CONFERENCE PROGRAMME

Thursday 3 May 2001

Plenary

Professor Edward H Shortliffe
Professor and Chairman, Department of Medical Informatics, Columbia University, New York City
Networking Health: Prescriptions for the Internet

Dr Astrid van Ginneken
Erasmus University, Rotterdam, The Netherlands
Pros and cons of medical record structures for capture, consultation and extraction of patient data

Dr Heather Heathfield
Manchester University, Senior Consultant IT Perspectives Ltd
The Evaluation of Clinical Decision Support Systems

Scientific Sessions

Medical Informatics

Modelling of the Visual Sleep Stage Scoring Procedure by a Modular Algorithm Based on Elements of Artificial Intelligence - Artisana
Matthias Schwaibold, B Scholler, T Penzel, A Bolz
Evaluating the Accuracy of Intelligent Systems Designed For Medicine
Ann E Smith, Sally McClean, Chris Nugent
Intelligent Algorithm to Counting and Classification of Cells
Allan De Medeiros Martins, A D N Duarte, A M Brito, A Sales, S Jane
Building Bayesian Belief Networks to Express the Cause and Effect Relationship for Dietary Intake and Pregnancy
Roy Sterrit, D A Bell, A H Marshall, A Moore, P R Flatt, M J Eaton-Evans, D Mccance
Predicting Patient Survival Using Bayesian Belief Networks
Adele Marshall, S I Mcclean, P H Millard, C M Shapcott
An Internet-Based Project All-Net: Technology Of Scientific Collaboration
Alexander Martynenko, Xavier Pastor, Dominique Biarent, Francis Leclerc, Oleg Medvedev, Joan Iglesias, Joseph Di Carlo

Tissue Engineering and Artificial Organs

Artificial Myocardial Tissue (AMT); A Novel Contractile Engineered Heart Muscle
Theo Kofidis, MD, P Akhyari, U Martin, J Boublik, P Theodorou, A Ruhparwar, T Kraft, H P Kubis, B Brenner, G Gros, A Haverich
Development of Pulsatile Bioreactor for the in vitro formation of tissue engineered heart valves
Kris Dumont, P Segers, S Vandenberghe, B Meuris, J Yperman, W Flameng, P Verdonck
Endothelialization of cardiovascular grafts Polydimethylsiloxane content affects adhesion and growth of endothelial cells onto polyurethane grafts
Giorgio Soldani, E Briganti, P Losi, I Martinelli
Characterisation of cardiac assist devices
Stijn Vandenberghe, P Segers, D De Wachter, P Verdonck
Hemodynamic aspects of Ventricle Assist Device
Idit Avrahami, S Einav, M Rosenfeld, K Affeld
Flow Visualization - Experiments with a geometrically-optimised vortex blood pump
Clare E Canal, A M Anderson, J R Shanebrook

Medical Imaging 1

Machine vision and texture analysis for the automated identification of tissue pattern in prostatic neoplasia
James Diamond, Neil H Anderson, Peter H Bartels, Rodolfo Montoroni, Peter W Hamilton
List-Mode Iterative Reconstruction for SPECT
Luc Bouwens, M Koole, Y D'Asseler, S Vanderberghe, R Van de Walle, I Lemahieu
Segmentation of Hippocampus From MR Images Using Geometric Models
Jan Klemencic, MSC, Vojko Valencic, Nuška Pecaric
Skull smearing effect on event related potentials investigated with a resistor mesh model
Xavier Franceries, B Doyon, B Rigaud, J P Morucci, P Celsis, B Doyon
Three-dimensional geometric sensitivity correction in triple-headed gamma camera coincidence imaging: Separability properties
Yves D'Asseler, Stefaan Vandenberghe, Michel Koole, L R Bouwens, Rik Van de Walle, Ingace Lemahieu, Rudi A Dierckx
Correction for the varying detection efficiency in gamma camera based coincidence detection
Steffan Vandenberghe, Y D'Asseler, R Van De Walle, I Lemahieu, R A Dierckx

Computers in Medicine

Animated Uroembryology: The millennium modality
H C Godbole, J P Hermon, T H Lynch
A Labview Program for measuring Auditory Evoked Potentials
J M Jimenez-Martínez, F J Gil ,J Roca, J A Alvarez

First clinical experience with a personalised titanium membrane for bone reconstruction in tumour surgery
Veerle Pattijn, I Samson, J Vander Sloten, R Van Audekercke, B Swaelens, V De Buck
The Application of Pressure Mapping Techniques to Evaluate Commercially Available Pressure Relief Cushions
May Stinson, Alison Porter-Armstrong
Introducing a Clinical Information System: Re-engineering Patient Care in Cardiac Surgery
Fran Hegarty, Gery Boyle, Mary O'Connell, Barry Fanning, Kate Bentley, Tom Ryan, Ailish McGovern

Biomaterials

Determination of the Quality of Calcium Phosphate Bioceramics
Adrian Boyd, M Akay, B J Meenan
Modification of medical implants by plasma immersion ion implantation
Robert Sader, S Mändl, D Krause, H F Zeilhofer, G Thorwarth, B Raushenbarch
The effects of sub optimal doses of mitomycin C on transitional cell carcinoma
H C Godbole, T H Lynch, N H Anderson, S R Johnston, P F Keane, P W Hamilton, K Arthur, K E Williamson
The role of electrical properties and surface energy on the biocompatibility and haemocompatibility of Si-DLC films
Thomas Okpalugo, A Ogwu, P Maguire, J McLaughlin
Control of Surface Morphology in Calcium Phosphate Thin-Films Deposited by Sputter Deposition
Brian J Meenan, M Akay, A Boyd

Medical Imaging 2

Multidimensional Images of Medical Data by Mathematical Registration Methods
Wolfgang Hauck, H F Zeilhofer, Z Krol, E Keeve, R Sader, K H Hoffmann, C Ganter, E Rummeney, N Avril, M Schwaiger
Detection of Glutathione in the Human Brian in vivo by Means of Double Quantum Coherence Magnetic Resonance Spectroscopy
Dieter Meier, P Boesiger, U Dydak
Study of the Quantification of FBP ECT Images with a correction for partial volumn effects
Michel Koole, R Van de Walle, K Van Laere, Y D'Asseler, S Vandenberghe, I Lemahieu, R A Dierckx, L R Bouwens
An Interpolation of RI Image by Means of 2D Interpolating Digital Filter
Janusz Pawel Kowalski
Image Processing in Artificial Human Vision Systems
Justin Boyle, Anthony Maeder, Wageeh Boles

Friday 4 May 2001

Plenary

Prof Shankar Subramaniam
University of California, San Diego
Bioinformatics: At the Crossroads of Biology, Engineering and Medicine

Professor Jan H van Bemmel
Erasmus University, Rotterdam, The Netherlands
Computer Interpretation of the ECG: Representation for Decision Support in Medicine

Professor J McC Anderson
University of Ulster, Northern Ireland
Cardiac Mapping as an Effective Tool in the Early Diagnosis of Acute Myocaridal Infarction

Scientific Sessions

Technology for Assessment and Homecare

Application of Image Analysis to Detection of Tubercle Bacilli in Stained Human Sputum
Patrick Felle, D Fitzgerald, T Murray, P Dervan, D O'Shea
Ultrasonic Velocity of Uterine Tumours
V R Singh, Kirti (Ghandhi) Bhatia
Assessment of Leg Ulcer Color Images Through Digital Image Processing
Andres Anobile Perez, Adilson Gonzaga
Development of a multimedia software application to help carers cope with caring problems
Mary Chambers, S Connor, M McGonigle, M Diver
Technology to enhance the quality of life of family carers: the ACTION project
Lennart Magnusson, M Chambers, H Berthold, E Hanson, L Brito, T Daly
An IT Approach to the Control and Management of Medication in the home; Requirements Analysis
Chris Nugent, N D Black, P Fiorini

Biosignals, Biosensors and Bioinformatics

Solving the direct problem of a nonlinear impedance equivalent circuit model
Jacques Jossinet, Eric T McAdams
Nonlinear Dynamics - From Conformons to Human Brain
Wlodzimierz Klonowski, E Olejarczyk, R Stepien
Cellular separation by dielectrophoresis
Josep Samitier, R Casanella, O Ruiz, M Carmona, A Juárez, J Bausells, A Errachid

Potentiometric method for Triglycerides Determination
Dorota G Pijanowska, W Torbicz
Design of a urethral multi-electrode impedance probe
Jacques Jossinet, Emmanuel Marry
Analysis and Interpretation of Complex HPLC/MS Spectra for Drug Discovery
Huiru (Jane) Zheng, S McClean, P C Ojha, N D Black, J G Hughes, C Shaw

Cardiovascular System

Multi Layer Perceptron for the Prediction of Ventricular Repolarisation in Function of the Changes of Heart Rate
Rajai El Dajani, M Miquel, M C Forlini, P Maison-Blanche, J Fayn, P Rubel
Non-invasive analysis of haemodynamics in adolescents at rest and during exercise
Koen Matthys, Patrick Segers, Henri Verhaaren, Pascal Verdonck
Pulse Wave Velocity Measurement – The Deformation of Arterial Wall Incurred by Pulsatile Flow
David Leitermann, Lubomír Poušek, Petr Volhejn, Michal Tota, Svatava Konvi ková
A method of left heart ventricle contractility investigation
Juliusz L Kulikowski, Malgorzata Przytulska, Diana Wierzbicka
An Implantable Monophasic/Biphasic Atrial Defibrillation System Using Transcutaneous RF Power Delivery
Jose A Santos, G Manoharan, N E Evans, J McAnderson, B J Kidawi, J D Allen, A A Adgey
A new approach to the holter events classification based on application of wavelet neural network
Ewaryst Tkacz, A Wrze niowski, P Kostka

Expert and Decision Support Systems

Automated Explanation of Attribute Relevance in Decision-Tree Induction
David McSherry
Blood dynamics control in anaesthesia by complex systems engineering
Aldo Esposito, P Costa, M Magliulo
Prediction models for the design of neural networks for myocardial infarction classification: A genetic programming approach
Jesus A Lopez, C D Nugent, A E Smith, N D Black
A computer-based training system for breast fine needle aspiration cytology.
James Diamond, Neil H Anderson, Deborah Thompson, Peter H Bartels, Peter W Hamilton
Continuous Wavelet Transforms reveal the rich structure of ventricular fibrillation
Paul Addison, James N Watson, Gareth R Clegg, Colin E Robertson, Michael Holzer, Fritz Sterz

Rehabilitation

From medical specifications to switching control implementation for a training and rehabilitation machine for the lower limbs
Janan Zaytoon, L Afilal, S Moughamir, N Manamanni

Combined magnetic and electric stimulation of peroneal nerve
Eugene Coyle, Prof Annaraoi de Paor, Dr Carl Murray, Mr P Murray, D Curley
Robotic orthosis improves treadmill training of paraplegic patients
Gery Colombo, Reinhard Schreier, Volker Dietz
Influence of walking speed, stride length and posture on ground reaction vertical force during human gait
Julio Cesar Politti, Xavier Savatier, Jean-Yves Ertaud
Responsibilities and involvement of players in the development of successful medical products
Chris J Snijders, I P M Griffioen-van Dijk, E Vlaaderen, C D Augustijn

Instrumentation and VR

Study of Magnetic Three-Dimensional Localizer for Endoscope
Huiru (Jane) Zheng, D Lin, X Chen, J G Hughes, N D Black
PathFinder: a new Image Guided Robot for Neurosurgery
Patrick A Finlay
Instrumentation and algorithms for monitoring cognitive task performance
Paul J McCullagh, R Howard, Lim Ai Lian, C Misir
Application of CNC Milling and Reverse Engineering for the Manufacture of Titanium Cranioplasty Implants
Wesley McKnight, J Winder, B Lewis
The idea of virtual lungs application to ventilatory support testing
Maciej Guc, T Golczewski, M Kozarski, M Darowski

Saturday 5 May 2001

Plenary

Professor Michael Brady
Professor of Information Engineering, University of Oxford
Image Analysis for the Diagnosis and Treatment of Breast Cancer, Quantitative Analysis of Cardiac Ultrasound and Degenerative Brain Disease

Professor David Hawkes
Guy's Kings and St Thomas' Hospitals Medical Schools, London
Image Registration, including non rigid applications

Dr Andrew Barr
Director, Marturion Ltd
Innovative Medical Instrumentation: an Industrial Perspective

Scientific Sessions

Telemedicine

A Framework to Support 3D Telemedicine Applications

Heather Sayers, S Wilson, M D J McNeill
Development of a High-Performance ISDN to ATM Telemedicine Gateway in Support of the NCI All Ireland Cancer Consortium
Kenneth M Kempner, D Chow, J E Elson, F S Govern, M E Steele, R L Martino
A compression-decompression client-server architecture supporting the progressive transmission of medical images included in web-documents
A Salomie, R Deklerck, J Cornelis
Computer Supported Collaborative Medical Diagnosis
Hyxia Villegas, Guillermo Montilla, Ana Aguilera, Basel Solaiman, Raphel Pacheco, Fabian Cardenas, Jose Quintero, Antonio Bosnjak
Communication Reliability in Home-Care Telemetry using the 1800 MHz GSM Network
Stelios Troulis, N E Evans, W G Scanlon
A New image Compression Method for Telemedicine Using Statistical Characteristics of Wavelet Coefficients
Hou Wensheng, Wu Baoming, Peng Chenlin

Cardiovascular Biomechanics

The Effects of Arterial Wall Remodelling on the Wall Shear Stress Distributions in Vascular Bypass Grafts
Thomas O'Brien, Michael Walsh, Tim McGloughlin
Mathematical model of the cardiovascular mechanics
Alexander Martynenko, B Kantor, M Yabluchansky
Finite element analysis to quantify tissue prolapse within three designs of cardiovascular stents
Caitriona Lally, F Dolan, P J Prendergast, T C Lee, D Quinn
Application of Neural Networks to flexible solid state Ion Selective Sensor Arrays for the Detection of Myocardial Ischemia
Norbert Pilz, Mark Hyland, James McLaughlin, Eric McAdams
A completely magnetically Ievitated Axial-Flow Blood Pump: results from pre-clinical applications
Johannes Müller, Ali Kilic, Yo-gou Weng, Peter Nüsser, Hans-Erhard Peters, Kurt Graichen, Andreas Arndt, Werner Neumann, Georg Konstas, Jörg Müller, Hendrik Heinze, Jan Hoffmann, Tobias Merkel, Conrad Kauffeldt, Peter Göttel, Frank Deus, Ines Goebel, Roland Hetzer
Experimental Evaluation of the Migration of Aortic Stent Grafts
Liam Morris, Timothy McGloughlin, P Delasus

Biomedical Processing and Modelling

Application of Bioimpedance to in vivo breast cancer detection
Nicolas Chauveau, P Martel, S Freitas, B Rigaud, J P Morucci
Determination of EEG activity propagation during voluntary finger movement
Katarzyna J Blinowska, J Ginter Jr, M Kami ski
In vivo measurement of the skull conductivity: EIT versus SEP/SEF
Sonia Isabel Gonçalves, J C de Munck, J P A Verbunt
Automatic Detection of Sleep Stages using the EEG
Peter Van Hese, W Philips, J De Koninck, R Van de Walle, I Lemahieu
Mathematical model of autonomic nervous systems
Alexander Martynenko, M Yabluchansky, B Kantor
Construction of a model of the torso for ECG problems based on CAD tools and images of the human body
Cesar Navarro, J Anderson, J Allen, J Toro, J Riddell, A A J Adgey

Technology for People with a Disability

Espastics Filtering Interface for Technical Aids Switches. A hardware approach
Joqauin Roca Dorda, J Roca Jr, A Mateo, J A Villarejo
Tele-homecare in an urban area utilising commercially available technology
Suzanne Martin
Phone Communication by Means of Synthetic Speech for Deaf-Mute People
Darius Wloskowicz, K Lukaszewicz, K W Radecki
Creative Interfacing - The Development of appropriate assistive technologies for real-time music performance
Michelle McCormack, C D Nugent, R J Davis, N D Black
ESOT Radio frequency beacon systems as the mobility aid for the blind
Konrad Lukaszewicz, J L Kulikowski, D Wloskowicz, K W Radecki, W Kazubski, T Buczkowski

Bone and Joint Biomechanics

Changing of the micro-mechanical properties of bone after x-ray irradiation
Hans-Joachim Hein, I Eckardt, S Henning, F Syrowatka
Microcrack Accumulation during Fatigue Testing of Compact Bone
Fergal J O'Brien, D Taylor, Clive T Lee
Hardness and elasticity modulus of bone compartments of the femur head measure by microindentation
Hans-Joachim Hein, R Wolff, W Fräenzel, P Grau
Multiaxial Fatigue of acrylic bone cement
Patrick Prendergast, B P Murphy
Reconstruction of zygomas with medical image based, custom made PMMA implants
Geert Jans, J Vander Sloten, R Gobin, G Van der Perre, M Mommaerts, K Wouters

Cardiovascular Imaging and Instrumentation

New Method of Transesopheageal Signal Filtering During Noninvasive Electrophysiological Study of the Heart Conductive System
Kazimierz Peczalski, D Wojciechowski, Z Niedbalski, M Kowalewski, P Sionek, G Skoczylas, M Stopczyk
Application of Optoelectronic Methods in Monitoring of Chemical Sympathectomy
Piotr Lukasiewicz, A Liebert, W Raciborski, W Staszkiewicz, R Maniewski
Near Infrared Spectroscopy for Monitoring of Cerebral Oxygention During Carotid Surgery
Roman Maniewski, A Liebert, A Gabrusiewicz, A Zbie , D Gawlikowska, W Staszkiewicz
Scanning Electrical Conductivity Interfaces by Means of Ultrasound in Magnetic Field
A Montalibet, J Jossinet, A Matias
Design of Speckle Denoising Filter using Wavelet-Based Thresholding for Medical Imaging Application
Su Cheol Kang

Posters

Health Information Systems

Coronary Tree Modelling with Iterative Function Systems using a genetic algorithm
Jesus A Lopez, C D Nugent, N D Black
An electro-oculogram based human-computer interface for the disabled
Jesus A Lopez, N D Black, C D Nugent, Kl Ziri-Castro
A human-computer interface to assist in the development of musical devices for physically impaired students
Chris Nugent, R J Davies, N D Black, M McCormack
Quantum Informatics
Mark McCartney, D Glass
Optimization of the Thermal Protective Clothing using a Knowledge Bank Concept and a Learning Expert System
Laure Schwenzfeier, B Warme-Janville, G Delhomme, A Dittmar
Image Display Management for Telecare Applications
Fionn Murtagh, Mohsen Farid
The Learning and Teaching Support Network - Promoting Innovation and Good Practice in Health and Medical Informatics
Sylvia Alexander, Margaret Sills, Megan Quentin-Baxter
A neural network prediction model to assist in the design of myocardial infarction classifiers
Chris D Nugent, J A Lopez, A E Smith, N D Black
Barriers To Evidence Based Practice - The dependence on medical informatics
George Kernohan
Home Control System for the Social Integration of Disabled People
Joaquin Roca Dorda, Jose A Vera, Manuel Jimenez

Bioengineering

A comparative study of three techniques for QRS cancellation in the ECG
Omar J Escalona, M A Diaz, A I Hernández, F Mora
Medical image based personalised tibial component: biomechanical evaluation
Veerle Pattijn, J Vander Sloten, R Van Audekercke, B Swaelens, G Isaac

Medical Imaging & Instrumentation

The Design of a Compact, Multi-element Test Object for Use in Monte Carlo calculations in diagnostic radiology
Jing Ning, K Cranley, S McClean
Medical engineering technologies for diagnosis and correction of higher mental function in children and adolescents
Evgeni Matveev, V A Viktorov, G I Kavalerov
DSC (Digital Scan Converter) - Error-Free Beamforming Method for Ultrasound Imaging
JaeSub Hwang, Tai-kyong Song
Application of indicator dilution method for non-invasive cardiac output measurement
Maciej Guc, Artur Szczepanski, Jacek Jastrzebski, Tadeusz Palko, Andrzej Ksiazkiewicz
Limits of spline interpolation in event related potential mapping
Nicolas Chauveau, X Franceries, B Doyon, B Rigaud, J P Morucci, P Celsis
Selected algorithms for the computer analysis of microscope scans in the system for early detection of the urinary bladder cancer
Pawel Jaszczak, A Dulewicz, A Nechaj, D Pietka
Digital HDTV for Improved Image Quality of Endoscopes
Peter Niederer, J Häfliger, P Blessing, Y Lehareinger, D Doswald, N Felber
The New Approach to Evaluation of Vasovagal Syncope Patients Treated by Pacing of the Heart
Kazimierz, Peczalski, Darius Wojciechowski, Piotr Sionek, Marek Kowalewski
Localization of Component Parts of Retinal Images
Fionn Murtagh, Mohsen Farid