The 10th Annual
Medicine Meets Virtual Reality
Conference

Digital Upgrades: Applying Moore's Law to Health

JANUARY 23–26, 2002
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Conference Information

Welcome to the tenth annual Medicine Meets Virtual Reality conference. On this special anniversary, we wish to thank the many researchers here who have led the progress in the field of interactive electronic technology in healthcare. We hope you are pleased with how much has been accomplished during the past decade.

With this year’s theme, “Digital Upgrades: Applying Moore’s Law to Health,” we wish to acknowledge the real and tangible benefits that electronic technologies can offer the healing arts. Many benefits are being seen, and the future will certainly bring breakthrough tools for improving health and human capability. The research presented here at MMVR02/10 will help create this future.

Medicine Meets Virtual Reality has three fundamental goals:

- To share clinical research and experience with interactive computer-based tools for medical diagnosis, therapy, and education, for the purpose of creating informed clinical use of interactive computer-based tools by physicians and other healthcare providers.

- To educate healthcare providers on the goals, methods, successes, and limitations of products commercially available and refine the evaluation of products’ relevance to day-to-day clinical care and training; and also to nurture a partnership with industry to promote continually improved and economically viable products for care and education.

- To define visionary goals that will guide medicine into a future of (a) improved minimally invasive diagnosis and treatment, (b) significantly enhanced educational methods, (c) expanded communication and research networks for providers and patients, and (d) greater efficiency in delivering optimal patient care.

Important: Please give us your conference evaluation before you leave the conference. It’s vital we receive evaluations from physicians interested in CME credit. And we welcome evaluations from all attendees. Your criticisms and suggestion are useful to us.

Thank you for being here!

Course Description

MMVR02/10 provides a forum for exchanging, developing, and disseminating innovative ideas for interactive computer-based tools in healthcare. These ideas are considered in a context supporting minimally invasive clinical care that is both medically and economically advantageous. For firms that create and market these tools, this conference provides the opportunity to demonstrate their products to an informed audience.

The program consists of three morning general sessions, five afternoon parallel sessions, six workshop activities, and two adjunct symposia. All are designed to encourage open dialogue between participants, speakers, and moderators.

Course Objectives

After completion of this educational activity, participants should be able to:

- Discuss innovative computer-based applications in medical education, such as surgical simulators, interactive educational programs and evaluation tools, and Internet-based instructional materials.

- Review the progress made in the area of telemedicine and comment upon how advances in robotics, sensors and data networks can facilitate the growth of medicine at a distance.

- Describe some of the surgical tools, such as image-guided surgery and robotics, that enable minimally invasive surgery to become more precise.

- Review key issues involved in the development of a truly electronic medical record, such as data management, network architecture and reliability, and security and confidentiality.

- Comment upon the use of immersive virtual environments in psychology to assist diagnosis and therapy, including the control of phobias and other disorders.

Accreditation

This activity has been planned and implemented in accordance with the Essential Areas and policies of the Accreditation Council for Continuing Medical Education through the joint sponsorship of the University of California, Irvine College of Medicine and Albert Management Associates, Inc. The University of California, Irvine College of Medicine is accredited by the ACCME to provide continuing medical education for physicians.

The University of California, Irvine College of Medicine designates this educational activity for a maximum of 22.25 hours in category 1 credit toward the AMA Physician’s Recognition Award. Each physician should claim only those hours of credit that s/he actually spent in the activity.

Policy Statement

The conference sponsors and organizers are solely responsible for the design and production of this conference, including final selection of topics and speakers. Because the meeting’s goal is to promote education, all speakers are asked to present information, answer questions, and interact with participants in
a manner that is both educational and free of commercial bias.

The conference sponsors and organizers encourage feedback from medical professionals, educators, industry, and conference participants. The course evaluations, including suggestions and criticism, will be welcomed and carefully analyzed to determine content and organization of future meetings.

Disclaimer

The information provided at this conference is intended for general medical education purposes only. All physicians should fully investigate any new product or device before implementing it in their practice. In no event will the University of California, Irvine College of Medicine or Aligned Management Associates, Inc. assume responsibility for any decision made or action taken as a result of the information provided through this activity.

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Disclosure Information

The University of California, Irvine College of Medicine complies with the Accreditation Council for Continuing Medical Education (ACCME) Standards for Commercial Support of Continuing Medical Education. Presenters at this conference are instructed to disclose any real or apparent conflict(s) of interest or their intention to discuss off-label or investigational use, if applicable, at the beginning of their presentation. Presenter disclosure information is also included below:

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Oleynikov MD, Dmitry
Oppenheimer MS, Peter
Orthwein, Jayne
Ottensmeyer PhD, Mark
Pai PhD, Dinesh K.
Paloc, Celine
Pettiitt BS MBA, M. Beth H.
Phatak MS, Sarika
Phillips PhD, Roger
Piron MD, Lamberto
Pohlman MS, Scott K.
Prakash PhD, Edmond C.
Pugh MD PhD, Carla M.
Radu, Dipl.-Eng., Alexandra
Rafiq MD, Azhar
Raghupathi MS, Lakshminarasimhan
Rajavashisth PhD, Tripathi B.
Ratib MD PhD, Osman
Rawn BA, Chantal L.
Reiner PhD, Robert H.
Reinig PhD, Karl
Reisman MD, Mark
Riener, Dr.-Ing., Robert
Riva PhD, Giuseppe
Rizzo PhD, Albert
Robb PhD, Richard A.
Rolfsson MSc, G"{o}ran
Rolland PhD, Jannick
Rosen PhD, Jacob
Rovetta, Prof. Alberto F.
Rubinstein MD, David
Ruurd MD, Jelle P.
Rydmark MD PhD, Martin
Saito, Mitsuaki
Sankaranarayanan MS, Ganesh
Satava MD FACS, Richard M.
Sauer PhD, Frank
Schermeier, Dipl.-Ing., Olaf
Schuermie MSc, Martijn
Schultheis, Maria
Sehusen PhD, Ashley
Senger PhD, Steven
Shikham PhD, Raj
Silverstein MD FACS, Jonathan C.
Singh MBBS MD DM, Kuldeep
Smith, Gayla
Smith PhD, Jeffrey
Spitzer PhD, Victor M.
Srinivasan PhD, Mandayam A.
Srivastava MD, Sakti
Stalfors MD, Joacim
Sten, Dipl.-Ing., Malte
Stredney, Don
Sweet MD, Robert M.
Swinth, Kimberly R.
Szekely PhD, Gabor
Temkin PhD, Bharti
Tendick PhD, Frank
Terry Jr. MS, Thomas J.
Thomas PhD, David
Thonier MS, Guillaume
Tiede PhD, Ulf
Trepagnier PhD, Cheryl
Tse RN BSN MSc, Mimi
Verter, Dipl.-Ing. (FH), Marcus
Viant BSc, Warren
V"{u}rre MD PhD, Erik
Villegas MD, Leonardo
Vincelli PsyD, Francesco
von Lubitz PhD MD(SC), Dag K.J.E.
Vosburgh MD, Kirby G.
Voss, Dipl.-Inform., Gerrit
Walshe MMED Sc, MRCPSych, David
Waterworth PhD, John
Weaver MS, Anna L.
Webster PhD, Roger
Whiteford, Brooke M.
Wiederhold MD PhD FACP, Mark D.
Wiederhold PhD MBA BCIA, Brenda K.
Wills BSc, Derek P. M.
Wu, Sue-Lynn
Wulf MD, Jörg
Yoo PhD, Terry S.
Zanetti PhD, Gianluigi
Zhang MD, Ling
Zhao MS, Linping

The following speakers do intend to discuss or describe during their presentation at Medicine Meets Virtual Reality the use of a medical device or pharmaceutical that is classified by the FDA as either investigational or "off-label" (i.e., a use not described on the product's label) for the intended use:

Ballester FRCS, Pedro, MIST 2 - Mentice AB, Sweden
Berger PhD, Theodore W., Berger - Liaw Speech Recognition System (temporal pattern recognition)
Bergerud, Marly, LifePak and Ambubag
Couvillion MS, Warren, Polhemus Fastrak (for tracking user position and orientation)
George, Ivan, AMIRA (TGS, San Diego, California) not FDA approved for medical use
Hasenpfug, Dipl.-Inform. Med., Peter, NDI Aurora beta system
Heinrichs MD PhD, Wm. LeRoy, Bimanual 5 degree haptic interface
Ley, Andre, Phantom (Sensible Technologies)
Mastrangelo Jr. MD, Michael J., AMIRA software, TGS San Diego not FDA approved
Rotnes MD PhD, Jan Sigurd, SimMentor platform for surgical simulators, SimCor cardiac robot simulator
Serra PhD, Luis, DextroBeam and VizDexter software (surgical planning tool)
Shahidi PhD, Ramin, CBYON system
Wang PhD, Yulin, Telecollaborative robotic system

At the time of printing, the following speakers did not provide information regarding whether they will discuss or describe during their presentation at Medicine Meets Virtual Reality the use of a medical device or pharmaceutical that is classified by the FDA as either investigational or "off-label" (i.e., a use not described on the product's label) for the intended use. However, they have been instructed to provide any such information at the beginning of their presentation:

Braun RN MSN CCRN, Ginger S.
Haase MD, Jens P.
Jones MD, Shaun B.
Lewis, Bennett
Malan MD, Todd K.
Moore MS, Keely
Moore PhD, Leon
Perrera, Christopher
Seibel MD, Rainer M.M.
Warner MD PhD, Dave
Smith RN MS CCRN, Gayla P.

Contact

Medicine Meets Virtual Reality
do Aligned Management Associates, Inc.
793-A Foothill Blvd., PMB 119
San Luis Obispo, CA 93405 U.S.A.
http://www.nextmed.com
mmvr@nextmed.com
Presentation Schedule

WEDNESDAY 1/23/02

TATRC Principal Investigators Review
8:00 AM to 10:15 AM / 10:30 AM to 12:15 PM
1:45 PM to 3:00 PM / 3:15 PM to 5:00 PM

TATRC Networking Social
5:15 PM to 6:30 PM
Please see the separate TATRC publication for schedule and speaker details, as well as the special activity summary in this syllabus.

THURSDAY MORNING 1/24/02

GENERAL SESSION

Moderator: Don Stredney

8:00 Welcome & CME Issues
Karen S. Morgan and James D. Westwood
Aligned Management Associates, Inc.

8:05 Richard A. Robb PhD
Biomedical Imaging Resource
Mayo Clinic & Foundation
The Virtualization of Medicine: A Decade of Progress and Pitfalls

8:20 Ulf Tiede PhD
Inst of Mathematics and CS in Med, Univ-Hosp Hamburg-Eppendorf
Virtual Endoscopy Using 360-degree QuickTime-VR Panorama Views

8:35 Grigore Burdea PhD
Electrical and Computer Eng, Rutgers Univ
Virtual Reality-Based Stroke Rehabilitation System for the Hand

8:50 William L. Crowley BSME MBA
Research & Development, Crowley Davis Research, Inc.
Anatomical Information Encoding and Retrieval Using Digital Gene Sequences

9:05 Richard M. Satava MD FACS
Dept of Surgery, Yale Univ Sch of Medicine
Holographic Medical Electronic Representation (Holome(TM))

9:20 Carsten Mundt PhD
NASA Ames Research Ctr
Wireless Mobile Sensor System Monitors Vital Signs of Astronauts in Real Time

9:35 Featured Speaker: John Hines
Manager, Biomolecular Sys Research Prog; Sr. Technology Program Manager, Fundamental Biology Research Program, NASA-Ames Research Center
Advanced in situ Technologies for Space Medicine and Biological Research

10:00 Break – Dedicated Exhibits Viewing

GENERAL SESSION (CONT.)

Moderator: Steve Charles MD

10:45 John D. McBreyer PhD
Microsystem Programs, Sandia National Laboratories
An Overview of MEMS Built Using Surface Micro Machining

11:00 Murat Okandan PhD
MEMS Science and Technology, Sandia National Laboratories
BioMEMS and Microfluidics Technology Development

11:15 Sascha Däuber, Dipl.-Phys.
Computer Science, Univ of Karlsruhe
Creating a Statistical Atlas of the Cranium

11:30 Featured Speaker: Theodore W. Berger PhD
Professor of Biomedical Eng and Neurobiology / Director, Ctr for Neural Eng, Univ of Southern California
Implantable Biomimetic Electronics as the Next Era in Neural Prosthetics

12:00 PM Break

THURSDAY AFTERNOON 1/24/02

SESSION A – SIMULATION, HAPTICS, AND EDUCATION

Moderator: Kevin N. Montgomery PhD

1:15 Gerald R. Moses PhD
Telemedicine and Advanced Technology Ctr, U.S. Army Medical Research & Materiel Command
Refining the Strategy for Medical Simulation Training

1:30 M. Beth H. Pettitt BS MBA
STRICOM, United States Army
Medical Simulation: A Comparison to Warfighter Simulation
<table>
<thead>
<tr>
<th>Time</th>
<th>Presenter</th>
<th>Title</th>
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<tbody>
<tr>
<td>1:45</td>
<td>Jeffrey Smith PhD</td>
<td>Space Life Sciences Research Branch, NASA Training Astronauts for Biological Research in Space Using Medical Testing Tools in an Immersive Virtual Environment</td>
</tr>
<tr>
<td>2:00</td>
<td>Sue-Lynn Wu</td>
<td>Robotics Lab, Stanford Univ Spatial Ability and Laparoscopic Pointing Movements</td>
</tr>
<tr>
<td>2:15</td>
<td>John Watervorth PhD</td>
<td>Tools for Creativity Studio, Interactive Inst Dextrous and Shared Interaction with Medical Data: Stereoscopic Vision is More Important than Hand-Image Collocation</td>
</tr>
<tr>
<td>2:30</td>
<td>J. Brian Fisher MS</td>
<td>Training Systems and Simulators Division, Southwest Research Inst Using Mixed Reality, Force Feedback and Tactile Augmentation to Improve the Realism of Medical Training Simulations</td>
</tr>
<tr>
<td>2:45</td>
<td>Robert Riener, Dr.-Ing.</td>
<td>Automatic Control Engineering, Technical University of Munich A New Haptic Interface for VR Medical Training</td>
</tr>
<tr>
<td>3:00</td>
<td>Guillaume Thoner MS</td>
<td>National Biocomputation Ctr, Dept of Surgery, Stanford Univ An Internet-Based Framework for Streaming, Stereo Video and Multimedia Content for Use in Medical Education</td>
</tr>
<tr>
<td>3:15</td>
<td>Break</td>
<td></td>
</tr>
<tr>
<td>3:30</td>
<td>Jannick Rolland PhD</td>
<td>Sch of Optics/CREOL, Univ of Central Florida Augmented Reality and Training for Airway Management Procedures</td>
</tr>
<tr>
<td>3:45</td>
<td>Zhuming Ai PhD</td>
<td>Sch of Biomedical &amp; Health Inform Sci, Univ of Illinois at Chicago Tele-Immersive Medical Educational Environment</td>
</tr>
<tr>
<td>4:00</td>
<td>Carla M. Pugh MD PhD</td>
<td>SUMMITI, Stanford Univ Qualitative and Quantitative Analysis of Contact Pressure Acquired by the E-Pelvis Simulator during Clinical Pelvic Examinations</td>
</tr>
<tr>
<td>4:15</td>
<td>Rory McCloy MD FRCS</td>
<td>Univ Dept of Surgery, Manchester Royal Infirmary Click and Go Video: Integrating Video Streaming for Medical Education</td>
</tr>
<tr>
<td>4:30</td>
<td>Tilo Gockel, Dipl.-Ing.</td>
<td>IAIM Prof. Dillmann, Univ Karlsruhe Interactive Simulation of the Tooth Cleaning Process Using Volumetric Prototypes</td>
</tr>
<tr>
<td>4:45</td>
<td>Dag K.J.E. von Lubitz PhD MD(Sc)</td>
<td>MedSMART, Inc. CELSIUS: The New Approach to General Surgical Simulation as an Example of Leading Edge Technology Integration in Medical Education &amp; Training</td>
</tr>
</tbody>
</table>

**SESSION A (CONT.) – TELEMEDICINE**

Moderator: David C. Balch MA

<table>
<thead>
<tr>
<th>Time</th>
<th>Presenter</th>
<th>Title</th>
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<tbody>
<tr>
<td>5:00</td>
<td>Alex Gandaas MD</td>
<td>Dept of Surgery, Univ of Kentucky Wireless Live Streaming Video of Laparoscopic Surgery: A Bandwidth Analysis for Handheld Computers</td>
</tr>
<tr>
<td>5:15</td>
<td>Agnès Guerrez MSc</td>
<td>Dept of Telemedicine, FranceTelecom R&amp;D A Haptic Virtual Environment for Tele-Echography</td>
</tr>
<tr>
<td>5:30</td>
<td>David C. Balch MA</td>
<td>Telemedicine Ctr, Brody Sch of Medicine East Carolina Univ Implementation of Distributed Medical Intelligence Models Through Wireless and Handheld Devices</td>
</tr>
<tr>
<td>5:45</td>
<td>Azhar Rafiq MD</td>
<td>MediTAC/Surgery, Virginia Commonwealth Univ/MCV Integration of Telemedicine in Remote Health Care Management for Improved Patient Safety</td>
</tr>
<tr>
<td>6:00</td>
<td>Afsaneh Barzi MD</td>
<td>Dynasty Technologies, Inc. Self-Administered Decision Support Tool for Triage: Results of a Retrospective Study</td>
</tr>
<tr>
<td>6:15</td>
<td>Adjourn</td>
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**THURSDAY AFTERNOON 1/24/02**

**SESSION B – INFORMATION-GUIDED DIAGNOSIS AND THERAPY**

Moderator: Richard A. Robb PhD

<table>
<thead>
<tr>
<th>Time</th>
<th>Presenter</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>1:15</td>
<td>Kirby G. Vosburgh PhD</td>
<td>CIMIT/Mass General Hosp/ Harvard Medical Sch What Ever Happened to Virtual Endoscopy?</td>
</tr>
</tbody>
</table>
1:30 Michael R. Bax MS
Image Guidance Laboratories, Stanford Univ
Calibration and Accuracy Testing for Image-Enhanced Endoscopy

1:45 Peter Heinze, Dipl.-Inform.
Inst for Process Control & Robotics, Univ of Karlsruhe
Atlas-Based Segmentation of Pathological Knee Joints

2:00 Ivan George
Ctr for Minimally Invasive Surgery, Univ of Kentucky
The Incorporation of Actual Patient Volumetric Data Into Immersive Surgical Planning and Viewing Systems for Multiple Patients by Using Semi-Automated Image Processing and Desktop Systems

2:15 Peter Hassenpflug, Dipl.-Inform. Med.
Medical and Biological Informatics, Deutsches Krebsforschungszentrum
Virtual Reality in 3D Echocardiography: Dynamic Visualization of Atrioventricular Annulus Surface Models and Volume Rendered Doppler-Ultrasound

2:30 Zirui Li, M.Eng.
Medical Imaging Lab, Kent Ridge Digital Labs
Training and Pretreatment Planning of Interventional Neuroradiology Procedures - Initial Clinical Validation

2:45 Oliver Burgert, Dipl.-Inform.
IAIM/IPR, Univ Karlsruhe
Risk Reduction in Cranio-Facial Surgery Using Computer-Based Modelling and Intraoperative Immersion

3:00 Marcus Vetter, Dipl.-Ing. (FH)
Div. Medical and Biological Informatics, Deutsches Krebsforschungszentrum
Evaluation of Visualization Techniques for Image-Guided Navigation in Liver Surgery

3:15 Break

SESSION B (CONT.)
Moderator: John D. McBrayer PhD

3:30 Peter Hassenpflug, Dipl.-Inform. Med.
Medical and Biological Informatics, Deutsches Krebsforschungszentrum
Accuracy of Magnetic Tracking for Image-Guided Navigation in Liver Surgery

3:45 Roger Phillips PhD
Computer Science, Univ of Hull
A Virtual Fluoroscopy System and its Use for Image Guidance in Uncompartmental Knee Surgery

4:00 Olaf Schermeier, Dipl.-Ing.
Surgical Robotics Lab, Clinic for Maxillofacial Surgery, Charite
Automatic Patient Registration for Navigation in Maxillofacial Surgery

4:15 Wolfgang Mueller-Wittig PhD
Ctr for Advanced Media Technology, Nanyang Technological Univ
Nasal Airflow Diagnosis - Comparison of Experimental Studies and Computer Simulations

4:30 Mark Reisman MD
Cardiovascular Cath Lab, Swedish Heart Inst
Use of a Head-Mounted Confluent Display of Fluoroscopic and Echocardiographic Images to Enhance Operator Feedback during Catheter-Deployed Closures of Cardiac Septal Defects

4:45 Jelle P. Ruurda MD
Dept of Surgery, Univ Medical Ctr Utrecht
Feasibility and Clinical Evaluation of Robot-Assisted Surgery

5:00 Peter Heinze, Dipl.-Inform.
Inst for Process Control & Robotics, Univ of Karlsruhe
CT, MRI and Video Based Analysis of Knee Kinematics - A Basis for CT Based Simulation

5:15 Leonardo Villegas MD
Dept of Surgery, Duke Univ Medical Ctr
Robotically Assisted Laparoscopic Roux En Y Hepatico-Jejunostomy

5:30 Adjourn

THURSDAY AFTERNOON 1/24/02

SESSION C - WORKSHOPS

1:15 A Tutorial on Surgical Simulation: Past, Present, and Future
Christoph Kaufmann MD MPH FACS & Alan Liu PhD, Co-Chairs
Surgical Simulation Laboratory, National Capital Area Medical Simulation Center
Uniformed Services University of the Health Sciences

3:15 Break

3:30 Simulation Training for Medical Readiness
Gerald R. Moses PhD, Chair
TATRC/USAMRMC

5:30 Adjourn
THURSDAY EVENING 1/24/02

POSTER SESSION

6:00 – 7:00 Poster Session

Poster display begins Thursday afternoon and lasts the duration of the conference. During this dedicated viewing period, authors explain their research to conference participants. Judges will select the best posters; winners will receive prizes and invitations to give bullet presentations during the Friday morning general session.

POSTER PRESENTATIONS:

Eric Acosta MS
Dept of Computer Science, Texas Tech Univ
Haptic Texture Generation - A Heuristic Method for Virtual Body Structures

Michelle M. Bagur BS
Ctr for Human Simulation, Univ of Colorado
Authoring Capabilities for the Explorable Virtual Human

Jeffrey D. Brown BSE
Dept of Bioengineering, Univ of Washington
Computer-Controlled Motorized Endoscopic Grasper for In Vivo Measurement of Soft Tissue Biomechanical Characteristics

Oliver Burgert, Dipl.-Inform.
IAIM/IPR, Univ Karlsruhe (TH)
Volumetric Implant-Planning Based on Symmetry Considerations

Jeremy Cannon MD
Mechanical Engineering, MIT
Stress Analysis of the Right Atrium: A Two-Chamber Thoracoscopy Model

Peter Cosman BA/MB BS
Dept of Surgery, Univ of Sydney
Simulator Fidelity & Surgical Skill Acquisition

Peter Cosman BA/MB BS
Dept of Surgery, Univ of Sydney
Laparoscopic Force Measurement Using Strain Gauges

Sascha Däuber, Dipl.-Phys.
Computer Science, Univ of Karlsruhe
A New, Accurate and Easy to Implement Camera and Video Projector Model

Sascha Däuber, Dipl.-Phys.
Computer Science, Univ of Karlsruhe
Intraoperative Guidance of Pre-planned Bone Deformations Using a Surface Scanning System

Elizabeth R. Durso MS
The Virtual Reality Medical Center
The Relationship Between Reported Levels of Immersion in a Virtual Flight on Physiology in Phobic versus Non-Phobic Participants

Karl-Hans Englmeier PhD
Inst for Medical Informatics, GSF-National Research Ctr
Quantitative Image Analysis of the Cartilage in Virtual Reality

Thorsten R. Fleiter MD
Diagnostic Radiology, Revs Working Group, Univ of Ulm
Wallmotion-Detection of Aortic Aneurysms Using ECG-Tagged Multislice-CT for Advanced Flow- and Stress Simulation

Karim A. Gawad MD
Dept of Surgery, Univ of Hamburg
Multimedia Symposium - A Tool for Better Medical Education?

Sabine Girod MD DDS PhD
Plastic and Reconstructive Surgery, Stanford Univ Med Ctr
Estimation of Soft-Tissue Model Parameters Using Registered Pre- and Postoperative Facial Surface Scans

Pedro Gregorio
Mechanical Engineering, Immersion Corporation
Next Generation Surgical Simulation Hardware Interface

Joachim Gross PhD
Sektion Minimal Invasive Chirurgie, Univ Tübingen
Modelling Viscoelasticity for Interactive Surgery Simulation

Jens P. Haase MD
Medical Informatics and Image Analysis, Aalborg Univ
3D Modelling of Blood Vessels

Peter Heinze, Dipl.-Inform.
Inst for Process Control & Robotics, Univ of Karlsruhe
3D Structure from Endoscopic Images

Gerry Higgins PhD
Federation of American Scientists
The Digital Human: Open Source Software Framework for Organ Modeling and Simulation
Joshua Jacobs MD
Dept of Medicine, Univ of Hawaii
Assessing the Utility of Patient Simulation Using Immersive Virtual Reality to Enhance Distance Learning in a Medical Education Curriculum

Sun I. Kim PhD
Dept of Biomedical Engineering, Hanyang Univ
Development of Virtual Speaking Simulator Using Image Based Rendering

Paul Kizakevich MS PE
Ctr for Digital Systems Engineering, Research Triangle Inst
A Virtual EMS Simulator for Practice of Emergency Medical Care

J. Larry Klein MD
Ctr for Medical Informatics, Atlanta Cardiovascular Research Inst
Inexpensive and Requires No Change in Clinical Practice: The Ultimate Data Capture and Electronic Medical Record System?

Paul Kleinberger MFA
3ality (Israel) Ltd.
Two Novel Autostereoscopic Displays for Medical Imaging

Robert Kline-Schoder PhD
Creare Inc.
High Performance Bilateral Telerobot Control

Chris Lee BA
Ctr for Human Simulation, Univ of Colorado Health Sciences
Producing Visible Human Functional Anatomy Animations Using a Generic Rigid and Deformable Body Simulator

Andre Ley
Automatic Control Engineering, Technical Univ of Munich
Improved Haptic Rendering of Anatomical Data Using Local Tracking and Surface Smoothing Algorithms

Bennett Lewis
The Virtual Reality Medical Center
The Use and Development of Peripheral Devices to Increase Presence and Immersion During VR Exposure

William Lober MD
Dept of Medical Education, Univ of Washington
An Evolutionary Approach to Implementing Augmented Reality for Clinical Case Conferences

John S. McDonald MD
Dept of Anesthesiology, Harbor-UCLA
Point of Care Project

Keely Moore MS
The Virtual Reality Medical Center
Panic and Agoraphobia in a Virtual World

Johannes Mueller MD
Dept of Cardiac Surgery, German Heart Inst
Transtelephonic Monitoring: Reliable Non-Invasive Rejection Monitoring After Heart Transplantation by an Implantable Multisensor Device

Andres A. Navarro Newball MSc
Colombian Internet Health & Medicine Assoc.
A Software Architecture for Virtual Simulation of Endoscopic Surgery in a Web-Based Scenario

Max North PhD
Computer Science & Information Systems, Kennesaw State Univ
Virtual Reality Therapy: Case Study of Effective Treatment for the Fear of Public Speaking

Dmitry Oleynikov MD
Dept of Surgery, Univ of Nebraska Sch of Medicine
Preoperative Surgical Planning Using Virtual Laparoscopic Simulation Based on CT Imaging

Christopher Perra
Dept of Engineering, Ascension Technology Corp
LaserBird Optical Tracking

Scott K. Pohlman MS
Core Component Engineering, Marconi Medical Systems
Comparison of a Three-Dimensional Motion Controller Device and a Traditional 2D Mouse for the Manipulation of 3D Rendered Computed Tomography Data

Carla M. Pugh MD PhD
SUMMIT, Stanford Univ
Visual Representations of Physical Abilities: Reverse Haptic Technology?

Alexandra Radu, Dipl.-Eng.
President's Office, Romanian Radio Broadcasting Corp
Medical Care to Patients in Rural and Medically Underserved Communities

Tripathi B. Rajavashishth PhD
The MYTHSEEKER Inst / Cedars-Sinai Med Ctr
Mythseaking and Metabolism: A Virtual Reality Approach to Improving Quality in Human Life
Chantal L. Rawn BA
Dept of Surgery, Stanford Univ
Validation of an IV Insertion and a Shoulder Arthroscopy Simulator: A Standard Protocol for Evaluating Simulators

Karl Reining PhD
Ctr for Human Simulation, Univ of Colorado
Creating Polygonal Texture-Mapped Models for Display in the Explorable Virtual Human

Göran Rolfsson MSc
ReachIn Technologies AB / Ctr for Image Analysis, Uppsala Univ
Training and Assessment of Laparoscopic Skills Using a Haptic Simulator

Prof. Alberto F. Rovetta
Dept of Mechanics, Politecnico di Milano
First Clinical Trials with DAPHNE System for Neuromotor Analysis and Physiological Monitoring also in Internet

David Rubinstein MD
Radiology & Ctr for Human Simulation, Univ of Colorado Health Sciences Ctr
Technical Considerations for the Use of Java in the Explorable Virtual Human

Mitsuaki Saito
Faculty of Environmental Information, Keio Univ
Feature Preserving Refinement of Surfaces for Web-based Surgical Simulation

Ashley Seehusen PhD
Mechanical Engineering, Univ of Bristol
Limits of Human Perception of Haptic Information in Laparoscopic Tools for Use in Simulation

Raj Shekhar PhD
Biomedical Engineering, The Cleveland Clinic Foundation
Interactive Visualization of Four-Dimensional Ultrasound Data

Joacim Staffors MD
Ear Nose Throat Dept, Sahlgrenska Universitetssjukhuset
Investigation of Patient Satisfaction with Telemedicine for a Multi-Disciplinary-Tumour Meeting (MDT)

Malte Stien, Dipl.-Ing.
MKG-Robotik, Charite - Campus Virchow Clinic
A System for Simulation and Monitoring of Robot-Assisted and Navigation-Assisted Surgical Interventions

Malte Stien, Dipl.-Ing.
MKG-Robotik, Charite - Campus Virchow Clinic
A New Approach for Modelling Kinematic Dependencies for Monitoring Locations of Objects in Closed Kinematic Chains

Bharti Temkin PhD
Dept of Computer Science, Texas Tech Univ
Internet-Based Virtual Reality for Visible Human

Bharti Temkin PhD
Dept of Computer Science, Texas Tech Univ
Volumetric Data Visualization

Thomas J. Terry, Jr. MS
Information Resource Development, New Jersey Inst of Technology
Electronic Disease Reporting and Management System (EDRMS)

Marcus Vetter, Dipl.-Ing. (FH)
Div. Medical and Biological Informatics, Deutsches Krebsforschungszentrum
Visualization and Attributon of Vascular Structures for Diagnostics and Therapy-Planning

Francesco Vincelli PsyD
Laboratorio Sperimentale di Psicologia, Istituto Auxologico Italiano
The Communication Between Therapist and Patient in Virtual Reality: The Role of Mediation Played by Computer Technology

Gerrit Voss, Dipl.-Inform.
Ctr for Advanced Media Technology, Nanyang Technological Univ
The Virtual Articulator - Simulation of Jaw Motion for Computer Assisted Occlusion Diagnosis

Anna L. Weaver MS
Office of Communication, Information, & Marketing, Research Triangle Inst
Usability Analysis of VR Simulation Software

Roger Webster PhD
Dept of Computer Science, Millersville Univ
Elastically Deformable 3D Organs for Haptic Surgical Simulation Applications

Jörg Wulf MD
Inst of Anatomy, Medical Univ of Lübeck
Stereolithography in Complex Surgery: Presentation of a Multicentric European Survey and Results of a Cadaver Study
Presentation Schedule

Terry S. Yoo PhD
National Library of Medicine, National Inst of Health
Template Guided Intervention: Transfer of Surgical Plans to the Operating Room Using Rapid Prototyping Technology

Liping Zhao MS
Lab. of Plastic Surgery, Shriners Hosp for Children
Finite Element (FE) Modeling of the Mandible: From Surface Model to the Tetrahedral Volumetric Mesh

THURSDAY EVENING 1/24/02

EXHIBITOR RECEPTION

6:30 PM to 7:30 PM

FRIDAY MORNING 1/25/02

GENERAL SESSION

Moderator: Suzanne J. Weghorst MA MS

8:00 Welcome

8:05 Kirby G. Vosburgh PhD
CIMIT/Mass General Hosp/Harvard Medical Sch
Moore's Law, Disruptive Technologies, and the Clinician

8:20 Nigel W. John PhD
Manchester Visualization Ctr, Univ of Manchester
The Provision of Interactive 3D Scanned Images in the Operating Theatre During Hepato-Pancreatic Surgery

8:35 Jon Harald Kaspersen PhD
Ultrasound Dept, SINTEF Unimed
Real-Time Ultrasound Integrated in a 3D Segmented Representation of the Lesion

8:50 Rainer M.M. Seibel MD
Inst of Diagnostic & Interventional Radiology, Univ of Witter/Herdecke
New Results of Image-Guided Surgery

9:05 Mark Ottensmeyer PhD
Simulation Group, CIMIT, Mass General Hosp
In Vivo Measurement of Solid Organ Visco-Elastic Properties

9:20 Leslie Hiemenz Holton PhD
Ctr for Human Simulation, Univ of Colorado Health Sciences Ctr
Measuring Shear and Stiffness Data During Live Patient Needle Insertion Procedures to Create Realistic Haptic-Feedback Models

9:35 Featured Speaker: Jaron Lanier
Chief Scientist, Advanced Network & Services, Inc.
Medical Simulation and Complexity Ceilings

10:00 Break

GENERAL SESSION (CONT.)

Moderator: Rainer M.M. Seibel MD

10:15 Dinesh K. Pai PhD
Computer Science, Univ of British Columbia
VirtualSuture: Real-Time Simulation of Surgical Sutures

10:30 Frank Sauer PhD
Siemens Corporate Research, Inc.
An Augmented Reality Visualization System for Ultrasound Guided Needle Biopsies

10:45 Daniel Bielsler, Dipl. Inf. Ing.
Computer Science Dept, ETH Zurich
Open Surgery Simulation

11:00 Jacob Rosen PhD
Dept of Electrical Engineering, Univ of Washington
The Blue DRAGON - A System for Monitoring the Kinematics and Dynamics of Endoscopic Tools in Minimally Invasive Surgery for Objective Laparoscopic Skill Assessment

11:15 Poster Bullet Presentations

11:35 Presentation of the Eighth Annual Satava Award

12:00 Break

FRIDAY AFTERNOON 1/25/02

SESSION A - SIMULATION AND SURGERY

Moderator: Greg T. Mogel MD

1:15 Sarika Phatak MS
Dept of Electrical Engineering, Univ of Texas at Arlington
Simulation of CO₂ Insufflation in Abdominal Cavity for Laparoscopic Surgery

1:30 James Mayrose PhD
Dept of Emergency Medicine, State Univ of New York at Buffalo
A Virtual Environment for Esophageal Intubation Training
1:45 Celine Paloc  
Dept of Biomechanics, Imperial College of Science, Technology and Medicine  
Soft Tissue Deformation Using Multi-Resolution Volumetric Mass-Spring Models

2:00 Mandayam A. Srinivasan PhD  
Touch Lab, Massachusetts Inst of Technology  
In-Vivo Force Response of Intra-Abdominal Soft Tissue for the Simulation of Laparoscopic Procedures

2:15 Lakshminarasimhan Raghupathi MS  
Dept of Electrical Engineering, Univ of Texas at Arlington  
Simulation of Bleeding During Laparoscopic Herniorrhaphy

2:30 Derek P.M. Wills BSc  
Computer Science, Univ of Hull  
A Generic Arthroscopy Simulator Architecture

2:45 Robert M. Sweet MD  
Dept of Urology, Univ of Washington  
The UW Transurethral Resection of the Prostate Simulator - A Practical Application of VR in Urology

3:00 Kevin N. Montgomery PhD  
Dept of Surgery, National Biocomputation Ctr, Stanford Univ  
Spring: A General Framework for Collaborative, Real-Time Surgical Simulation

3:15 Break

SESSION A (CONT.)
Moderator: Jannick P. Rolland PhD

3:30 Mandayam A. Srinivasan PhD  
Touch Lab, Massachusetts Inst of Technology  
Multimodal Simulation of Laparoscopic Heller Myotomy Using a Meshless Technique

3:45 Cynthia Bruyns MSME  
Real-Time Multi-Layered Surface and Volumetric Object Interactions Using Virtual Instruments

4:00 Jens P. Haase MD  
Medical Informatics and Image Analysis, Aalborg Univ  
Simulating the Puncture of the Human Ventricle

4:15 Gianluigi Zanetti PhD  
BMA, CRS4  
Mastoidectomy Simulation with Combined Visual and Haptic Feedback

4:30 James K. Hahn PhD  
Dept of Computer Science, The George Washington Univ  
Cryotherapy Simulator for Localized Prostate Cancer

4:45 Remis Balaniuk PhD  
Dept of Surgery, Stanford Univ  
Soft-Tissue Simulation Using LEM - Long Elements Method

5:00 Ying Li MSc  
Sch of Computing, Univ of Leeds  
Real-Time Soft Tissue Modelling for Web-Based Surgical Simulation

5:15 Edmond C. Prakash PhD PhD  
Sch Computer Eng, Nanyang Technological Univ  
A New Approach for the Synthesis of Glistening Effect in Deformable Anatomical Objects Displayed with Haptic Feedback

5:30 Adjourn

FRIDAY AFTERNOON 1/25/02

SESSION B - VISUALIZATION AND MODELING
Moderator: Michael J. Ackerman PhD

1:15 Karl Reinig PhD  
Ctr for Human Simulation, Univ of Colorado  
Continued Development of the Explorable Virtual Human

1:30 Jin Yong Kim, B.Agr  
Dept of Anatomy, Ajou Univ Sch of Medicine  
Visible Korean Human: Another Trial for Making Serially-Sectioned Images

1:45 Peter Oppenheimer MS  
Human Interface Technology Lab, Univ of Washington  
Virtual Image Grafting: Image Based Generation and Visualization of Virtual Skin Defects

2:00 Nick J. Avis PhD  
Ctr for Virtual Environments, Univ of Salford  
Data Acquisition Techniques for Creating a Library of Digital 3D Surface Representations of Pathology Specimens

2:15 Andreas Limberger MD  
Dept of General Surgery, Univ of Saarland  
3-Dimensional Visualization During Laparoscopic Abdominal Surgery with Dresden 3D's Display D40

2:30 Ann Elsner PhD  
Schepens Eye Research Inst/Ophthalmology, Harvard Medical Sch  
Imaging and Visualization of Pathology Beneath the Retinal Surface
2:45  Jonathan C. Silverstein MD FACS  
Ctr for Clinical Information, The Univ of Chicago Hosp  
Visualization of Conserved Structures by Fusing Highly Variable Datasets

3:00  Ganesh Sankaranarayanan MS  
Dept of Electrical Engineering, Univ of Texas at Arlington  
Adaptive Hybrid Interpolation Technique For Direct Haptic Rendering of Isosurfaces

3:15  Break

SESSION B (CONT.) – WORKSHOP

3:30  NextMed: Minds, Math & Machines Modulating Biology  
Dave Warner MD PhD, Co-Chair  
CNCR/MindTel/BioWuif  
Institute for Interventional Informatics  
Shaun B. Jones MD, Co-Chair

5:30  Adjourn

FRIDAY AFTERNOON 1/25/02

MENTAL HEALTH & REHABILITATION SYMPOSIUM

Brenda K. Wiederhold PhD MBA BCIA and Albert “Skip” Rizzo PhD, Symposium Co-Chairs  
Moderators: Sun I. Kim PhD and David Walshe MMed Sc, MRCPsych

8:30  Welcome  
Brenda K. Wiederhold PhD MBA BCIA  
The Virtual Reality Medical Ctr

8:40  Giuseppe Riva PhD  
ATN-P Lab, Istituto Auxologico Italiano  
The VEPSY-UPDATED project (IST-2000-25323): One-Year Update

8:55  Marcus F. Kuntze MD  
COAT Basel, Psychiatric Univ Clinic Basel  
Ethics and Values in a Virtual Environment

9:10  Martijn Schuemie MSc  
Dept of Mediamatics, Delft Univ of Technology  
Exploratory Design and Evaluation of a User Interface for Virtual Reality Exposure Therapy

9:25  Brenda K. Wiederhold PhD MBA BCIA  
The Virtual Reality Medical Ctr  
Refining the Physiometric Profile in Virtual Reality Treatment

9:40  Jose Antonio Lozano Quilis MD  
MedIClab, Univ Politécnica Valencia  
Virtual Food in Virtual Environments for the Treatment of Eating Disorders

9:55  Dong Pyo Jang  
Biomedical Engineering, Hanyang Univ  
An Investigation of Immersiveness in Virtual Reality Exposure Using Physiological Data

10:10  Break

MENTAL HEALTH SYMPOSIUM (CONT.)

Moderators: Brenda K. Wiederhold PhD MBA BCIA

10:30  Jose Antonio Lozano Quilis MD  
MedIClab, Univ Politécnica Valencia  
Simulation of Physiologic Reactions in Virtual Environments for the Treatment of Agoraphobia

10:45  Stéphane Bouchard PhD  
Cyberpsychology Lab, Univ of Quebec at Hull  
Using 3D Computer Games to Conduct VR Exposure for Phobias

11:00  Francesco Vincelli PsyD  
Lab Sperimentale di Psicologia, Ist Auxologico Italiano  
Cognitive Behavioral Therapy Virtual Reality Assisted for the Treatment of Panic Disorders with Agoraphobia: VR vs. Traditional Through Two Case Reports

11:15  David Walshe MMed Sc, MRCPsych  
Dept of Psychiatry, U.C.C. Cork/St Stephens Hosp, Cork  
Computer Games and VR in the Treatment of Accident Phobia

11:30  Hunter Hoffman PhD  
Human Interface Technology Lab, Univ of Washington  
Virtual Reality Monitoring: Distinguishing Memories of Real Events from Memories of Virtual Events

11:45  Mark D. Wiederhold MD PhD FACP  
The Virtual Reality Medical Ctr  
Why Patients Do Not Respond to Virtual Reality Therapy

12:00  Break

MENTAL HEALTH SYMPOSIUM (CONT.)

Moderators: Stéphane Bouchard PhD and Hunter Hoffman PhD

1:30  Welcome - Albert Rizzo PhD
1:40  Albert Rizzo PhD  
Integrated Media Systems Ctr, Univ of Southern California  
A Review of VR Assets for Mental Health Applications

1:55  Robert H. Reiner PhD  
Behavioral Associates & New York Univ Medical Ctr  
Dual Utilization of GSR and RSA Feedback with Virtual Reality Treatment to Reduce Fear of Flying

2:10  Shannon B. McGee  
The Virtual Reality Medical Center  
The Impact of Absorption, Hypnotizability, and Dissociation on Presence and Immersion

2:25  Warren Couvillion MS  
Training Systems and Simulators Division, Southwest Research Inst  
Navigation by Walking Around: Using the Pressure Mat to Move in Virtual Worlds

2:40  Erik Virre MD PhD  
Surgery and Cognitive Science, Univ of California, San Diego  
Using Virtual Reality for Vertigo Treatment and Research: Lessons Learned

2:55  Chantal Larocche PhD  
École des sciences de la réadaptation, Univ d’Ottawa  
Development of Automated Tools to Assess Communication Abilities in the Workplace

3:10  Break

MENTAL HEALTH SYMPOSIUM (CONT.)  
Moderator: Albert Rizzo PhD

3:30  Mimi Tse RN BSN MSc  
The Hong Kong Polytechnic Univ  
The Application of Eye Glass Displays in Changing the Perception of Pain

3:45  Joan McComas PhD PT  
Sch of Rehabilitation Sciences, Univ of Ottawa  
Effectiveness of Virtual Reality for Promoting Children’s Pedestrian Safety

4:00  Baekhwan Cho  
Dept of Biomedical Engineering, Hanyang Univ  
Clinical Test for Attention Enhancement System

4:15  Todd Bowerly MA  
Fuller Graduate Sch of Psychology  
The Virtual Classroom: A Virtual Reality Environment for Attention Deficit Hyperactive Disorder Assessment

4:30  Adjourn

FRIDAY EVENING 1/25/02

THE MODIFIED CYBERARIUM

6:30 PM to 8:30 PM

SATURDAY MORNING 1/26/02

GENERAL SESSION  
STEREOCOPIC (3D) PROJECTION

“The Third Annual BARCO Stereoscopy Demonstration”

Wm. LeRoy Heinrichs MD PhD, Session Chair

8:00  Welcome & Explanation of Technology  
Wm. LeRoy Heinrichs MD PhD  
Dept Ob-Gyn/SUMMIT, Stanford Univ Sch of Medicine

8:02  Andrew Joel  
Market Development Manager, Virtual and Augmented Reality  
BARCO Simulation Products

8:04  Almos Elekes PhD  
Medical Director, SGI

8:06  Johneric “Jet” Tanner  
Business Manager, Southwest  
Ciprico, Inc.

8:08  Moderator: Steven Senger PhD

8:10  Nigel W. John PhD  
Manchester Visualization Ctr, Univ of Manchester  
Using Stereoscopy for Medical VR

8:23  Victor M. Spitzer PhD  
Ctr for Human Simulation, Univ of Colorado Sch of Medicine  
The Functional Anatomy of the Visible Human: Volume One - The Head and Neck

8:37  Don Stredney  
Interface Laboratory, OSC  
Temporal Bone Dissection Simulation - An Update

8:50  Luis Serra PhD  
Volume Interactions Pte Ltd  
The DextroBeam: A Stereoscopic Presentation System for Volumetric Medical Data

9:03  Assad F. Mora DDS, MSD  
Inst of Microdentistry  
3D-Video for Real-Time Visualization in Microdentistry
Presentation Schedule

9:16 Eric Herbranson DDS
Sch of Dentistry, Univ of the Pacific, California
The Virtual Tooth Atlas: A New Paradigm in Dental Anatomy Visualization

9:29 Warren Viant BSc
Dept of Computer Science, Univ of Hull
Enhanced Stereographic X-Ray Images

9:42 Sakti Srivastava MD
SUMMIT, Stanford Univ Sch of Medicine
3D Biomechanical Hand Model

9:55 Discussion

10:00 Break

10:25 GENERAL SESSION (CONT.)
   Moderator: Nigel W. John PhD

10:27 Peter Heinze, Dipl.-Inform.
   Inst for Process Control & Robotics, Univ of Karlsruhe
   Realtime Textured 3D-Models for Medical Applications

10:40 Steven Senger PhD
   Computer Science, Univ of Wisconsin - La Crosse
   Haptic Feedback to Facilitate Interactive Segmentation of Volumetric Data Sets

10:53 Nick J. Avis PhD
   Ctr for Virtual Environments, Univ of Saltford
   Visual Display Systems and Software Architectures for the Display of 3D Surface Representation of Pathology Specimens and Virtual Organs in a Teaching Environment

11:06 Wm. LeRoy Heinrichs MD PhD
   Dept Ob-Gyn/SUMMIT, Stanford Univ Sch of Medicine
   Bimanual Surgical Manipulations on a Surgical Workbench with Lucy 2.6, A Complete Stereoscopic, Deformable Pelvic Model

11:19 Dr. rer. nat. L. Miguel Encarnação
   Human Media Tech, Fraunhofer CRCG, Inc.
   "Putting It on the Table" - Direct-Manipulative Interaction and Multi-User Display Technologies for Semi-Immersive Environments and Augmented Reality Applications

11:32 Michael J. Mastrangelo Jr, MD
   Ctr for Minimally Invasive Surgery, Univ of Kentucky College of Medicine
   Advancements in Immersive VR as a Tool for Preoperative Planning for Laparoscopic Surgery

11:45 Bharti Temkin PhD
   Dept of Computer Science, Texas Tech Univ
   Networked Stereoscopic Haptic Virtual Environment Systems: Real-Time Issues

11:58 Nikhil Gagvani PhD
   Sarnoff Corporation
   Reshaping Medical Volumetric Data for Enhanced Visualization

12:11 Discussion

12:20 Break

SATURDAY AFTERNOON 1/26/02

SESSION A - OBJECTIVE ASSESSMENT AND SURGICAL SIMULATION

1:30 Nathan J. Oelsohn PhD
   Mechanical and Aerospace Engineering, Univ of California San Diego
   Expert Skill Acquisition for Improved Laryngoscopy Training

1:45 Harrith M. Hasson MD
   Dept of OB/GYN, Weiss Hosp-Univ of Chicago
   Experience with the Laparoscopy Training Simulator 2000 (LTS 2000)

2:00 Teodor Grantcharov MD
   Dept of Surgical Gastroenterology, Copenhagen Univ, Hvidovre Hosp& Aarhus Univ Hosp
   Teaching and Testing Surgical Skills on a VR Laparoscopy Simulator - Learning Curves and Effect of Previous Operative Experience on Performance

2:15 Anthony G. Gallagher PhD
   Dept of Psychology, Queen's Univ Belfast
   Optimal Training Strategy for Laparoscopic Psychomotor Skill Acquisition and Reliability and Validity of the MIST VR System

2:30 Louise Moody BSc
   Dept of Electronic, Electrical & Computer Engineering, The Univ of Birmingham
   Objective Surgical Performance Evaluation Based on Haptic Feedback

2:45 Alan Lomax MD
   Sch of Kinesiology, Simon Fraser Univ
   On Defining Metrics for Assessing Laparoscopic Surgical Skills in a Virtual Training Environment

3:00 Paul B. McBeth BSc
   Dept of Mechanical Engineering, Univ of British Columbia
   Quantitative Methodology of Evaluating Surgeon Performance in Laparoscopic Surgery

3:15 Break
SESSION A (CONT.)
Moderator: Anthony G. Gallagher PhD

3:30  Pedro Ballestero FRCS
Univ Dept of Surgery, Manchester Royal Infirmary
Comparison of Stress and Workload of a Virtual
Reality Simulator (MIST2) and Laparoscopic
Cholecystectomy

3:45  Randy S. Haluck MD FACS
Dept of Surgery, Penn State College of Medicine
Reliability and Validity of EndoTower, A Virtual
Reality Trainer for Angled Endoscope Navigation

4:00  Jan Sigurd Rønnes MD PhD
SimSurgery, Rikshospitalet, Oslo
A Pedagogic Platform Suitable for Surgical
Simulator Training - SimMentor

4:15  Kanthi Kiran MD
Dept of Surgery, Stanford Univ
Simulated Bronchoscopy as a Valid tool for
Measuring Proficiency at Clinical Bronchoscopic
Procedures

SESSION A (CONT.)
Moderator: Roger Phillips PhD MBCS

4:30  Ramin Shahidi PhD
Image Guidance Laboratories, Stanford Univ Sch of
Medicine
Advancing Clinical Relevance for Volumetric
Image-Based Surgical Navigation

4:45  Daniel B. Karron PhD
Computer Aided Surgery, Inc.
Anatomic Computer Modeling for Precise and
Accurate Therapies

5:00  Terry S. Yoo PhD
National Library of Medicine, National Inst of Health
Engineering and Algorithm Design for an Image
Processing API: A Technical Report on ITK - The
Insight Toolkit

5:15  Adjourn

SATURDAY AFTERNOON 1/26/02

SESSION B - WORKSHOPS

1:30  Healthcare Informatics: The Vision, The
Technologies, The Funding
Jayne Orthwein, Chair
Advanced Technology Program/National Institute of
Standards and Technology

3:15  Break

3:30  Picture Archiving and Communication Systems
(PACS)
Heinz U. Lemke PhD, Chair
Institute for Technical Informatics, Technical University
Berlin

5:30  Adjourn

SATURDAY AFTERNOON 1/26/02

SESSION C - WORKSHOPS

1:30  Teaching Old Docs New Tricks:
Challenges and Solutions for Teaching Health-
care Providers to Utilize New Technologies as
Knowledge Managers and Integrators in the
Emerging e-Health Paradigm
David R. Blair MD, Chair
Reynolds Army Community Hospital (Ft. Sill, OK) /
Wireless Medical Enterprise Working Group, TATRC

3:15  Break

3:30  Critical Care: A Web-based, Interactive 3D
Immersion into a Real-Time Environment —
Defibrillation/Cardioversion Modules
Marly Bergerud, Chair
Vice President, Workforce and Economic Development
DeAnza College, Cupertino, CA

5:30  Adjourn

SATURDAY MORNING 1/26/02

MENTAL HEALTH & REHABILITATION
SYMPOSIUM

Moderators: Giuseppe Riva PhD and Prof. Alberto
F. Rovetta

8:25  Welcome

8:30  Giuseppe Riva PhD
ATN-P Lab, Istituto Auxologico Italiano
Virtual Reality and Telemedicine-Based Experien-
tial Cognitive Therapy for the Treatment of Eating
Disorders

8:45  Stéphane Bouchard PhD
Cyberpsychology Lab, Univ of Quebec at Hull
Telehealth for Anxiety Disorders
9:00  Lamberto Piron MD  
Dept Neurology and Psychiatry, Univ of Padova  
Virtual Environment System for Motor Tele-Rehabilitation

9:15  Grigore Burdea PhD  
Electrical & Computer Engineering, Rutgers Univ  
Shared Virtual Environment for Telerehabilitation

9:30  Kuldeep Singh MBBS MD DM  
Dept of Pediatrics, B P Koirala Inst of Health Sciences  
Multimedia Rich Web Page as a Means for Online Consultation in Remote Area

9:45  Martin Rydmark MD PhD  
Mednet & Sahlgrenska Academy, Göteborg Univ  
Stroke Rehabilitation at Home Using Virtual Reality, Haptics and Telemedicine

10:00 Break

MENTAL HEALTH SYMOSIUM (CONT.)
Moderators: Erik Viirre MD PhD & Walter J. Greenleaf PhD

10:30  Brenda K. Wiederhold PhD MBA BCIA  
The Virtual Reality Medical Center  
Evaluation of Stress Responses in Virtual Environments

10:45  Jeonghun Ku  
Biomedical Engineering, Hanyang Univ  
Development and Clinical Trial of Driving Simulator for the Handicapped

11:00  Ling Zhang MD  
Sch of Allied Health Science/TLC, Univ of Texas Medical Branch  
Virtual Reality Environments as Settings for Evaluation of Cognitive Function in Brain Injury Rehabilitation: Reliability and Validity

11:15  Prof. Alberto F. Rovetta  
Dept of Mechanics, Politecnico di Milano  
Protocols for Clinical Tests on Parkinson Disease Affected Persons and Comparison with Healthy People with a Quantitative Method of a New System, DAPHNE

11:30  Maria Schultheis  
Kessler Med Rehab Research & Educ Corp  
The Virtual Office: Assessing and Re-Training Vocationally Relevant Cognitive Skills

11:45  Corinna Lathan PhD  
AnthroTronix, Inc.  
Gestural Interface Technology and Interactive Robotics

12:00 Break

MENTAL HEALTH SYMOSIUM (CONT.)
Moderators: Martijn Schuermie MSc and Kimberly R. Swinth

1:30 Welcome

1:35  Mark D. Wiederhold MD PhD FACP  
The Virtual Reality Medical Ctr  
The Use of Robots During Therapy

1:50  David Thomas PhD  
Translational Research Branch, National Inst on Drug Abuse  
Funding Opportunities at the National Institute of Drug Abuse and the National Institutes of Health for Virtual Reality-Based Treatment Research

2:05  Kurt Augustine  
Biomedical Imaging Resource, Mayo Clinic/Foundation  
An Immersive Simulation System for Provoking and Analyzing Cataplexy

2:20  Cheryl Trepagnier PhD  
Rehabilitation Engineering Service, National Rehabilitation Hosp  
More Evidence of Atypical Face Gaze in Autism, and Implications for Intervention

2:35  Ken Graap  
Virtually Better, Inc. / Dept Psychology, Emory Univ  
Virtual Reality Based Exposure for Combat Related PTSD

2:50  Kimberly R. Swinth  
Dept of Psychology, Univ of California, Santa Barbara  
The Social Lives of Avatars

3:05 Break

3:30  Albert Rizzo PhD  
Integrated Media Systems Ctr, Univ of Southern California  
Immersive HMD 360 Degree Panoramic Video Environments for Exposure Therapy and Anger Management

3:45 Discussion – Moderator: Mark D. Wiederhold MD PhD FACP

4:30 Adjourn