

HEALTHCOM 2007

Ubiquitous Health in Aging Societies

**2007 9th International Conference on
e-Health Networking, Application and Services**

19-22 June 2007
Taipei, Taiwan



IEEE COMMUNICATIONS SOCIETY

Table of Contents

Electronic Health Records

Portable CDA for the Exchange of Clinical Documents	1
<i>J. Chang, J. S. Lai, P. H. Cheng, Faipei Lai</i>	

Design and Implementation of a Centralized Electronic Medical Records Consortium in a Rural Area of Michigan	6
<i>Guy Hembroff, Donald Wheeler, Daniel Boyle</i>	

An Electronic Health Record Content Protection System Using SmartCard and PMRTM.....	11
<i>Weider D. Yu, Mark A. Chekhanovskiy</i>	

A Preliminary Study of Medical Image Distributed Intelligent Access Integrated with Electronic Medical Records System for Brain Degenerative Disease Abstract.....	19
<i>Mei-Ju Sua, Heng-Shuen Chenb, Chung-Yi Yang, Sao-Jie Chen, Wen-Jeng Lee, Po-Hsun Cheng, Ping-Kung Yip, Hon-Mon Liu, Fei-Pei Lai, Daniel Racocanu</i>	

The Design and Implementation of a Next Generation Information System for Newborn Screening	24
<i>Chien-Ming Tu, Mei-Yu Tang, Faipei Lai, Hsing-Yu Chang, Wu-Liang Hwu, Yin-Hsiu Chien</i>	

Management in e-Health

Privacy Management in Consumer e-Health	29
<i>Arnab Chowdhury, Pradeep Ray</i>	

Context-aware Workflow Driven Resource Allocation for e-Healthcare.....	34
<i>Fu-Shiung Hsieh</i>	

Ambulance Allocation Capacity Model.....	40
<i>Dah-Ming Shiah, Shu-Wen Chen</i>	

An Analysis of Reduction in Medical Expenditures by e-Health Systems: Case of Nishiaizu Town, Fukushima Prefecture	46
<i>Masatsugu Tsuji, Fumio Taoka, Masaaki Teshima</i>	

Management of E-Health Networks for Disease Control: A Global Perspective	52
<i>S. Hinske, P. Ray</i>	

IT and Health Promotion

A Probability-Based Prediction Framework for Stress Identification	58
<i>Dong-soo Han, Jisoo Song, Janarbek Matai, Minkyu Lee</i>	

A Study of the Electronic Healthy Diet and Nutrition Assessment System Applied in a Nursing Home	64
<i>Lan-Hsin Hung, Han-Wei Zhang, Yaw-Jen Lin, I-Wen Chang, Heng-Shuen Chen</i>	

Automated Recognition of Complex Agitation Behavior of Dementia Patients Using Video Camera.....	68
<i>Victor Foo Siang Fook, Pham Viet Thang, That Mon Htwe, Qiu Qiang, Aung Aung Phyo Wai, Maniyeri Jayachandran, Jit Biswas, Philip Yap</i>	
A Study on Suicidal Risk Analysis.....	74
<i>Subhagata Chattopadhyay</i>	
Modern Asclepieions	79
<i>Dimitrios Sotiriou</i>	
Telemedicine in Developing Countries	
Telemedicine in India: Initiatives and Vision.....	81
<i>S.K. Mishra, Sh. Deepak Gupta, Jagdish Kaur</i>	
Teleradiology - SGPGI Experiences	84
<i>Archna Gupta</i>	
An Audit of Problems in Implementation of Telemedicine Programme	87
<i>Lily Kapoor, Rajesh Basnet, Repu Daman Chand, Sandeep Singh, S.K. Mishra</i>	
Telemedicine Country Report-Pakistan	90
<i>Asif Zafar Malik</i>	
Medical Students' Knowledge in E-Health in Developing Countries: a Survey in Sri Lanka.....	95
<i>Sisira Edirippulige, Rohana B. Marasinghe, Anthony C. Smith, Yoshikazu Fujisawa, Mohamed T.M. Jiffry, Richard Wootton</i>	
Telemedicine Technologies and Applications	
Meta-Searching Chinese Health Information on the Internet	100
<i>Wen-Cheng Lin, Yu-Syuan Lin, Ming-Wei Chen, Wei-Cing Hong</i>	
RFID and IPv6-enabled Ubiquitous Medication Error and Compliance Monitoring System.....	105
<i>Y.C. Chen, C.H. Liu, C.C.Wang, M.F. Hsieh</i>	
Patent Issue on Telemedicine.....	109
<i>Yasumitsu Tomioka, Shinya Harada, Akira Terada, Isao Nakajima, Hiroshi Juzoji, Muhammad Athar Sadiq</i>	
Electronic Clinical Guidelines for Intensive Care Unit.....	117
<i>A. Tsai, P.-H. Kuo, G. Lee, Ming-Sung Lin</i>	
The implement of RFID in Emergency Medicine.....	125
<i>Frank Kuo, Chung-Jung Fu, Li Liu, Ming-Hui Jin</i>	
Communication Technology and Health Information Standards	
Wavelet Technology in Wearable Terminals for ETS-VIII Satellite.....	131
<i>Isao Nakajima, Hiroshi Juzoji, Koredianto Usman Muhammad Athar Sadiq, Toshihiko Kitano</i>	

Improvement of Satellite Visibility by Space Diversity consisted of Two Geostationary Satellites - Aiming to High Performance Data Communication for Ambulance.....	137
<i>Toshihiko Kitano, Yasumitsu Tomioka, Hiroshi Juzoji, Isao Nakajima</i>	
A Unified Approach to Adoption of Laboratory LOINC in Taiwan	144
<i>Chien-Tsai Liu, Min-Hui Hsu, Liang-Wen Wang, Li-Li Wen, Jin-shin Lai</i>	
Dynamic Messages Creation Method for HL7 based Healthcare Information System.....	150
<i>Xiao-Ou Ping, Li-Fan Ko, Rung-Ji Shang, Faipei Lai, Chi-Huang Chen, Kuo-Hsuan Huang, Sarangerel Dorjgochoo</i>	
A Hospital Applied Circuit Back Up Framework for External Network Services	156
<i>Yaw-Jen Lin, Cheng-Chin Huang, Chin-Dar Fan</i>	
Ubiquitous Healthcare (u-Health) System	
iCare Home Portal: Substitution-Based Case Adaptation CBR for Quality Aging in Place	162
<i>Wei-Lun Chang, Shih-Hsiang Wang, Soe-Tsyr Yuan</i>	
Design of Satellite-Based Networks for u-Health -Galenos, Deltass, Medaship, Emispher	168
<i>G. Grasczew, T.A. Roelofs, S. Rakowsky, P.M. Schlag</i>	
Worldwide Network-Centric Healthcare Operations and the Associated Telecommunications Infrastructure.....	174
<i>Dag von Lubitz Frédéric, Frédéric Patricelli, Pasquale Palma</i>	
Using Reputation System in Ubiquitous Healthcare	182
<i>Weiwei Yuan, Donghai Guan, Sungyoung Lee, Heejo Lee</i>	
U-Care for the elderly: Implemenation of a Comprehensive Living and Health Care Network.....	187
<i>Heng-Shuen Chen, Mei-Ju Su, Tsung-Hsueh Tsai, Shih-Shung Teng, Han-Wei Zhang, Jin-Shin Lai, Fei-Pei Lai, Ching-Yu Chen</i>	
u-Health Devices & Applications	
Moving beyond the machines: the concept of “MICT device at hand” and “mobility inpractice”	191
<i>Henrique MG Martins, Matthew R. Jones</i>	
Single Key Omni Directional Pointing and Command System (SKOPS) -a smart on screen navigational tool for physically disabled persons	197
<i>Suman Deb, Sujay Deb</i>	
Utility Grid Computing and Body Area Network as Enabler for Ubiquitous Rural e-Healthcare Service Provisioning	202
<i>O.O. Olugbara, M.O. Adigun, S.O. Ojo, P. Mudali</i>	
A Patch-type Wireless Physiological Monitoring Microsystems.....	208
<i>T.C. Ke, W.S. Lin, W.Y Chang</i>	

Standard Deviation Based Weighted Average Function for Reducing Tremor Disturbance of the Joystick.....	214
<i>Bing-Yuh Lu, Chen-Yuan Liu, JerJunn Luh, Chao-Chih Shiao, Fok Ching Chong, Te-Son Kuo</i>	
e-Health Applications	
The Different Demands of the Smart Clothing Functions Among Three Types of Hikers.....	217
<i>Ching Li, Sheng-Min Wang</i>	
An Experiment of Telemedicine between Japan and Kazakhstan in order to Improve the Accuracy of Pathological Diagnosis.....	221
<i>Yuichi Ishibashi, Atsuko Hara, Isao Okayasu, Mikhail Valivach, Murat Mukarov, Sergei Chernyakov, Isao Nakajima</i>	
Emotion Deficiency And Compensation Strategy in Web Based Education	225
<i>Qi Luo</i>	
Cardiology and e-Health	
Knowledge Management in E-Health —The Cardiac Rehabilitation Home Monitoring System.....	229
<i>Dafu Lou, Tet Hin Yeap, Shu-Tim Cheung</i>	
The Morphology of the Electrocardiogram for Eevaluating ECG Biometrics	233
<i>Ya-Ting Tsao, Tsu-Wang Shen, Tung-Fu Ko, Tsung-Hsing Lin</i>	
Dependence of Heart Rate Variability on Stress Factors of Stress Response Inventory	236
<i>Lizawati Salahuddin, Myeong Gi Jeong, Desok Kim, Seong-Kyeon Lim, Kim Won, Jong-Min Woo</i>	
Ultra Short Term Analysis of Heart Rate Variability Using Normal Sinus Rhythm and Atrial Fibrillation ECG Data	240
<i>Lizawati Salahuddin, Myeong Gi Jeong, Desok Kim</i>	
Medical Image Processing	
Medical Image Encryption Based on Pixel Arrangement and Random Permutation for Transmission Security	244
<i>Koredianto Usman, Hiroshi Juzoji, Isao Nakajima, Soegijardjo Soegidjoko, Mohamad Ramdhani, Toshihiro Hori, Seiji Igi</i>	
Design and Evaluation of a DICOM compliant Video-fluoroscopy Imaging System.....	248
<i>Chang Mei-Yen, Liu Chien-Tsai, Sun Ying-Chou, Lee Rheun-Chuan, Change Chian-Fa, Teng Michael Mu-Huo, Change Cheng-Yen</i>	
Three Dimensional Volume Measurement of Mouse Abdominal Fat in Magnetic Resonance Images	252
<i>Yongsu Chae, Myeong Gi Jeong, Desok Kim</i>	
Medical Endoscopic Image Segmentation with Multi-resolution Deformation.....	256
<i>Sung Won Yoon, Hang Sik Shin, Se Dong Min , Myoungho Lee</i>	

Telemedicine in Developing Countries

Teleradiology – Building Bridges of Knowledge	260
<i>Archna Gupta</i>	

Role of Telemedicine during disaster: A Case Study	261
<i>Ahsan Jamal, Sabir Hussain, Ali Zafar, Asif Zafar Malik</i>	

Role of Telemedicine in follow up and monitoring of people with Haemophilia in Northern Pakistan	264
<i>Tahira Zafar, Asif Zafar Malik</i>	

The Role of Telemedicine for Pre and Post Operative Evaluation of Elective Surgical Patients.....	267
<i>Qasim Alia, Faisal Murada, Mussarat Abdullah, Asif Zafar Malika</i>	

Rural Telemedicine

A Hybrid Color Slow Scan TeleVision for Developing Nations	270
<i>Isao Nakajima, Hiroshi Juzoji, Koredianto Usman, Yasumitsu Tomioka, Yuichi Ishibashi</i>	

e – Health networking to cater to Rural Health Care and Health Care for the Aged.....	273
<i>D.S. Venkateswarlu, K.S.Verma, K.S.R.A .Murthy</i>	

Personal Health Record (PHR) in a Talisman: An Approach to Providing Continuity of Care in Developing Countries Using Existing Social Customs	277
<i>Uma Srinivasan, Gora Datta</i>	

Knowledge Management

Design a Collaborative Stroke System based on IHE.....	280
<i>Shin Yu Jeng, Shao-Chun Chen, Pao-Cheng Lee, Pei-Shun Ho, Ronlon Tsai</i>	

Phylogenetic Analysis of Neuraminidase Genes of H5N1 Isolates using HPC Technologies	285
<i>Dadabhai T. Singh, Rahul Trehan, Pradeep Ray, Bertil Schmidt</i>	

Information Management Inresource Poor Settings for the Healthcare Sector.....	289
<i>Sampathkumar Veeraraghavan, Karthik Srinivasan</i>	

A Framework for Collaborate SCORM-Compliant Web-Based Authoring System	292
<i>Chon-Kit Leong, Chien-Tsai Liu</i>	

e-Health/u-Health Initiatives

Building u-Hospice from HCI Perspectives.....	295
<i>Hee-Cheol Kim, Heung-Kook Choi, Tsogzolmaa Saizmaa, Joo-Young Sohn, Hyun Cho</i>	

Caregiver-Patient-Information System Triad: Conceptualizing the workspace for mobile and ubiquitous computing in Health.....	299
<i>Henrique M.G. Martins</i>	

Construction of APEC e-Health Portal Site for e-Health Service Providers and Demanders in APEC Area	300
<i>Byung Woo Lee, Se Dong Min, Wanjin Jeong, Youngmin Choo, Myoungho Lee</i>	
Actual Condition of Korean e-Health: What Do Enterprisers Want for Developing e-Health Industry?	304
<i>Se Dong Min, Byoung Woo Lee, Sung Won Yoon, Young Bum Lee, Jin Kwon Kim, Myoungho Lee, Cheol Oh Park</i>	
Security in u-Health	
Security in Wireless Mobile Technology for Healthcare Systems	308
<i>Weider D. Yu, Vijayalakshmi Jothiram</i>	
The Role of Trust in Ubiquitous Healthcare	312
<i>Weiwei Yuan, Donghai Guan, Sungyoung Lee, Young-Koo Lee</i>	
A u-Health Security Structure by Using 2D Barcodes	316
<i>Tsu-Wang Shen</i>	
Analysis of a Reported Incident Resulting in an Actual Airline Hijacking due to a Fanatical and Engrossed Virtual Reality State	319
<i>Hiroshi Juzoji, Atsushi Ichimura, Isao Nakajima, Muhammad Athar Sadiq</i>	
Devices in Ubiquitous Healthcare	
RFID Emergency Notification System for Fall Accidents at Home.....	323
<i>Yung-Chin Chen, Chun-Chi Wang</i>	
Development of Integrated Module using Wireless Accelerometer and ECG Sensor for ADL Monitoring.....	327
<i>Youngbum Lee, Muntak Son, Myoungho Lee</i>	
VMote: A Wearable Wireless Health Monitoring System	330
<i>E. Hughes, M. Masilela, P. Eddings, A. Rafiq, C. Boanca, R. Merrell</i>	
Development of a Self-Constructing Neuro-Fuzzy Inference System for Online Classification of Physical Movements.....	332
<i>L. Jatobá, U. Großmann, J. Ottenbacher, Dr. rer.nat., W. Stork, Dr.-Ing., K. Müller-Glaser</i>	
Author Index	follows page 336