

Contents

Preface	XI
Scientific Programme	1
Author Index.....	297

Artificial Intelligence and Simulation

A Creative Computing Approach to Pragmatics Analysis involving UML Diagrams

Lin Zou, Hongji Yang and Marwan Al-Akaidi.....5

A Personalized Recommender System using Memory based Collaborative Filtering: A Case Study on Context and Non-Context Datasets

Faris Shaheed Tumaa and Nadia F. Al-Bakri.....11

State-of-the-Art for Email Phishing Detection Techniques based on Deep Learning

Narmin Majid Dahham and Lahieb Mohammed Jawad18

Detecting Text Road Signs in Diyala's Province using a Recent Convolutional Neural Network Approach

Omar M. S. Ali, Ali A. D. Al-Zuky and Fatin E. M. Al-Obaidi.....22

Machine Learning Based Autism Detection: Categorization of ASD Data for Early Diagnosis and Treatment Access

Heba M. Fadhil, Ahmed M Saheb and Mohamed Elhoseny28

Biomedical Sensing

Wireless System for Monitoring the Health of Newborns in Premature Infants

Saad Mahmood Ali.....37

Medical Sensor and Patient Traffic Access Control for Software-Defined Wireless Body Area Network

Zahraa M. Yahya and Mohammed F. Al-Gailani.....45

Sensitivity Analysis of Systolic and Diastolic Pressure

Duaa Mohammed, Johain Jawdat Faraj and Mouayed Hassan Ziada Al-Toki..50

Contents

Real Experiment of an Energy-Efficient Gaussian Mixture Model-Based Clustering with Sleep Scheduling Protocol for WSN Transfer

Mohammed Saleh Mutar, Dalal Abdulmohsin Hamood
and Seham Ahmed Hashem **54**

Body Invasive Enhancements

Design and Implementation of Orthodontic Stents to Repair Congenital Chest Wall Deformities and Pigeon Chest

Saad Mahmood Ali and Auob Qasim Mohammed **63**

Development and Mechanical Analysis of a Novel Prosthetic Foot with a Flexible Keel for Improved Functionality

Hiba A. Abdalwahhab and Kadhim K. Resan **71**

Analysis of the Transtibial Osseointegration Prosthesis

Saif M. Abbas, Jumaa S. Chiad and Ayad M. Takhakh **76**

IoT Data Simulation

Enhancing Performance of Vehicular Communications Using Narrowband Internet-of-Things

Omar Daoud, Marwan Al-Akaidi, Ahlam Damati, Qadri J. Hamarsheh
and Mohammed Baniounis **83**

Evaluating the Horizontal Positional Accuracy of Smartphones according to GNSS Data

Moowafaq Jawad Kadhim and Hussein Alwan Mahdi **88**

Evaluation of Soil Salinity by using Remote Sensing in Babil Province, Iraq

Wathiq Abbas, Mustafa Tariq Mustafa, Muntasir Abd Hameed Abd Shreef
and Nawras A. Hussein **95**

Computer Network Security

A New Highly-Reliable and Secure Encryption Algorithm Based on the Hybridization of a Chaos System and DNA along with OTP

Saja Theab Ahmed, Dalal Abdulmohsin Hamood
and Raad Farhood Chisab **101**

Contents

Partial-Band Jammer Mitigation in FH-OFDM-Based DCSK Using a Nonlinearity Blanking Technique Fadhil Sahib Hasan and Taha A. Nuhad.....	108
Multi-Level Computational Complexity Reduction for Cyclostationary Spectrum Sensing Detector May H. Aboot and Hikmat N. Abdullah.....	115

Network Simulation

Traffic Operation at an Arterial Roadway in Karbala City using the VISSIM Simulation Model Majida S. Hadi, Hussein A. Ewadh and Raid R. A. Almuhanna	125
Optimal Study for Simultaneous Faults in Electrical Power Network Waleed Khalid Shakir Al-Jubori, Ali A. Al-Abdulla Albakry and Atheer Luay Yasir Al-Janabi.....	129
Optimal Approach of Microgrid Network Topology considering Different Load Models Waleed Khalid Shakir Al-Jubori and Ali Jasim Mohammed	134

Autonomous System Simulation

Path Planning and Obstacles Avoidance for an Automated Boat in a Known Environment using A_Star Algorithm with PID Controller Abdulkader M. Saeed and Khalida S. Rijab	143
Evaluating the Accuracy of High-Altitude 3D Models using an Unmanned Aerial Vehicle (UAV) at the Al-wand Dam, Iraq Tara Mohammed Khdir, Rana Mozahim Hamdoon and Mamoun Ubaid Mohammed	153

Mechanical Engineering Simulation

Influence of Pulse Width and FWHM on Laser Intensity Using Pump-Probe Technology Saad Kh. Rahi, Muayyed J. Zoory and Alaa H. Ali.....	161
Two-Way Fluid-Structure Interaction Analysis of a Flap Model Using the ANSYS Coupling System Mokdad Hayawi Rahman, Farhan Ahmed Khammas and Emad Qasem Hussein	167

Contents

Aerodynamic Analysis of a Subsonic Aircraft Wing Using Computational Fluid Modelling Muhsin J. Jweeg, Mehmet Bakirci and Ibtisam Jaafar Ismael.....	172
Study Dynamic of Conventional Brakes with Antilock System using SIMULINK MATLAB Mohamad H. Ail, Ali I. H. Al-Zughaibi and Emad Q. Hussein.....	177
 Composite Material Simulation	
Numerical Investigations on the Flexural Behavior of a Hybrid Composite Material Ali Hussein Alimeer and Kamal Abdulkareem Mohammed.....	185
Effect of Al₂O₃ Nano Additive on Fracture Toughness of Chopped Fiberglass/Polyester Composite Shaimaa Hatem, Ehsan Sabah Al-Ameen and Ahmed Ali Farhan Ogaili	191
Finite Element Simulation and Experimental Findings for the Effect of Core Density on Strength of a Sandwich Panel with a Hexagonal Honeycomb Core Muhsin J. Jweeg, Ahmed K. Hassan and Hayder A. Sabah	197
Improving the Mechanical Properties and Microstructure of AA2024-T3 Aluminum Alloy welded Joints by using Friction Stir Processing Muna Khethier Abbass and Jihad Abdul Kadair Ganim	203
 Simulation in Urban Design and Architecture	
Enhancing Place Attachment through an Urban Strategy Mustafa M. Anas Al-Mendilawi and Haider Jasim Essa Al-Saadwy.....	211
A Review Study of Prior Research on Reinforced Concrete Curved Box Girders Asala Asaad Dawood, Khattab Saleem Abdul-Razzaq and Wael Shawky Abdulsahib.....	219
Measuring Lateral Steel Column Oscillation subjected to Impact Load by Vidiogrammetric Techniques Nawres A. Hussein, Jasim A. Ali and Aymen R. Mohammed	226
Impact of Design Quality Factors on Construction Quality Factors in Road Projects Zeina Ali Fadhel, Mohammed Neamah Ahmed and Gafel Kareem Aswed.....	231

Contents

Evaluating the Mechanical Properties of activated Crumb Rubber in Stone Mastic Asphalt

Rawa'a Shakir and Shakir Al-Busaltan**237**

Modeling of Experimental Shear Strength of Gypsiferous Clay Soil

Abbas J. Al-Taie and Bushra S. Albusoda**242**

Reviewing Critical Factors controlling the Modeling and Design of Earth Retaining Structures

Abbas J. Al-Taie and Mahmood D. Ahmed**248**

Thermal Simulation

Numerical Investigation about Parameters Affected by Indoor Air Quality (IAQ) with Air Condition System

J. Alzubaidy, M. Farhadi, Hasanen Mohammad Hussain
and Wisam Mohammed Mareed**257**

Numerical Investigation of a PV Module using Air Flow through Aluminum Ball Porous Media

Abdullah M. Al Sadoon, Muna S. Kassim and Raid A. Mohmood**263**

Thermal Behavior of a Thermal Storage System using Copper Fins Embedded within Phase Change Material

Noor Husham and Maathe A. Theeb**268**

Comparative Analysis of Pin Fins and Secondary Channels for Enhancing Heat Sink Thermal Performance

Ruqaya Salam Hussein and Ihsan Ali Ghani**274**

Investigating the Performance of a Solar Water Heater under Variable Pressure of the Latent Heat of Ethanol

Hussein A. Mahmood, Ali D. Salman and Mohammed F. Mohammed**280**

Late Paper

Analysis of Residual Stresses of AL/MG Compounds by the Hole-Drilling Strain Gage Method with ANSYS Simulation

Abdullah Dhayea Assi, Moneer H. Tolephih and Muhsin J. Jweeg**287**