J.J. Vidal, Univ. of Santiago de Compostela, Univ. of Vigo (E)

Fully automated 3D segmentation of liver tumors based on Definiens Cognition Network Technology®
M. Kietzmann, J. Kim, G. Schmidt, G. Binnig, Definiens AG, München (D)

Identification and assessment of lymph nodes over time with Definiens LymphExpert
M. Kietzmann, Definiens AG, München (D)

Image and table analysis for automated detection and diagnosis of breast lesions with Definiens Mammo-iCAD
R. Schönmeyer, P. Elenberg, O. Feehan, G. Schmidt, M. Athelogou, G. Binnig, Definiens AG, München (D)

12:00 End of Workshop

Saturday, June 27, 2009 14:00–17:00

CARS Workshops, Tutorials and Special Events

Estrelsaal B
15:15 Workshop on Data Flow and Integration of Computer and Robot Assisted Surgical Procedures

Session Chairs: Jörg Raczkowsky, PhD (D), Sergio Casciaro, PhD (I)

The aim of the workshop is to present the results of EU FP6 project AccuRobAs. The main objective of the project is to develop an innovative and universal robotic assistant system to support a human in dextrous manipulation. For this reason methods are addressed to increase accuracy for lightweight compliant robotic systems during surgical procedures on different levels of autonomy. This varies from telemanipulation to autonomous behaviour. The approach focuses on adaptive control by exhibiting rich sensory-motor skills and multi-sensory measurement to distinctly increase the system accuracy. Therefore it is crucial to include methods to describe uncertainties in patient data and resource descriptions for the complete workflow from imaging to planning and execution.

The following goals are identified for the project:
- Increase accuracy of compliant light weight robots through multi-sensory concepts
- Increase accuracy of robotic procedure planning through adaptive models, soft tissue modelling and online motion prediction
- Develop new techniques for laser osteotomy to enable contact-free cutting of arbitrary cutting geometries in the human bone with superior accuracy
- Provide kinaesthetic feedback to robotic systems for palpation in real and simulated environments

15:15 Introduction to EU FP6 project AccuRobAs
P. Fiorini, Univ. of Verona (I)

15:30 Planning a modelling of deformable patient models for minimally invasive robotic surgery
D. Botturi, Univ. of Verona (I)

15:45 Robot-assisted laser processing of bone
J. Burgner, Univ. of Karlsruhe (D)

16:00 Registration and calibration for robot assisted laser osteotomy
D. Stein, Univ. of Karlsruhe (D)

16:15 Analysis of a KUKA lightweight robots accuracy for laser osteotomy
H. Mönnich, Univ. of Karlsruhe (D)

16:30 3D reconstruction for beating heart motion compensation
P. Poignet, Univ. of Montpellier (F)

16:45 Breathing motion compensation thanks to visual servoing for laser osteotomy operations
G. Morel, Univ. of Paris (F)

17:00 Towards motion compensation and force feedback in minimally invasive robotic surgery
R. Konietschke, German Aerospace Center e.V., Wessling (D)

17:15 End of Session

Estrelsaal C3/4
16:00 DICOM WG 24 "DICOM in Surgery"meeting jointly with ISO TC184/SC Robots and Robotic Devices in Surgery and Medicine

Chairs: Heinz U. Lemke, PhD (D), Gurvinder S. Virk (UK)

18:00 End of Meeting

IFCARS Academy Educational Day

Estrelsaal C1/2
14:00 Radiological Informatics

Peter Mildenberger,MD, Univ. Hosp. Mainz (D), Mansoor Fatehi, MD, Iranian Society of Radiology, Tehran (IR)

Welcome and introduction

Standards for information systems in Radiology
Learning objectives: To understand more on available standards for Medical Information Systems, esp. Image Management, activities to establish Integration Platforms (IHE)

Radiology information systems
Learning objectives: To understand the Pricipals of RIS, Electronic Reporting incl. Speech Recognition, Radiological Ontology

Discussion

Break

Education support
Learning objectives: To understand the different intentions of digital teaching files, web-based case presentation and self-assessment-tools

Decision support for radiologists
Learning objectives: To understand the basics of workstation-based reporting, the use of Computer-Aided Diagnostic Systems (CAD), Information retrieval Decision Support Systems

Discussion

Summary and farewell
Who should attend:
- Radiologist with interest in IT
- Technicians with managment activities in RIS and PACS
- IT-Managers of hospitals and medical centers

17:00 End of Session

Computer Assisted Radiology 23rd International Congress and Exhibition

Chairmen: Stanley Baum, MD (USA)
Co-Chair: Bernd Hamm, MD (D)

Estrelsaal C3/4
14:00 Image Processing and Display – IPD

Session Chairs: Alexander Horsch, PhD (D), Karl-Heinz Höhne, PhD (D)

14:00 3D contour based local manual correction of liver segmentations in CT scans
F. Heckel, J.H. Moltz, V. Dicken, B. Geisler, H.-O. Peitgen, Fraunhofer MEVIS, Bremen, H.-C. Bauknecht, Charité – Univ. Medicine, Berlin, M. Fabel, Univ. Hosp. of Schleswig-Holstein, Kiel, S. Meier, Univ. Hosp. of Mainz (D)

14:15 A tool for the automated processing of artery imaging modalities and modelling of atherosclerotic plaque development
A. Sakellarios, V. Tsakanikas, L. Michalis, D. Fotiadis, Institute for Computer Science – FORTH, Ioannina (GR), N. Filipovic, Univ. of Kragujevac (SB)

14:30 Pose determination of EP catheters from biplane fluoroscopy images
M. Schenderlein, K. Dietmayer, Ulm Univ., G. Grossmann, V. Rasche, Univ. Hosp. Ulm (D)

14:45 Vesselness-based 2D – 3D registration of the coronary arteries
D. Ruijters, Philips Medical Systems Netherland B.V., Best, B.M. ter Haar Romeny, Eindhoven Univ. of Technology (NL), P. Suetens, Katholieke Univ. Leuven (B)

15:00 Mosaicing capsule endoscopic images by phase correlation
M. Bashar, K. Mori, Y. Suenaga, T. Kitasaka, Y. Mekada, Nagoya Univ., Chukyo Univ. (J)

15:15 Analysis of the accuracy of anatomical landmark based fusion of 3D MRI data with 3D and projective 2D X-ray data for percutaneous cardiovascular interventions
M. Schenderlein, K. Dietmayer, Ulm Univ., T. Moedl, R. Manzke, V. Rasche, Univ. Hosp. Ulm (D)

15:30 Prostate cancer localization by MR and histopathology image fusion using image correction and nonrigid registration
J. Jung, H. Hong, Seoul Women's Univ., H.J. Lee, S.I. Hwang, Seoul National Univ.

15:45 Break

Poster Session

Poster Presentation Times:

Wednesday, June 24 through Saturday, June 27, 2009,
12:00–13:00 and 17:00–18:00

ISCAS

001 Intraoperative flat panel X-ray image fusion for high precision stereotactical neurosurgery
N. Lang, R. Stroop, R. Lehrke, St. Barbara-Klinik, Hamm (D)

002 Experience with intraoperative routine use of an Osirix 3D workstation in neurosurgery of vascular and neoplastic lesions
G. Eckle, T. Westermaier, L. Solymosi, K. Roosen, C. Matthies, Univ. Hosp. of Würzburg (D)

003 Virtual surgiscope: 3D visualization tool for assisting image-guided neurosurgery
Y. Hayashi, K. Mori, M. Fujii, Y. Kajita, E. Ito, S. Takebayashi, M. Mizuno, T. Wakabayashi, Y. Suenaga, Nagoya Univ., J. Yoshida, National Hosp. Organization Higashi Nagoya Hosp. (J)

004 Computer aided neuroendoscopic surgery of intracranial arachnoid cysts – surgical planning and outcome
Z. Novak, J. Chrastina, V. Feitová, I. Riha, Faculty Hosp. St. Ann's, Brno (CZ)

005 A new flexible-neuroendoscopic surgery navigation system using electromagnetic tracker
Z. Jiang, K. Mori, Y. Nimura, Y. Suenaga, Y. Hayashi, E. Ito, M. Fujii, T. Nagatani, Y. Kajita, T. Wakabayashi, Nagoya Univ., T. Kitasaka, Aichi Inst. of Technology, Toyota (J)

006 Target and trajectory localization accuracy in navigated keyhole neurosurgery
R. Shamir, L. Joskowicz, The Hebrew Univ., S. Spektor, Y. Shoshan, Hadassah Univ. Hosp., Jerusalem (IL)

007 Retrograde drilling of osteochondral lesions of the knee under MRI-guidance – a feasibility study
C. Seebauer, U. Teichgräber, F. Wichlas, J. Rump, F. Güttler, H.J. Bail, Charité – Univ. Medicine, Berlin (D)

008 Intraoperative Cone-Beam CT-based measurement of malalignment of femoral shaft fractures in six degrees of freedom
M. Crookshank, E. Schemitsch, St. Michael's Hosp., Toronto, Ontario, C. Whyne, Univ. of Toronto (CDN)

009 An intra-operative simulator for incision position and size in minimally invasive arthoplasty
N. Sugita, T. Nakano, Y. Nakajima, M. Mitsuishi, The Univ. of Tokyo, K. Fujiwara, N. Abe, T. Ozaki, Okayama Univ., Y. Nakashima, K. Kuramoto, T. Inoue, Nakashima Medical Co., Ltd., Okayama, M. Suzuki, Chiba Univ. (J)

010 Tailor made surgical guide for femoral neck osteotomy in total hip arthroplasty
T. Hananouchi, T. Shiomi, I. Nakahara, M. Takao, T. Sakai, T. Nishii, T. Murase, H. Yoshikawa, N. Sugano, Osaka Univ. Graduate School of Medicine, Suita (J)

011 Predicting respiratory motion signals using accurate online Support Vector Regression (SVRpred)
F. Ernst, A. Schweikard, Univ. of Lübeck (D)

012 In-vivo validation of a lumped-parameter model of flow through the mitral valve
L. Waite, G. Veres, G. Szabó, Univ. of Heidelberg (D), J. Fine, Rose-Hulman Inst. of Technology, Terre Haute, IN (USA)

013 A MRI study of relative organ position in the upper abdomen for changes in patient orientation: application to image-registered endoscopic ultrasound
K.G. Vosburgh, R. San Jose Estepar, B. Madore, Brigham and Women's Hosp., M. Yarmarkovich, CIMIT, Boston, MA (USA)

014 Laser endoscope with variable target points for fetal surgery
N. Yamanaka, H. Yamashita, H. Liao, K. Masamune, T. Dohi, The Univ. of Tokyo, T. Chiba, National Center for Child Health and Development (J)

015 Temporal calibration of live imaging equipment combined with tracking devices in medicine
T. Bergen, D. Steckhan, C. Winter, Fraunhofer Inst. Integrated Circuits, Erlangen (D)

016 Endoscopic robotic surgery with intuitive touch panel navigation
S. Namba, A. Nishikawa, K. Imaoka, F. Miyazaki, Osaka Univ., Toyonaka, J. Shimada, K. Terauchi, M. Shimomura, H. Tsuneduka, D. Kato, S. Okada, Kyoto Prefectural Univ. of Medicine (J)

017 Comparison of tracking algorithms in in vivo environment for interventional flexible endoscopy
N. Masson, F. Nageotte, P. Zanne, M. de Mathelin, Strasbourg Univ. (F)

018 Accuracy of non-invasive registration for imaged guided surgery at the lateral skull base
M. Hofer, A. Dietz, G. Strauss, Univ. Hosp. of Leipzig, E. Dittrich, Univ. of Leipzig (D)

019 Surgical accuracy and practicability of different referencing methods in computer assisted surgery of the frontal and lateral skull base
K. Stelter, G. Ledderose, T. Walter, A. Leunig, Univ. Hosp. of Munich, H. Hagedorn, Amper Kliniken, Dachau (D)

020 Validation of least-squares and algebraic registration approaches for intraoperative 3D-navigation around the head.
W. Freysinger, Z. Güler, F. Schwarm, M. Bickel, F. Kral, Innsbruck Medical Univ. (A)

021 Feasibility study Cine MRI of swallowing in patients with advanced oral or oropharyngeal carcinoma
A. Kreeft, C. R. N. Rasch, S.H. Muller, F. A. Pameyer, A. J. M. Balm, Antoni van Leeuwenhoek Hosp., Amsterdam (NL)

022 Preoperative planning in functional endoscopic sinus surgery – A new system for virtual endoscopy of the nose and paranasal sinuses
M. Fischer, A. Dietz, G. Strauss, Univ. Hosp. of Leipzig, A. Krüger, C. Kubisch, B. Preim, Otto-von-Guericke-Univ. Magdeburg (D)

023 How Minimally Invasive Radioguided Parathyroid surgery (MIRP) is performed
E. Ferrero Herrero, S. Alonso Gómez, A. Gómez Embuena, G. Martinez Diaz-Guerra, M. Martinez González, A. Hidalgo Garcia, M. Hidalgo Pascual, 12 Octubre Hosp., Madrid (E)

024 Extent of free access of peer reviewed medical literature indexed with PubMed
R. Birla, K. Mahawar, Darlington Memorial Hosp., M. Rookmoneea, Univ. Hosp. of North Tees and Hartlepool, Stockton, Y. Viswanath, James Cook Univ. Hosp., Middlesbrough (UK)

025 Analysis of eye movement during colonoscope manipulation
Y. Yamauchi, Toyo Univ., Kawagoe, K. Shinohara, Tokyo Univ. of Technology, Hachioji (J)

026 A planning system for drilling bone channels into the lateral skull base
P. Lohnstein, F. Knapp, T. Klenzner, J. Schipper, Univ. Hosp. of Düsseldorf, M. Riechmann, J. Raczkowsky, H. Wörn, Univ. of Karlsruhe (D)

027 Automatic identification of functional kinematic features of femur from MR image segmentation for gait analysis
Z. Tang, J. Pauli, Univ. of Duisburg-Essen, Duisburg (D)

028 Building image guided therapy applications with the Medical Imaging Interaction Toolkit
J. Neuhaus, J. Kast, I. Wegner, M. Baumhauer, A. Seitel, I. Gergel, M. Nolden, D. Maleike, I. Wolf, H.-P. Meinzer, L. Maier-Hein, German Cancer Research Center, Heidelberg (D)

029 3D skull warping from 2D X-ray images of lateral and PA views
C. Sinthanayothin, W. Bholsithi, National Electronics and Computer Technology Center, Pathumthani (T)

030 An image registration-based approach for continuous volumetric CT-guided interventions
R. Shekhar, A. Prithviraj, Univ. of Maryland, Baltimore, MD (USA)

031 Evaluation of a region of interest (ROI) presenting system using MPEG4 scalable CODEC for clinical telemedicine
S. Ieiri, K. Tanoue, K. Konishi, T. Nakatsuji, D. Yoshida, H. Uehara, N. Hashimoto, K. Ohuchida, T. Maeda, M. Hashizume, Kyushu Univ. Hosp., Fukuoka, Y. Ueda, H. Matsuoka, Y. Fujino, NTT Communication, Tokyo (J)

032 Temporal calibration of tracking and image acquisition
Z. Güler, W. Freysinger, Medical Univ. Innsbruck (A), Z. Yaniv, K. Cleary, Imaging Science and Information Systems (ISIS) Center, Washington, DC (USA)

033 3-D measurement for minimally invasive surgery by structured light system using kaleidoscope
T. Namae, T. Koishi, T. Nakaguchi, N. Tsumura, Y. Miyake, Chiba Univ. (J)

034 Three-dimensional appearance of the lips muscles with three-dimensional isotropic MRI: in vivo study
R. Olszewski, H. Reychler, T. Duprez, Univ. Hosp. St. Luc, Brussels (B), Y. Liu, T. Xu, Peking Univ. (CHN)

035 Parallel projected light field rendering and its application for intensity-based 2-D/3-D registration
Y. Nakajima, M. Mitsuishi, K. Tobita, M. Bessho, I. Sakuma, K. Nakamura, The Univ. of Tokyo, I. Ohnishi, The Univ. of Tokyo Hosp. (J)

036 Auto-stereoscopic display of endoscopic image using multiple viewpoint images capture and integral videography three-dimensional reconstruction
H. Liao, F. Ichino, H.H. Tran, H. Yamashita, K. Masamune, T. Dohi, The Univ. of Tokyo (J)

037 Virtual reality navigation of ureteral location with three dimensional MR urography in laparoscopic colorectal surgery
K. Konishi, Y. Kakeji, K. Tanoue, S. Ieiri, Y. Maehara, M. Hashizume, Kyushu Univ., Fukuoka M. Nakamoto, Y. Sato, Osaka Univ. (J)

038 Evaluation of the two pattern projection methods in the body surface shape measurement for the system design of projection-image-guided laparoscopic surgery
G. Okada, T. Koishi, T. Namae, T. Nakaguchi, N. Tsumura, Y. Miyake, Chiba Univ. (J)

039 Laparoscope 3D auto-localization
V. Ferrari, G. Megali, A. Pietrabissa, F. Mosca, EndoCAS Center, Pisa (I)

040 Evaluation of tissue deformation for computer assisted liver surgery
S. Kraft, R. Maestle, D. Mucha, T. Krüger, P. M. Schlag, Charité – Univ. Medicine, Berlin (D)

041 Combination of optical and electromagnetic tracking for position control in liver surgery
S. Eulenstein, T. Lange, M. Hünerbein, P.M. Schlag, Charité – Univ. Medicine, Berlin, S. Beller, Kliniken Miltenberg-Erlenbach (D)

042 A software for hepatic vessels classification for virtual surgery
A. Sboarina, R. Foroni, A. Minicozzi, F. Lupidi, M. Longhi, M. Ganau, A. Nicolato, G.K. Ricciardi, A. Fenzl, M. Gerosa, A. De Simone, G. Fracastoro, A. Guglielmi, C. Cordiano, Univ. Hosp. of Verona (I)

043 Tracking of the liver for navigation in open surgery
M. Markert, A. Koschany, T.C. Lüth, Technical Univ. Munich (D)

044 Reverse engineering and rapid prototyping based on CT data in manufacturing of individually adjusted cranioplasty prosthesis and hearing aid device
R. Chrzan, A. Urbanik, Collegium Medicum Jagiellonian Univ., Krakow, S. Miechowicz, Rzeszow Univ. of Technology, (PL)

045 Preoperative digital 3D planning in rhinoplasty
J. Herrero Jover, F. Moscatiello, E. Carreno, Centro Medico Teknon, Barcelona (E)

046 RepliExplore: coupling physical and virtual anatomy models
M. Seitel, L. Maier-Hein, A. Seitel, A. Franz, H. Kenngott, I. Wolf, H.-P. Meinzer, German Cancer Research Center, Heidelberg, R. De Simone, Univ. Hosp. Heidelberg (D)

047 Ventriculoperitoneal shunt technique assessment using a high-fidelity haptic and graphics virtual reality simulator
M. Oh, K. Zhang, J.B. Bellotte, Allegheny General Hosp., Pittsburgh, PA, P.P. Banerjee, C. Luciano, V. Traynelis, Univ. of Illinois-Chicago (USA)

Poster Session

048 Dynamic activity in the inguinal area
G. Fortuny, Univ. Rovira i Virgili, Reus, A. Susin, Univ. Politècnica de Catalunya, Barcelona, M. López-Cano, Univ. Autònoma de Barcelona (E)

049 Natural hand gesture interface for medical training in Second Life
S. Ullrich, T. Kuhlen, RWTH Aachen Univ. (D), A. Sherstyuk Avatar-Reality Inc., Honolulu, HI (USA)

050 Virtual surgical education motivates medical students to assist in laparoscopic procedures
D. Kauff, W. Kneist, S. Timm, A. Rink, M. Herzer, H. Lang, Johannes Gutenberg-Univ. Mainz (D)

051 3-dimensional finite element method based needle insertion simulation considering needle tip shape
S. Yamaguchi, Osaka Univ., Suita, K. Satake, Y. Shirai, H. Tanaka, Ritsumeikan Univ., Kusatsu S. Morikawa, Shiga Medical Univ., Otsu (J)

052 Measurement of viscoelastic properties of fetal trachea
K. Kurozumi, Y. Kobayashi, M. Fujie, Waseda Univ., S. Enosawa, National Research for Child Health and Development, Tokyo, T. Chiba, National Center for Child Health and Development, Tokyo, T. Watanabe, Tokyo Univ. of Agriculture, S. Sudou, Japan Lamb Co., Ltd., Hiroshima (J)

053 Evaluation of surgical cartographic navigation system for endoscopic bypass grafting on heart phantoms
K. Trautwein, A.K.R. Voruganti, R. Grunert, W. Korb, Univ. of Leipzig, S. Jacobs, V. Falk, Univ. Hosp. of Leipzig (D)

054 Accurate trajectory tracking using visual servoing for robotic endoscopic surgery
S. Namba, A. Nishikawa, K. Imaoka, F. Miyazaki, Osaka Univ., J. Shimada, D. Kato, K. Terauchi, M. Shimomura, H. Tsunezuka, Kyoto Prefectural Univ. of Medicine (J)

055 Measuring temperature and force outcomes with three different bone saws
C. Kong, A.L. Trejos, M. Naish, R. Patel, K.K. Leitch, Lawson Health Research Inst., London, Ontario (CDN)

056 Robotically assisted mouse biopsy within small animal MRI
E. Wilson, K. Wong, K. Cleary, Georgetown Univ. Medical Center, Washington, DC, C. Choido, ASI Instruments Inc., Warren, MI (USA)

057 Tactile sensor intended for intraoperative soft tissue robotic applications
R. Stroop, U. Sure, Univ. Hosp. of Essen, D. Oliva Uribe, J. Wallaschek, Gottfried Wilhelm Leibniz Univ. Hannover, R. Westphal, F. M. Wahl, Technical Univ. of Braunschweig (D)

058 Mobile robot supported steady hand craniotomy
G.J. Kane, G. Eggers, R. Marmulla, Univ. Hosp. of Heidelberg, J. Raczkowsky, Univ. of Karlsruhe (D)

059 Surgical model driven Scrub Nurse Robot (SNR) for endoscopic and laparoscopic surgery
K. Yoshimitsu, Tokyo Women's Medical Univ., F. Miyawaki, Y. Fukui, Tokyo Denki Univ., Saitama, D. Hashimoto, Saitama Medical Center & Medical Univ., K. Masamune, The Univ. of Tokyo (J), J. Vain, Tallinn Univ. of Technology (EE)

060 A parallel robot to assist vitreoretinal surgery
T. Nakano, N. Sugita, T. Ueta, Y. Tamaki, M. Mitsuishi, The Univ. of Tokyo (J)

061 A highly articulated robotic surgery system using an external visualization and navigation system
M.A. Zenati, T. Yokota, T. Ota, D. Schwartzman, H. Choset, Univ. of Pittsburgh, C. Nikou, B. Jaramaz, Blue Belt Technologies, Pittsburgh, PA (USA)

062 Are live observations as accurate as video observations for Surgical Process Modeling?
T. Neumuth, G. Strauss, J. Meixensberger, O. Burgert, Univ. of Leipzig (D), P. Jannin, Univ. of Rennes (F)

EuroPACS

063 Web-based fracture healing assessment and monitoring system
W. Glinkowski, Medical Univ. of Warsaw, P. Orłowski, A. Karpowicz, Polish Japanese Inst. of Information Technology, Warsaw (PL)

064 Extending PACS by adapting messaging for clinical practice: a case study related to after-EVAR follow-ups
B. Brattheim, A. Landmark, P. Toussaint, A. Faxvaag, Norwegian Univ. of Science and Technology, Trondheim (N)

066 A preliminary study of the clinically useful life of digitally archived medical images
L. Sim, CaSS, Queensland Health, L. Caffery, Royal Brisbane & Womens Hosp., K. Manthey, Princess Alexandra Hosp., Brisbane, QLD (AUS)

067 Seamless integration of Open Source PACS workstation with existing legacy RIS
O. Ratib, J. Heuberger, A. Rosset, P. Troillard, D. Bandon, Univ. Hosp. of Geneva (CH)

068 Emergency radiology reporting during a critical incident of abrupt software malfunction
S. Ghosh-Ray, R. Amir, Norwich Radiology Academy (UK)

069 CE mark for PACS
C. Bianco, NTE SA, Barcelona (E)

070 Discovering clinical problem solving and research potentials of structured reporting
M. Fatehi, A. Arjmand Shabestari, Day General Hosp., Tehran (IR)

CAR

071 MR guided breast biopsy in women at increased risk for developing breast cancer
R. Chrzan, T. Popiela, A. Urbanik, K. Kleinrok, I. Herman-Sucharska, Collegium Medicum Jagiellonian Univ., Krakow (PL)

072 Quantitative comparison of 2D vs. 3D transrectal ultrasound using a patient-based prostate biopsy simulator
D. Cool, M. Connolly, S. Sherebrin, A. Fenster, Robarts Research Inst., R. Eagleson, J. Izawa, J. Amann, C. Romagnoli, W. Romano, Univ. of Western Ontario, London, Ontario (CDN)

073 Diffusion tensor imaging using rigid Co-registration in assessing the effect of Boron Neutron Capture Therapy on brain tissue
L. Kuusela, O. Sipilä, N. Lundbom, S. Savolainen, Univ. of Helsinki, L. Kankaanranta, Helsinki Univ. Central Hosp. (FIN)

074 Unveiling coronary atherosclerotic plaques visualization in computed tomography using high resolution software simulation
W. Kristanto, P. van Ooijen, W. den Dunnen, M. Oudkerk, Univ. Medical Center Groningen (NL)

075 A web-based, interactive tutorial and reference database for oncall radiology findings for radiology and surgery residents
R. Talanow, The Cleveland Clinic (USA)

076 Challenges and solutions in test design and test management for next generation medical IT
G. Götz, A. Metzger, Sepp.med GmbH, Röttenbach (D)

077 Boosting algorithms for segmentation of metastatic liver tumors in contrast-enhanced computed tomography
A. Shimizu, T. Narihira, D. Furukawa, H. Kobatake, Tokyo Univ. of Agriculture and Technology, Koganei, S. Nawano, International Univ. of Health and Welfare, Tokyo, K. Shinozaki, National Kyusyu Cancer Center, Fukuoka (J)

078 Application of adaptive filtering in Live Wire FCM medical image segmentation
W. Wieclawek, M. Rudzki, Silesian Univ. of Technology, Gliwice (PL)

079 Segmentation of muscle sartorius with tendon attachment sites from magnetic resonance images
Z. Tang, J. Pauli, Univ. of Duisburg-Essen, Duisburg (D)

080 Mass-effect approximation of an isotropic diffusion-based brain-tumor model
S. Becker, J.O. Jungmann, A. Mang, T.M. Buzug, Univ. of Lübeck (D)

081 Study on chest CT image registration based on a respiration model
T. Imamura, H. Takeo, Kanagawa Inst. of Technology, Y. Nagai, National Cancer Center, Tokyo (J)

082 A SIR based method for pancreas iron burden measurement in MRI T2* GRE sequences
S. Vitabile, A. Gioe', M. Galia, L. La Grutta, G. Lo Re, M. Midiri, Univ. of Palermo (I)

083 Automated recognition of structure of abdominal skeletal muscles from X-ray CT images
N. Kamiya, X. Zhou, H. Chen, T. Hara, H. Fujita, H. Hoshi, Gifu Univ. Graduate School of Medicine, R. Yokoyama, M. Kanematsu, Gifu Univ. Hosp. (J)

084 Level set segmentation of extraocular muscles in MRI images for thyroid-associated-ophtalmopathy diagnosis
B. Matuszewski, Y. Zhang, Univ. of Central Lancashire, Preston (UK), A. Histace, Univ. of Cergy-Ponmtoise, C. Portefaix, Univ. of Reims (F)

085 Robust automatic lung field segmentation on digital chest radiographs
J. von Berg, D. Barthel, Philips Research Europe, Hamburg (D)

086 An improved method for automated recognition of bronchial tree structure by optimizing combinations of candidate anatomical names
T. Kitasaka, Aichi Inst. of Technology, Toyota, S. Ota, D. Deguchi, K. Mori, Y. Suenaga, Y. Hasegawa, K. Imaizumi, S. Iwano, Nagoya Univ., H. Takabatake, Sapporo Minami-Sanjo Hosp., M. Mori, Sapporo Kosei General Hosp., H. Natori, Keiwakai Nishioka Hosp., Sapporo (J)

087 A fuzzy segmentation approach to white matter detection in optical coherence tomography images
O. Witt, A. Schläfer, L. Ramrath, Univ. of Lübeck (D)

088 Color calibration to achieve consistent color and grayscale presentation for color displays in medical imaging
H. Roehrig, J. Fan, W. Dallas, GE Healthcare, Waukesha, WI (USA)

089 A fuzzy based human airway segmentation method robust to leakage using shape optimization
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