Editors:
Prof. Lotfi A. Zadeh, University of Berkeley, USA
Prof. Janusz Kacprzyk, International Fuzzy Systems Association, POLAND
Prof. Nikos Mastorakis, Technical University of Sofia, BULGARIA
Prof. Angel Kuri-Morales, Instituto Tecnologico Autonomo de Mexico, MEXICO
Prof. Pierre Borne, Ecole Centrale de Lille, FRANCE
Prof. Leonid Kazovsky, Stanford University, USA

Recent Advances in Signal Processing, Robotics and Automation

Proceedings of the 9th WSEAS International Conference on Signal Processing, Robotics and Automation (ISPRA '10)

University of Cambridge, UK, February 20-22, 2010

Mathematics and Computers in Science and Engineering
A Series of Reference Books and Textbooks

Recent Advances in Signal Processing, Robotics and Automation

ISBN: 978-960-474-157-1
ISSN: 1790-5117

Published by WSEAS Press
www.wseas.org

RECENT ADVANCES in SIGNAL PROCESSING, ROBOTICS and AUTOMATION

Proceedings of the 9th WSEAS International Conference on SIGNAL PROCESSING, ROBOTICS and AUTOMATION (ISPRA '10)

University of Cambridge, UK
February 20-22, 2010

Mathematics and Computers in Science and Engineering
A Series of Reference Books and Textbooks

Published by WSEAS Press
www.wseas.org

ISSN: 1790-5117
ISBN: 978-960-474-157-1

RECENT ADVANCES in SIGNAL PROCESSING, ROBOTICS and AUTOMATION

Proceedings of the 9th WSEAS International Conference on SIGNAL PROCESSING, ROBOTICS and AUTOMATION (ISPRA '10)

University of Cambridge, UK
February 20-22, 2010

Mathematics and Computers in Science and Engineering
A Series of Reference Books and Textbooks

Published by WSEAS Press
www.wseas.org

Copyright © 2010, by WSEAS Press

All the copyright of the present book belongs to the World Scientific and Engineering Academy and Society Press. All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the prior written permission of the Editor of World Scientific and Engineering Academy and Society Press.

All papers of the present volume were peer reviewed by two independent reviewers. Acceptance was granted when both reviewers' recommendations were positive.
See also: http://www.worldses.org/review/index.html

ISSN: 1790-5117
ISBN: 978-960-474-157-1

World Scientific and Engineering Academy and Society

RECENT ADVANCES in SIGNAL PROCESSING, ROBOTICS and AUTOMATION

Proceedings of the 9th WSEAS International Conference on SIGNAL PROCESSING, ROBOTICS and AUTOMATION (ISPRA '10)

University of Cambridge, UK
February 20-22, 2010

Editors:
Prof. Lotfi A. Zadeh, University of Berkeley, USA
Prof. Janusz Kacprzyk, International Fuzzy Systems Association, POLAND
Prof. Nikos Mastorakis, Technical University of Sofia, BULGARIA
Prof. Angel Kuri-Morales, Instituto Tecnologico Autonomo de Mexico, MEXICO
Prof. Pierre Borne, Ecole Centrale de Lille, FRANCE
Prof. Leonid Kazovsky, Stanford University, USA

International Program Committee Members:
Cuauhtemoc Rodriguez, UK
Gehan A.J. Amaratunga, UK
Lotfi A. Zadeh, USA
Katia Sycara, USA
Olga Martin, ROMANIA
Marketa Mazalkova, CZECH REPUBLIC
Lina Vasiliauskiene, LITHUANIA
Javier Bilbao, SPAIN
Maria Boile, USA
Naim Sidek, USA
Roberto Revetria, USA
Andrzej W. Ordys, UK
Dalibor Biolek, CZECH REPUBLIC
Metin Demiralp, TURKEY
Vincenzo Niola, ITALY
Akshai Aggarwal, CANADA
Aydin Akan, TURKEY
Valeri Mladenov, BULGARIA
Zoran S. Bojkovic, SERBIA
Jurij Krope, SLOVENIA
George Stavrakakis, GREECE
Nikos C. Tsourveloudis, GREECE
Fumiaki Imado, JAPAN
Simona Lache, ROMANIA
Blagovest Shishkov, BULGARIA
S.A. Selouani, CANADA
Vir Brslica, CZECH REPUBLIC
Isak Taksa, USA
Milan Stork, CZECH REPUBLIC
Anping Xu, P. R. CHINA
Victor-Emil Neagoe, ROMANIA

Preface

This year the 9th WSEAS International Conference on SIGNAL PROCESSING, ROBOTICS and AUTOMATION (ISPRA '10) was held at the University of Cambridge, UK, February 20-22, 2010. The conference remains faithful to its original idea of providing a platform to discuss signal processing, fast algorithms, higher order spectrum analysis, speech production and perception, psychoacoustics, machine vision, computed imaging, evolutionary computation, robotics, kinematics, dynamics and control of robots, teleoperation, man-machine systems, cybernetics, automation, circuits and electronics for control, chemical processes control, virtual reality for automation, machines and mechanical engineering, unmanned vehicles etc. with participants from all over the world, both from academia and from industry.

Its success is reflected in the papers received, with participants coming from several countries, allowing a real multinational multicultural exchange of experiences and ideas.

The accepted papers of this conference are published in this Book that will be indexed by ISI. Please, check it: www.worldses.org/indexes as well as in the CD-ROM Proceedings. They will be also available in the E-Library of the WSEAS. The best papers will be also promoted in many Journals for further evaluation.

A Conference such as this can only succeed as a team effort, so the Editors want to thank the International Scientific Committee and the Reviewers for their excellent work in reviewing the papers as well as their invaluable input and advice.

The Editors

Table of Contents

Plenary Lecture 1: Fault Detection and Diagnosis of Distributed Parameter Systems Based on Sensor Networks and Artificial Intelligence 13
Constantin Volosencu

Plenary Lecture 2: New Approach for Pre-processing and Efficient Archiving of Scanned Documents 14
Roumen Kountchev

Plenary Lecture 3: On the Mechanical Systems Processed by Infrared Thermography Combined with Wavelet Transform 15
Vincenzo Niola

Plenary Lecture 4: Correlated and Interconnected Analyses for Human Walking and Standing Biomechanical Behavior 17
Mihaela Ioana Baritz

An Automation for Data Transmission through Power Lines 19
Saeid Rafizadeh, Haleh Kangarloo, Siamak Baradaran K.

New Architecture of Wavelet Packet Transform Using Parallel Filters 23
Hossein Amiri Farahani, Majid Mashayekhi Nezamabadi

Optimized Implementation of a Fast Wavelet Packet Transform Architecture with Hardware Acceleration 27
Hamid Reza Ghozatloo, Mohammad Noori

Time-Frequency Localisation Analysis for Extracting Fatigue Damaging Events 31
S. Abdullah, T. E. Putra, M. Z. Nuawi, Z. M. Nopiah, A. Arifin, L. Abdullah

Design of ECG Instrumentation and Implementation of Digital Filter for Noise Reduction 36
Mahesh S. Chavan, R. A. Agarwala, M. D. Uplane, M. S. Gaikwad

LQR Optimal Control for Micromachined Tunneling Accelerometer 40
H. E. A. Ibrahim

Uncertainty Propagation using Polynomial Chaos and Centre Manifold Theories 46
L. Nechak, S. Berger, E. Aubry

Statistical Analysis of Speech Signals by Weighted ASMDF 52
Roudra Chakraborty, Sagnik Sinha, Debapriya Sengupta

Model Reference Adaptive Temperature Control of the Electromagnetic Oven Process in Manufacturing Process 57
Jiraphon Srisertpol, Supot Phungphimai

An Extraction of Fatigue Damaging Events by Using Running Damage Extraction (RDE) Technique 62
Z. M. Nopiah, M. N. Baharin, S. Abdullah, M. I. Khairir, A. Ariffin

Dynamic Mill's Deflection for High Feed Machining on Orthogonal Directions 69
Laurentiu-Aurel Mihail

Automatic Iron Cutting Device using IEC61499 FBs Editor 74
Maryam Sadeghi

Wall-Following Exploration with two Cooperating Mobile Robots 80
Mohammad Al Khawaldah, Salvatore Livatino

Time Series Identification Methodology Using Wireless Sensor Networks 86
Daniel-Ioan Curiac, Ovidiu Banias, Constantin Volosencu

Image Content Protection Based on Multi-Layer Decomposition 91
Roumen Kountchev, Vladimir Todorov, Roumiana Kountcheva

Weight Parameters Tuning for Frontier-based Cooperating Robots Exploration 97
Mohammad Al-Khawaldah, Salvatore Livatino, David C. Lee

Hardware Implementation of the Fuzzy Fingerprint Vault System 103
Sung Jin Lim, Seung-Hoon Chae, Hae-Min Moon, Sung Bum Pan

Simulation Studies of Position Control System for Estimation of DC Motor Load Torque 107
Chanyut Khajorntraidet, Jiraphon Srisertpol

A Model-Based Sliding Mode Controller for Extensible Continuum Robots 113
Apoorva D. Kapadia, Ian D. Walker, Darren M. Dawson, Enver Tatlicioglu

Objective Video Quality Assessment for Tracking Moving Objects from Video Sequences 121
E. Mendi, Y. Zhou, M. Milanova, J. Talburt

A Novel Receiver Diversity Combining Technique for Internet-Based 4G Wireless Communication 127
Jihad Daba, Jean-Pierre Dubois, Philip Jreije

Measurement Assisted Automated Robotic Edge Deburring of Complex Components 133
Nirosh Jayaweera, Phil Webb

Kinematic Analysis of a Two-Link Object for Whole Arm Manipulation 139
Zakarya Zyada, Yoshikazu Hayakawa, Shigeyuki Hosose

Preserve Robustness for Image Data Hiding 146
D. B. Satre, R. V. Pawar

Seven State Kalman Filtering for LEO Microsatellite Attitude Determination 151
A. M. Si Mohammed, M. Benyettou, A. Boudjemai, Y. Hashida

Recognition of Handwritten Arabic (Indian) Numerals using Radon-Fourier-based Features 158
Sabri A. Mahmoud, Marwan H. Abu-Amara

A New Approach for Better Document Retrieval and Classification Performance using Supervised WSD and Concept Graph 164
Reza Soltanpoor, Mehran Mohsenzadeh, Morteza Mohaqeqi

Time Complexity Analysis of the Genetic Algorithm Clustering Method 171
Z. M. Nopiah, M. I. Khairir, S. Abdullah, M. N. Baharin, A. Arifin

Use of Information Technology for Data Management in Public Service – Case Study 177
Valter Luiz Vendramin, Eduardo Mario Dias

Enablers and Inhibitors of Integration between IT and AT 185
Claudia Tomie Yukishima Zuge, Sergio Luiz Pereira, Eduardo Mario Dias

Face Detection Technique based on Skin Color and Facial Features 192
Khalid M.Alajel, Wei Xiang, John Lies

Fault Detection and Diagnosis of Distributed Parameter Systems Based on Sensor Networks and Artificial Intelligence 200
Constantin Volosencu

Design and Fabrication of an Automatic Window Cleaning Robot 208
A. Albagul, A. Asseni, O. Jomah, M. Omer, B. Farge

Mobile Robot Fault Tolerant Control. Introducing ARTEMIC 213
Cristian Axenie

Ant Colony Optimization for Image Edge Detection 220
Anna Veronica Baterina, Carlos Oppus

Autonomous Motion of Unmanned Ground Vehicles in General Environment 226
Petr Stodola, Jan Mazal

Identification of Parameters of a System with Fractional Damping 232
Liviu Bereteu, Gheorghe. E. Draganescu, Dan V. Stanescu

Correlated and Interconnected Analyses for Human Walking and Standing Biomechanical Behavior 236
Mihaela Baritz

Research on Optimizing Automatic Dosing Systems 244
Cristea Luciana, Manescu Mihai, Repanovici Angela, Rogozea Liliana

Infodocumentary Automatization Systems: RFID Technology 248
Angela Repanovici, Luciana Cristea, Diana Cotoros

Analysis by Strain Gauges of the Strains in a Composite Material 254
Anca Stanciu, Diana Cotoros, Mihaela Baritz, Liliana Rogozea

Retinal Image and Oculo-Motor Equilibrium Analyze using Recordings of Human Body Stability-Posture 258
Mihaela Baritz, Luciana Cristea, Diana Cotoros, Anca Stanciu

Ethics, Robotics and Medicine Development 264
Liliana Rogozea, Florin Leasu, Angela Repanovici, Mihaela Baritz

Nonlinear Backward Tracking Control of an Articulated Mobile Robot with Off-Axle Hitching 269
Plamen Petrov

Proposal for the Integrated Automation of the Brazilian Subway System Rectifier Substations 274
Eduardo Mario Dias, Sergio Luiz Pereira, Carlos Alberto De Sousa

Simulation Strategies Walking Mechatronic System Mero 282
Ion Ion, Curaj Adrian, Marin Alexandru, Doicin Cristian, Vasile Aurelian

Rate Control and Mode decision Jointly Optimization in H.264AVC 288
Siavash Eshaghi, Hassan Farsi

Evaluation and Detection of Defects of Industrial Surfaces and Welds, using Radiographic Images and Euler's Number 292
Alireza Zendebudi, Seyed Alireza Hashemi

Image Segmentation Using a Generalized Fast Level Set Method 298
Dang Tran Vu, Jin Young Kim, Seung Ho Choi, Seung You Na

Various Speech Processing Techniques for Multimedia Applications 304
Jalal Karam

Two Big Dreams in Space will Come True 310
Hironori A. Fujii

Reachability Judgment in P/T Petri Nets by Approximate Algebraic Approach 318
Tadashi Matsumoto, Masahiro Osogami, Seiichiro Moro

Nonlinear Model & Controller Design for Magnetic Levitation System 324
Ishtiaq Ahmad, Muhammad Akram Javaid

Design and Feasibility Tests of Flexible Gripper for Handling Variable Shape of Food Products 329
Rosidah Sam, Samia Nefti

Arabic Letters Compression using New Algorithm of Trapezoid Method 336
Ali Abdrhman Ukasha

Authors Index 342

Plenary Lecture 1

Fault Detection and Diagnosis of Distributed Parameter Systems Based on Sensor Networks and Artificial Intelligence

Professor Constantin Volosencu
Department of Automatics and Applied Informatics
Faculty of Automatics and Computers
"Politehnica" University of Timisoara
Bd. V. Parvan nr. 2
Timisoara, 300223
Romania
E-mail: constantin.volosencu@aut.upt.ro

Abstract: This paper presents some approaches on the new applications in fault detection and diagnosis emerged from three powerful concepts: theory of distributed parameter systems, applied to large and complex physical processes; artificial intelligence, with its tools fuzzy logic and neural networks; and the intelligent wireless ad-hoc sensor networks. Even with their limited resources of energy, memory, computational power and bandwidth sensor networks have large and successful applications in the real world. They may be placed in the areas of distributed parameter systems and they may be seen as distributed measuring sensors for the physical variables of distributed parameter systems. Fault detection and diagnosis in distributed parameter systems became more easily and more performing using these concepts. The paper presents some applications in fault detection and diagnosis based on fuzzy logic and artificial neural networks. Fuzzy logic allows the treatment of physical variables by human reasoning on operator knowledge, with fuzzy concepts of membership functions. Neural networks allow treatment of large and complex systems with many variables by learning and extrapolation. Using sensor networks multivariable estimation techniques may be applied in distributed parameter systems.

Brief Biography of the Speaker:
Prof. Constantin Volosencu graduated in 1981 the Faculty of Electrotechnics, "Traian Vuia" Polytechnic Institute of Timisoara, Romania, as an engineer in automatics and computers and he is doctor in control systems at "Politehnica" University of Timisoara. In present he is professor at "Politehnica" University of Timisoara, Faculty of Automatics and Computers, Department of Automatics and Applied Informatics. His research interest is in linear control systems, fuzzy control, neural networks, control of electrical drives, modelling, simulation, identification and sensor networks. He is author of 9 books and more then 100 scientific papers, published at international conferences and journals. He was manager of over 30 national an international research projects.
Constantin Volosencu worked from 1981 to 1990 at "Electrotimis" Enterprise Timisoara, in the field of the control systems for industrial machines, where he developed control equipments for a large scale of machineries, which are the objects of 27 patents.

Plenary Lecture 2

New Approach for Pre-processing and Efficient Archiving of Scanned Documents

Professor Roumen Kountchev
Faculty of Telecommunications
Technical University of Sofia
Bulgaria
E-mail: rkountch@tu-sofia.bg

Abstract: Problems concerning the efficient archiving of scanned documents are some of the major contemporary challenges in this area. The standards for still image compression JPEG and JPEG 2000 are very efficient when natural images are processed, but they are not as good for texts and graphics: for relatively high compression ratios the quality of the restored images is significantly deteriorated. The efficient compression and correspondingly – archiving of documents' images requires a more flexible approach adapted to the peculiarities of the processed images. Additional problems arose when compound images, containing texts and pictures have to be processed. The best solution is each part to be processed so that to obtain maximum efficiency.
A new approach for efficient archiving of scanned documents, comprising texts and pictures, is presented in this lecture. The offered approach presumes to compress the pictures and the texts in different way: the pictures - with lossy coding based on decomposition, called Inverse Difference Pyramid (IDP), and the parts, containing text (graphics) – with lossless Adaptive Run-Length (ARL) coding.
The processing comprises the following main steps:
-Image preprocessing, comprising background filtration (aimed at noise removal), histogram analysis and modification;
-Image segmentation – recognition of texts and pictures;
-Image compression – adaptive approach, which permits the pictures to be compressed with some kind of lossy IDP compression and the texts – with lossless ARL coding.
The experimental results obtained for large number of example documents processed with JPEG, JPEG 2000 and the new method prove the advantages of the presented adaptive approach. The same approach is very efficient for archiving of old handwritten documents.
The presented approach is based in investigations and patents developed by the lecturer and his team at the Technical University of Sofia, Bulgaria.

Brief Biography of the Speaker:
Roumen Kountchev, Ph.D., D. Sc. is a professor at the Faculty of Telecommunications at the Technical University of Sofia, Bulgaria and the head of the Image Processing Laboratory.
His main areas of interest are: Digital image processing, Image compression, Multimedia watermarking, Video communications via Internet, Pattern recognition and neural networks. He has 259 papers published in magazines and proceedings of conferences; 12 books and books chapters, 20 patents, and participated in 46 scientific research projects (in 38 projects he was the principal investigator).
He is the President of the Bulgarian Association for Pattern Recognition (BAPR), member of International Association for Pattern Recognition (IAPR), member of editorial board of "International Journal of Reasoning-based Intelligent Systems" (IJRIS), member of the Scientific Expert Commission of Bulgarian Ministry of Education and Science; President of the Technological Council of Bulgarian National Radio, member of the Higher Attestation Commission of the Council of Ministers of Bulgaria.

Plenary Lecture 3

On the Mechanical Systems Processed by Infrared Thermography Combined with Wavelet Transform

Professor Vincenzo Niola
Department of Mechanical Engineering for Energetics
University of Naples Federico II
Via Claudio 21, 80125 Naples
Italy
E-mail: vincenzo.niola@unina.it

Abstract: The industrial plants are continuously monitored in order to maximize the performance, in terms of quality and productivity.
Nowadays, the study is also steered to their capability of working without any interruption or, at least, without unwanted interruptions.
One can easily understand that this aspect of the research is synergistic to the previous one because the reduction of unproductive time of machines increases the time available for production.
The predictive maintenance is based on methods and techniques which are still evolving rapidly, even on a consolidated basis; the approach to the evaluation of economic benefit deriving from its application deserves a particular attention.
The results achieved by the application of infrared thermography (IT) encourages for monitoring mechanical systems. In fact, it provides a complete representation of effective working conditions, putting out of sudden failures and allowing better planning of any technical intervention.
The measurement of radiation emitted from any kind of material, equipment or plant, performed by using IT, provides the corresponding heat map. The analysis of surface thermal fields allows to detect fractures and / or anomalies that may occur during the working process. In fact, every worn or not properly lubricated mechanism tends to overheat before reaching the fault.
A thermographic survey can identify such overheating since its onset and the related thermal assessment should provide the alarm before the fault occurs.
The observation of the images as well as the evolution of raw data does not provide any information on possible anomalies connected to the monitored object. Therefore, it is quite evident that the thermographic analysis, by itself, does not provide sufficient evidence to predict any anomalies related to the observed system. Then, starting from this sequence of data it is already possible to obtain interesting information by applying the Wavelet Transform both to thermographic images and to numerical vectorial sequence. In particular, it is possible to evaluate and to take out the information characterizing the pattern of the signal as well as morphological features and mean dynamics, related to the various epochs.

Brief Biography of the Speaker:
Vincenzo Niola is professor of Applied Mechanics at Naples University Federico II since 31 march 1987. After he got an Univerisity Degree in Mechanical Engineering, he started in january 1978 didactics activity as helper at course of Applied Mechanics and Machines et as member of their committee of examination. Since september 1979 he carried on that collaboration as owner of a scholarship from C.N.R. (National Research Council). Since december 1981 to march 1987 he was a researcher carrying on the practice course for Applied Mechanics, taking a part at examination meeting and working as proposer in many degree thesis. Since 1981 to 1984 he carried on his didactics activity as university teacher for Bioengineering course of locomotive apparatus at Orthopaedy and Traumathology specialization school of 2th Department of Medicine and Surgery of Naples University. Since 31 March 1987 is professor of Applied Mechanics at Naples University Federico II, and since A.A. 86/87 to A.A. 92/93 he carried on the Applied Mechanics and Machines course for electronic engineers, and since A.A. 93/94 to today carry on the Applied Mechanics course for computer science engineers. Since A.A. 88/89 to 89/90 he carried on as supply teacher the Applied Mechanics course for building engineers at Salerno Engineering University. By A.A. 94/95 to A.A. 97/98 he carried on as supply professor Tribology course at Naples University Federico II. By A.A. 2001/2002 he holds the chair of Applied Mechanics for University Degree of "Orthopaedic Technician" at 2th Department of Medicine and Surgery of Naples University. Since A.A. 2005/2006 is professor of Tribology and of Complements of Mechanics.

During this years Prof. Vincenzo Niola has been the chairman of his courses examination meetings, and was proposer of many degree thesis.. During his activity Prof. Vincenzo Niola was owner of financings from MURST and (in past and present) cooperate scientifically with research corporation and national industries (MERISINTER, MONTEFLUOS, INDESIT, ALENIA, C.I.R.A.). He's scientific member of Naples research unit for PRIN 2003. He's fellow of Italian Association of Theoretical and Applied Mechanics (AIMETA). He's member of IFToMM Linkages on cams committee. He belongs to the International Scientific Committee of the "World Scientific and Engineering Academy and Society (WSEAS). He is President of the WSEAS Italy Chapter on the "Analysis of the Mechanical Systems". He was been Chairman and "invited author" in some session of Internatinal Conferences. He's author of more than 130 national and international papers.

Plenary Lecture 4

Correlated and Interconnected Analyses for Human Walking and Standing Biomechanical Behavior

Professor Mihaela Ioana Baritz
University Transilvania of Brasov
Fine Mechanics and Mechtaronics Department
B-ul Eroilor nr.29, 500036 Brasov
Romania
Email: mbaritz@unitbv.ro

Abstract: Biomechanical analyses upon the human body are very important within the field of rehabilitation and locomotion recovery procedures, having a significant impact upon the efficiency and development of the objective investigation and assessment methodologies.
In this paper I presented a series of analyses performed in complex investigation structures aiming each time at the establishment of an advanced non-invasive and objective methodology suitable for every type of locomotion malfunction. At the same time we intended the assessment of these malfunctions in connection with other physiological parameters, which do not present deflections from the normal status. We aimed at the conception of the investigation and experimental methodology structure in correlation to the information obtained from the physiological analysis devices upon the human body with those obtained from the measuring equipments (Kistler force plate type-forces and torques on three directions, highspeed videocam, thermovision videocam etc)).
Human gait is the result of interactions between both internal and external factors.
During gait performance almost all the components of the human body are involved (nervous system, vestibular system), but especially the inferior limbs connected by pelvis. All the joints of the pelvic area are strained during gait, but also during static posture in a more or less intense way.
The objective clinical examination of the gait or standing position represents an important study of clinical semiology, being necessary in acknowledging the pathology of certain afflictions and symptoms. It must be performed on a flat ground, especially climbing up and down the stairs, in normal parameters of the recording conditions (temperature, environment, humidity, atmospheric pressure) but also at different moments of the day (morning, noon, evening).
Normal gait, normal contact of the pelvic area with the ground may be modified by a multitude of acquired or congenital afflictions. In order to define each type of pathological gait we have to examine at first the entire kinematic chain of the pelvic member (from the coxal-femoral joint to the foot) and also simulate it on computer software. Thus, secondary modifications show up, at the level of the coxal-femoral joint, due to some older pathology or to some fracture lesions or ageing process. The designed and developed structure during this research is based on the human gait analysis considering the situation of changing the displacement surface level (stairs) for neural - motor disabled persons in different stages of the treatment (before, during and after the medical and physical recovery treatment), researching the evolution of the human body and the effect of these procedures.

Authors Index

Abdullah, L. 31
Abdullah, S. 31, 62, 171
Abu-Amara, M. H. 158
Adrian, C. 282
Agarwala, R. A. 36
Ahmad, I. 324
Al Khawaldah, M. 80, 97
Alajel, K. M. 192
Albagul, A. 208
Arifin, A. 31, 62, 171
Asseni, A. 208
Aubry, E. 46
Aurelian, V. 282
Axenie, C. 213
Baharin, M. N. 62, 171
Banias, O. 86
Baradaran, S. K. 19
Baterina, A. V. 220
Benyettou, M. 151
Bereteu, L. 232
Berger, S. 46
Boudjemai, A. 151
Chae, S.-H. 103
Chakraborty, R. 52
Chavan, M. S. 36
Choi, S. H. 298
Cotoros, D. 248, 254, 258
Cristea, L. 244, 248, 258
Curiac, D.-I. 86
Daba, J. 127
Dawson, D. M. 113
De Sousa, C. A. 274
Dias, E. M. 177, 185, 274
Doicin, C. 282
Draganescu, G. E. 232
Dubois, J.-P. 127
Eshaghi, S. 288
Farahani, H. A. 23
Farge, B. 208
Farsi, H. 288
Fujii, H. A. 310
Gaikwad, M. S. 36
Ghozatloo, H. R. 27
Hashemi, S. A. 292
Hashida, Y. 151
Hayakawa, Y. 139
Hosose, S. 139
Ibrahim, H. E. A. 40
Ion, I. 282
Javaid, M. A. 324
Jayaweera, N. 133
Jomah, O. 208
Jreije, P. 127
Kangarloo, H. 19
Kapadia, A. D. 113
Karam, J. 304
Khairir, M. I. 62, 171
Khajorntraidet, C. 107
Kim, J. Y. 298
Kountchev, R. 91
Kountcheva, R. 91
Leasu, F. 264
Lee, D. C. 97
Lies, J. 192
Lim, S. J. 103
Livatino, S. 80, 97
Mahmoud, S. A. 158
Manescu, M. 244
Marin, A. 282
Matsumoto, T. 318
Mazal, J. 226
Mendi, E. 121
Mihaela, B. 236, 254, 258
Mihaela, B. 264
Mihail, L.-A. 69
Milanova, M. 121
Mohaqeqi, M. 164
Mohsenzadeh, M. 164
Moon, H.-M. 103
Moro, S. 318
Na, S. Y. 298
Nechak, L. 46
Nefti, S. 329
Nezamabadi, M. M. 23
Noori, M. 27
Nopiah, Z. M. 31, 62, 171
Nuawi, M. Z. 31
Omer, M. 208
Oppus, C. 220
Osogami, M. 318
Pan, S. B. 103
Pawar, R. V. 146
Pereira, S. L. 185, 274
Petrov, P. 269
Phungphimai, S. 57
Putra, T. E. 31
Rafizadeh, S. 19
Repanovici, A. 244, 248, 264
Rogozea, L. 244
Rosidah, S. 329, 254, 264
Sadeghi, M. 74
Satre, D. B. 146
Sengupta, D. 52
Si Mohammed, A. M. 151
Sinha, S. 52
Soltanpoor, R. 164
Srisertpol, J. 57
Stanciu, A. 254, 107
Stanescu, D. V. 232, 258
Stodola, P. 226
Talburt, J. 121
Tatlicioglu, E. 113
Todorov, V. 91
Ukasha, A. A. 336
Uplane, M. D. 36
Vendramin, V. L. 177
Volosencu, C. 86
Vu, D. T. 298, 200
Walker, I. D. 113
Webb, P. 133
Xiang, W. 192
Zendebudi, A. 292
Zhou, Y. 121
Zuge, C. T. Y. 185
Zyada, Z. 139