

Table of Contents

Computer-Aided Fracture Diagnosis and Classification Package Embedded in the Integrated Electronic Patient Record System	1
<i>Dong-Yun Gu, Ke-Rong Dai, Song-Tao Ai, and Ya-Zhu Chen</i>	
Technology of Multiphasic Intellectual Screening of Chronic Diseases for Children and Adolescents	5
<i>V.V. Shapovalov and A.P. Nemirko</i>	
An Interactive Medical Support System for Dermatology in Rural Areas	9
<i>E. Hanada, K. Ikebuchi, M. Miyamoto, M. Kitani, S. Yamaguchi, I. Dekio, and E. Morita</i>	
Telematic Medical Systems for Individualized and Personalized Assistance	13
<i>B. Wolf, P. Friedrich, J. Clauss, and A. Scholz</i>	
A Software Architecture for a Telematic Rescue Assistance System	17
<i>Michael Protogerakis, Arno Gramatke, and Klaus Henning</i>	
Sharing Tracking Data between Different Systems Using an Open Surgical Communication Bus	21
<i>B. Ibach, J. Benzko, A. Janß, and K. Radermacher</i>	
Innovation of Homely Rehab with Help of Telemedical Services	24
<i>A. Mertens, D. Dünnebacke, B. Kausch, P. Laing, and C.M. Schlick</i>	
Authentication of Persons Using Acceleration Sensors in a Telemedicine Setting	28
<i>S. Becker, A. Scholz, M. Gül, D. Dill, and B. Wolf</i>	
Web Services and MSD-Format for Secure Data Management in Medical Applications	32
<i>H. Meier, I. Alich, and H. Flick</i>	
Functional Magnetic Resonance Imaging Data Manipulation – A New Approach	36
<i>J. Soares and V. Alves</i>	
Body Area Networks: Applications, Architectures and Challenges	40
<i>Arie Reichman</i>	
Introducing Electronic Prescriptions in Belgium	44
<i>M. Nyssen, T. Putzeys, L. Baert, P. Jongen, D. Broeckx, I. Huysentruyt, and V. Vande Keere</i>	
Innovation Barriers for Telemonitoring	48
<i>H.-G. Gruber, B. Wolf, and M. Reiher</i>	
Development of a Telemedical System for Monitoring Patients with Chronic Respiratory Diseases	51
<i>A.G. Polak, G. Głomb, T. Guszkowski, I. Jabłoński, B. Kasprzak, J. Pékala, A.F. Stępień, Z. Świerczyński, and J. Mrocza</i>	

Fundamental Examination of a Self Diagnostic System for the Early Stage of Senile Disuse Dementia	55
<i>E. Okuyama, N. Suzuki, M. Kaneko, S. Kaneko, S. Yamada, and T. Shimura</i>	
Telemedical Application for Centralized Home Care of High-Risk Pregnancy Based on Control Sharing Approach	59
<i>D. Roj, K. Horoba, J. Wrobel, M. Kotas, J. Jezewski, and T. Przybyla</i>	
Structured Electronic Message Exchange for Physiotherapists	63
<i>R. Buyl and M. Nyssen</i>	
Philips Astonish Image Processing Software Phantom Evaluation Used on Planar Mode Acquisition Images	67
<i>J.A.M. Santos, A.G. Dias, and A.L. Bastos</i>	
Posture and Motion Detection Using Acceleration Data for Context Aware Sensing in Personal Healthcare Systems	71
<i>Achim Volmer, Niels Torben Krüger, and Reinhold Orglmeister</i>	
Tumoral Mass Classification by Specialists and the CAD Scheme	75
<i>A.C. Patrocínio, M.F. Angelo, S. Elias, L.P. Freitas, H. Schiabel, and R.B. Medeiros</i>	
Feasibility and Effectiveness of Home Care Telemedicine in Patients with Heart Failure in Thuringia: Analysis of the Disease Management Program Zertiva	79
<i>M. Goernig, A. Kwetkat, B. Brehm, K. Fidorra, A. Roth, H.R. Figulla, and U. Leder</i>	
A DPWS-Based Architecture for Medical Device Interoperability	82
<i>S. Pöhlse, S. Schlichting, M. Strähle, F. Franz, and C. Werner</i>	
Compression of Vital Biosignals of Patient by Enhanced Set Partitioning in Hierarchical Trees Algorithm	86
<i>Ershad Sharifahmadian</i>	
Ride Comfort Analysis Using Physiological Parameters for e-Health Train	88
<i>Youngbum Lee, Kwangsoo Shin, Yongsoo Song, Sungho Han, and Myoungho Lee</i>	
TELEMON – A Complex System for Real Time Medical Telemonitoring	92
<i>Hariton Costin, Cristian Rotariu, Ioana Alexa, Gina Constantinescu, Vlad Cehan, B. Dionisie, Gladiola Andrusac, V. Felea, E. Crauciuc, and M. Scutariu</i>	
Computer-Aided Diagnosis in Medical Imaging: Achievements and Challenges	96
<i>Kunio Doi</i>	
Feature Extraction from Medical Images for an Oral Cancer Reoccurrence Prediction Environment	97
<i>Sebastian Steger, Marius Erdt, Gianfranco Chiari, and Georgios Sakas</i>	
Web 2.0 and Social Networking: Perspectives of a Healthcare Web Portal	101
<i>M. Bava, A. Zambon, L. Vecchi-Brumatti, A. Accardo, and G. Tamburini</i>	
Pattern Recognition Techniques in Recognition of Neoplastic Changes in Images of Cell Nuclei	105
<i>A. Dulewicz, P. Jaszczak, and B.D. Piętko</i>	

Tambov State Technical University Telemedical Centre as the Main Part of the Regional Telemedical Net	109
<i>S. Mischenko, S. Frolov, M. Frolova, and M. Lyadov</i>	
The Mobile Implementation of HL7 API for u-Healthcare Devices	110
<i>D.I. Shin, P.J. Pak, and S.J. Huh</i>	
Database System for Administration of Heterogeneous Medical Studies	112
<i>A. Häfner, S. Schulz, R. Schröder, K. Witt, and A. Voss</i>	
Telemedical Control of a Robotic External Fixator	115
<i>R. Wendlandt, K. Seide, C. Jürgens, and J. Müller</i>	
Deterministic Tracking of Contrast Enhanced MR-Angiography (CE-MRA) Data by Using Established Methods of Diffusion-Tensor-Imaging (DTI)	119
<i>D. Güllmar, A. Deistung, and J.R. Reichenbach</i>	
Quasi-Static Field Modeling of Human Limb for Intra-body Communication	122
<i>S.H. Pun, Y.M. Gao, P.U. Mak, M. Du, and M.I. Vai</i>	
CAD Scheme for Differential Diagnosis of Lacunar Infarcts and Normal Virchow-Robin Spaces on Brain MR Images	126
<i>Y. Uchiyama, T. Asano, T. Hara, H. Fujita, H. Hoshi, T. Iwama, and Y. Kinoshita</i>	
The Development of Heart Rate Variability Analysis Software for Detection of Individual Autonomic Response on Music and Quran Recitation	129
<i>M. Rezaei, Tati L.R. Mengko, and J. Jofizal</i>	
Personalized Pain Diary on a Handheld Device	133
<i>U.G. Hofmann, T. Michalski, V. Tronnier, and M.M. Bonsanto</i>	
Architecture of Mobile and Desktop Stations for Noninvasive Continuous Blood Pressure Measurement	137
<i>Ondrej Krejcar, Dalibor Janckulík, Leona Motalova, and Robert Frischer</i>	
Complex Biomedical System with Mobile Clients	141
<i>Ondrej Krejcar, Dalibor Janckulík, and Leona Motalova</i>	
Image Processing-Based Eyelid State Detection	145
<i>T. Fernandes, A.F. Henzen, A.F. Charão, F.K. Schneider, H.R. Gamba, and P.M. Gewehr</i>	
Patient-Specific Hemodynamics Prediction and Virtual Endovascular Intervention Using MediGRID and Free Software	149
<i>K.N. Beronov, O. Dzhimova, M. Vossberg, and D. Krefting</i>	
Interactive Voice Response System for Home Telemonitoring of Heart Failure Patients	153
<i>P. Melillo, L. Pecchia, and M. Bracale</i>	
A Platform for Patient Monitoring in Home Health Care Including an Interpretation Tool for Heart Failure Patients	157
<i>P. Hult, M. Oscarsson, L. Rattfält, and P. Ask</i>	
A Solution Method for Enlarging the Reconstruct Width of the IGRT-Used Cone-Beam CT by Image Concatenating	161
<i>Jian Zhu, Min Liu, and Yong Yin</i>	

Software Environment for Fast DCE-MRI Analysis	162
<i>A.M. Hoetker, P. Mildenberger, Ch. Düber, and K. Oberholzer</i>	
A Web Service Based Tool to Support General Practitioners in a First Level Diagnosis of Melanoma	165
<i>A. Bellodi, V. Parodi, and M. Giacomini</i>	
Virtual Chameleon – A System to Provide Different Views to Both Eyes	169
<i>F. Mizuno, T. Hayasaka, and T. Yamaguchi</i>	
Radiotherapy Software for Department Management and Organisation	173
<i>Maxime Coevoet</i>	
Satisfaction of Patients and Therapists with an Upper Limb Tele-rehabilitation Service	176
<i>C. Giacomozzi, M. Bernabeu, D. Cordella, H.J. Hermens, B. Huijgen, S. Ilsbrouckx, V. Macellari, R. Magni, S. Scattareggia, M. Zampolini, and M. Rogante</i>	
Characterizing the Patient Flow Pathway during Chest Pain Diagnosis in an Emergency Department	180
<i>D. Dixon, J. Eatock, F.J. FitzGibbon, S. Robinson, L. Rocke, and L. Swales</i>	
A WEB Tool for Analysis of Spectrophotometric Data for the Treatment of Patients with HIV	184
<i>S. Bertolini, M. Giacomini, I. Martini, J. McDermott, and O.E. Varnier</i>	
Two Low-Cost Solutions for Cardiac Mobile Monitoring	188
<i>R.I. Gonzalez, R. Guardarrama, F. Leon, A. Rodriguez, and D. Jimenez</i>	
The Use of Thesauri for Cancer Prevention in Workplace	192
<i>M. Giacomini, R. Gazzarata, S. Bertolini, F. Rizzo, and D. Vecchio</i>	
Wearable Biomedical Signal Measurement Terminal	194
<i>J.H. Hong, E.J. Cha, and T.S. Lee</i>	
Accelerometer Based Motion Noise Analysis of ECG Signal	198
<i>D.K. Han, J.H. Hong, J.Y. Shin, and T.S. Lee</i>	
Improvement in the Accuracy of RR Interval through R-Wave Interpolation.....	202
<i>E.M. Lee, E.J. Cha, and T.S. Lee</i>	
GPU-Based Fast 3D Ultrasound-Endoscope Image Fusion for Complex-Shaped Objects.....	206
<i>Hongen Liao, Masayoshi Tsuzuki, Etsuko Kobayashi, and Ichiro Sakuma</i>	
A CAD System for Screening X-ray Chest Radiography	210
<i>G. Horváth, G. Orbán, Á. Horváth, G. Simkó, B. Pataki, P. Máday, S. Juhász, and Á. Horváth</i>	
An Investigation of Computer-Generated Visual Feedback for the Support of Low Back Pain Therapy	214
<i>D. Brodbeck, M. Degen, J. Kool, and P. Oesch</i>	
Quality of Service Evaluation of Telemedicine Network Design with IEEE 802.11b Technology	218
<i>A. Zambrano, M. Huerta, M. Diaz, M. de Andrade, and P. Marchena</i>	
Implementation of a Standard Service of Repository for Cardiological Unit	222
<i>S. De Faveri, M. Giacomini, S. De Nadai, and F. Greco</i>	

ECCA – Endoscopic Capsule Capview cAtaloguer	226
<i>Sérgio Lima, João P. Silva Cunha, Miguel Coimbra, and José M. Soares</i>	
Data Mining for Floral Distribution Pattern Detection	230
<i>S. Pivetti, M. Giacomini, G. Casazza, and L. Minuto</i>	
A Review of the OpenEHR Implementation in Indonesian National Health Information System: Integrated Health Post.....	234
<i>Agung W. Setiawan, Astri Handayani, Antonius D. Setiawan, G.A. Putri Saptawati, Andriyan B. Suksmono, and Tati R. Mengko</i>	
Prevalence Prognosis of the End Stage Renal Disease Patients in Greece	237
<i>A. Rodina, K. Bliznakova, and K. Stavrianou</i>	
Implementation of a Miniaturised Activity Monitor to Support Convalescence	241
<i>D. Dill, M. Gül, A. Scholz, S. Becker, M. Bachmeier, and B. Wolf</i>	
Wireless ECG Network	244
<i>M. Bergblomma, M.C. Ekström, M. Ekström, J.G. Castaño, M. Björkman, and M. Lindén</i>	
Visualization of Orientation Distribution Functions (ODFs) with MATLAB.....	248
<i>C. Ros, D. Güllmar, M. Klatt, and J.R. Reichenbach</i>	
Classification of Spectroscopic Images in the DIROlab Environment	252
<i>F.O. Kaster, B.M. Kelm, C.M. Zechmann, M.A. Weber, F.A. Hamprecht, and O. Nix</i>	
Design a NGN Network to Telehealth Using Wi-Fi Technologies	256
<i>J. Pirrone and I. Mendizabal</i>	
E-Health System for Monitoring of Chronic Diseases	259
<i>R. Ciorap, D. Andritoi, V. Pomazan, L. Petcu, F. Ungureanu, and D. Zaharia</i>	
Recognition System for Mesothelials Cells Classification	263
<i>V.E. Martínez, A.F. Rodríguez, J.F. Remolina, and O.M. Álvarez</i>	
Automating Patient Dose Audit and Clinical Audit Using RIS Data	267
<i>R. Wilde, S. Baily, C. Baker, P. Charnock, D. McCreavy, and B.M. Moores</i>	
Texture Classification of Images from Endoscopic Capsule by Using MLP and SVM – A Comparative Approach.....	271
<i>C.S. Lima, J.H. Correia, J. Ramos, and D. Barbosa</i>	
HLA Haplotypes Frequencies Tool for Support of Search for Unrelated Stem Cells Donors.....	275
<i>D. Steiner, J. Broz, L. Kupková, A. Rosenmayr, and L. Lhotská</i>	
A Mobile Device for Textile-Integrated Long-Term ECG Monitoring	278
<i>S. Lamparth, S. Fuhrhop, M. Kirst, G.v. Wagner, and J. Ottenbacher</i>	
Wearable Respiratory Rate Monitoring Using Piezo-Resistive Fabric Sensor	282
<i>J.W. Jeong, Y.W. Jang, I. Lee, S. Shin, and S. Kim</i>	
WEB Based Tool for the Organization of Knowledge in Neurology	285
<i>M. Giacomini and M. Cafferata</i>	

Transanal Resection of the Recto-sigmoid Colon: Feasibility Study for a Natural Orifices Transluminal Endoscopic Surgery Technique Based on the Principles of Transanal Endoscopic Microsurgery 289

Interactive Teleradiology 290
I. Drnasin, G. Gogic, and S. Tonkovic

A SMS-Based Platform for Cardiovascular Tele-monitoring 295
M. Triventi, E. Mattei, F. Censi, G. Calcagnini, Stefano Strano, and P. Bartolini

A Novel Method to Study DICOM Tags and Definitions for Structured Report and Image Analysis Purposes 299
A. Moein and K. Youssefi

Computer Assisted Imaging for Nodule Detection on a Multi-slice CT Image 301
Manju Singh and H.R. Singh

Ambulant ECG Recording with Wet and Dry Electrodes: A Direct Comparison of Two Systems 305
S. Fuhrhop, S. Lamparth, M. Kirst, G.v. Wagner, and J. Ottenbacher

Wireless Internet Based Communication Robot for Healthcare Application 308
Kuo-Sheng Cheng, Ching-Lin Li, Shao-An Deng, Yen-Fen Ko, Hsin-Hua Li, and Cheng-Chun Hsu

A Video-Based Algorithm for Elderly Fall Detection 312
Jared Willems, Glen Debard, Bart Vanrumste, and Toon Goedemé

Computer Aided Detection of Hepatic Nodules in DCE MR Images 316
D.J. Lv, J. Zhang, X.Y. Wang, and J. Fang

Barriers of Implementing Applicable Remote Health Care System in China..... 318
Xirui Wang and Timo Korhonen

Extracting the Inner and Outer Borders of Bladder Wall and Flattening the Extracted Wall for MR Cystography..... 322
Z. Liang, C. Duan, D. Gu, and H. Lu

Building a Home Care System with the ISO/IEEE 11073 Standard 326
Jia-Rong Wu and Yuh-show Tsai

The Development of Remote Monitoring System Using International Standard 330
Hironori Takeuchi, Akinobu Kumabe, Pu Zhang, Yuichi Kogure, Masatake Akutagawa, Yousuke Kinouchi, and Qingyu Zhang

Diagnostic Quality of High Resolution JPEG 2000 Compressed CT and MR Brain Images..... 334
J. Paz, M. Perez, and I. Miranda

Use of Analytic Image Concept in MR Parallel Imaging 338
Josiane Yankam Njiwa, Christof Baltes, and Markus Rudin

Smart Sensors for Environmental BioSecurity Control at Operating Rooms..... 340
J.D. Uceda, C. Sánchez, M. Elena, S. Blasco, and P. Cerro

Application of a Mobile Telemedicine System with Multi Communication Links for Disaster Reliefs in Indonesia 344
Ediana Sutjiredjeki, Soegijardjo Soegijoko, Tati Latifah R. Mengko, Suhartono Tjondronegoro, Kastam Astami, Hary Utomo Muhammad, and Suherman

Portable Intelligent Bioelectric Signals Acquisition System with an Adaptive Frontend Implemented Using FPGA and FPAA 348
Pedro Antonio Mou, Chang Hao Chen, Sio Hang Pun, Peng Un Mak, and Mang I. Vai

DICOM in Surgery – Requirements for Digital Data Exchange in the Perioperative Surgical Workflow 352
M. Gessat, T. Treichel, H.U. Lemke, and O. Burgert

Movement Monitoring in the HomeCare System 356
M. Cerny

Targeted Image Reconstruction in Positron Emission Mammography 358
G. Picado, N. Matela, N. Oliveira, and P. Almeida

Radiation Effects Quantification in Breast Radiotherapy by Mammography Image Processing 362
M. Sotiropoulos, A. Zygogianni, N. Lagopati, C. Antypas, C. Arbillia, J. Kouvaris, and M.E. Lyra

The Design of an Efficient CAD System for Capsule Endoscope..... 365
Rung-Sheng Liao, Yu-Chuang Hu, Yi-Jen Fang, and Jenn-Lung Su

IVITool: A Scalable Platform for Medical Data Integration 369
P. Cerro, J.A. Cabo, M. Elena, S. Blasco, J.D. Uceda, and M. López-Alonso

Decision Support System on Hypertension Treatment 373
D.A. Bottino

Overall Sigma Level of an Imaging Department through Process Innovation 377
J. García-Porres and M.R. Ortiz-Posadas

A Systematic Approach to Analyze the Optimization Potential for ICT-Tools Supporting Collaborative Work Processes in Healthcare 381
Daniela Fuchs, Beatrice Podtschaske, Ingo Marsolek, and Wolfgang Friesdorf

Author Index 385