

2021 IEEE Asia-Pacific Conference on Computer Science and Data Engineering (CSDE 2021)

**Brisbane, Australia
8 – 10 December 2021**



**IEEE Catalog Number: CFP21V34-POD
ISBN: 978-1-6654-9553-0**

**Copyright © 2021 by the Institute of Electrical and Electronics Engineers, Inc.
All Rights Reserved**

Copyright and Reprint Permissions: Abstracting is permitted with credit to the source. Libraries are permitted to photocopy beyond the limit of U.S. copyright law for private use of patrons those articles in this volume that carry a code at the bottom of the first page, provided the per-copy fee indicated in the code is paid through Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923.

For other copying, reprint or republication permission, write to IEEE Copyrights Manager, IEEE Service Center, 445 Hoes Lane, Piscataway, NJ 08854. All rights reserved.

****** This is a print representation of what appears in the IEEE Digital Library. Some format issues inherent in the e-media version may also appear in this print version.***

IEEE Catalog Number:	CFP21V34-POD
ISBN (Print-On-Demand):	978-1-6654-9553-0
ISBN (Online):	978-1-6654-9552-3

Additional Copies of This Publication Are Available From:

Curran Associates, Inc
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: (845) 758-0400
Fax: (845) 758-2633
E-mail: curran@proceedings.com
Web: www.proceedings.com

CURRAN ASSOCIATES INC.
proceedings
.com

TABLE OF CONTENTS

A COMPARATIVE STUDY OF HYPER-PARAMETER OPTIMIZATION TOOLS	1
<i>Shashank Shekhar; Adesh Bansode; Asif Salim</i>	
EMPIRICAL STABILITY LIMITS FOR A SIZE-BASED SCHEDULER APPLIED TO NETWORK UTILITY MAXIMIZATION	7
<i>Bruno Mendivez Vasquez; Lachlan L. H. Andrew; Julian Garcia; Cao Wang</i>	
ENHANCING OBJECT CLARITY IN SINGLE CHANNEL NIGHT VISION IMAGES USING DEEP REINFORCEMENT LEARNING	13
<i>Mohammad Elham Robbani; Adil Hossain; Md. Riaz Ul Haque Sazid; Sk. Shahiduzzaman Siam; Wasiu Abtahee; Amitabha Chakrabarty</i>	
A DEEP REINFORCEMENT LEARNING SCHEDULER WITH BACK-FILLING FOR HIGH PERFORMANCE COMPUTING	19
<i>Lingfei Wang; Aaron Harwood; Maria A. Rodriguez</i>	
PREDICTING EFFECTIVENESS OF MARKETING THROUGH ANALYZING EMOTIONAL CONTEXT IN ADVERTISEMENT USING DEEP LEARNING	25
<i>Sheikh Mohammad Arafat; Rifatul Islam; Ishraque Arefin Rafi; Md. Rashedul Islam; Md. Golam Rabiul Alam</i>	
DATA ANALYSIS OF THE NATIONAL DATABASE OF HEALTH INSURANCE CLAIMS AND SPECIFIC HEALTH CHECKUPS OF JAPAN (NDB) OPEN DATA JAPAN WITH AN ADJUSTMENT OF CONFOUNDING FACTORS	31
<i>Kazuo Ishii; Takuya Nishio; Yuta Itoigawa; Seigo Sakaki; Ryuji Sakagami; Yoshihisa Shoji; Yoshihiro Fukumoto</i>	
APPLICATION OF THE BINARMA (1,1) MODEL WITH NB INNOVATIONS ON ACCIDENT DATA	35
<i>Y. Sunecher</i>	
CHURN PREDICTION IN TELECOM INDUSTRY USING MACHINE LEARNING ENSEMBLES WITH CLASS BALANCING	39
<i>Abdullahi Chowdhury; Shahriar Kaisar; Md Mamunur Rashid; Sakib Shahriar Shafin; Joarder Kamruzzaman</i>	
COVID-19 TRACKER: A DATA VISUALIZATION TOOL FOR TIME SERIES DATA OF PANDEMIC IN INDIA	45
<i>Yaksh Talavia; Priyanka Singh; Sathiamoorthy Manoharan</i>	
DEEP LEARNING METHOD FOR HAZE PREDICTION IN SINGAPORE	50
<i>Azam Che Idris; Hayati Yassin</i>	
EVALUATING DEEP SEQUENTIAL KNOWLEDGE TRACING MODELS FOR PREDICTING STUDENT PERFORMANCE	56
<i>Joel Mandlazi; Ashwini Jadhav; Ritesh Ajoodha</i>	
AN EFFICIENT MESOSCOPIC MODELING METHOD FOR LARGE VOLUME TRAFFIC FLOW USING PROCESS MINING TECHNIQUES	62
<i>Kenji Uehara; Kunihiko Hiraishi</i>	
DETECTION OF ANDROID MALWARE USING TREE-BASED ENSEMBLE STACKING MODEL	68
<i>Sakib Shahriar Shafin; Md. Maroof Ahmed; Mahmud Alam Pranto; Abdullahi Chowdhury</i>	
OLDER ADULTS AND DIGITAL GAME TRENDS, CHALLENGES AND BENEFITS	74
<i>Nurul Farinah Mohsin; Suriati Khartini Jali; Mohamad Imran Bandan; Nurfaeza Jali; Amelia Jati Robert Jupit</i>	
DESIGN DATA LITERACY – IMPACT OF DATA LITERACY IN VIRTUAL PRODUCT DEVELOPMENT	80
<i>Tim G. Giese; Reiner Anderl</i>	
A MACHINE LEARNING APPROACH FOR PREDICTING THERAPEUTIC ADHERENCE TO OSTEOPOROSIS TREATMENT	88
<i>Ggaliwango Marvin; Md. Golam Rabiul Alam</i>	
EXPLORING THE EVOLUTIONARY CHARACTERISTICS OF PROJECT MANAGEMENT APPROACHES AT DIFFERENT LEVELS OF OPERATIONS	94
<i>Nazish Saleem; Sanjay Mathrani; Aymen Sajjad</i>	
ANALYSIS OF THREAD BLOCK SCHEDULING ALGORITHMS FOR GENERAL PURPOSE GPU SYSTEMS	101
<i>Soyeon Park; Kyungwoon Cho; Hyokyung Bahn</i>	
STATISTICAL METHODS FOR DATA MINING MATHEMATICS STUDENTS' ONLINE PRESENCE	107
<i>Mohammed Naseem; Emmenual Reddy; Ravneil Nand</i>	

PREVENTING TIMING SIDE-CHANNEL ATTACKS IN SOFTWARE-DEFINED NETWORKS	113
<i>Faizan Shoaib; Yang-Wai Chow; Elena Vlahu-Gjorgievska</i>	
IDENTIFYING FALLERS BASED ON FUNCTIONAL PARAMETERS: A MACHINE LEARNING APPROACH	119
<i>F. Fahimi; W. R. Taylor; R. Dietzel; G. Armbrecht; Nb. Singh</i>	
DETECTION OF MALICIOUS URLS THROUGH AN ENSEMBLE OF MACHINE LEARNING TECHNIQUES	125
<i>Shreya Venugopal; Shreya Yuvraj Panale; Manav Agarwal; Rishab Kashyap; U. Ananthanagu</i>	
CONFUSION DETECTION USING NEURAL NETWORKS	131
<i>Chaitali Samani; Madhu Goyal</i>	
MEASURING THE SUCCESS OF MASSIVE OPEN ONLINE COURSES: A MIXED-METHOD CASE STUDY	137
<i>Umniya Usama Elsayed Mohamed; Norsaremah Salleh</i>	
ISSUES RELATED TO MODELLING AND PARAMETER SETTINGS OF MODELS FOR ECOLOGICAL SYSTEMS THE CASE OF DISTRIBUTION OF KOALAS	142
<i>Yuting Zhao; Masoud Mohammadian; Julio Romero; Hamed Sarbazhosseini</i>	
A COMPARATIVE ANALYSIS OF OPTIMIZERS IN RECURRENT NEURAL NETWORKS FOR TEXT CLASSIFICATION	147
<i>Syed Mahbubuz Zaman; Md. Mohidul Hasan; Redwan Islam Sakline; Dipto Das; Md. Ashrafal Alam</i>	
PRE-TRAINED TRANSFORMER-BASED CLASSIFICATION FOR AUTOMATED PATENTABILITY EXAMINATION	153
<i>Hao-Cheng Lo; Jung-Mei Chu</i>	
AGILEML: A MACHINE LEARNING PROJECT DEVELOPMENT PIPELINE INCORPORATING ACTIVE CONSUMER ENGAGEMENT	158
<i>Raj Mani Shukla; John Cartlidge</i>	
ENSEMBLE DEEP LEARNING MODELS FOR FINE-GRAINED PLANT SPECIES IDENTIFICATION	165
<i>Owais Ahmed Malik; Muhammad Faisal; Burhan Rashid Hussein</i>	
THREE-DIMENSIONAL HYBRID MESH GENERATION METHOD FOR THE EJECTOR USED IN PROTON EXCHANGE MEMBRANE FUEL CELLS	171
<i>Denghao Zhang; Xuebin Yang; Zhongxuan Du</i>	
A REVIEW OF HEURISTIC APPROACHES TO VEHICLE ROUTING PROBLEMS	176
<i>Kerem Buyukozdemir; Kazim Yildiz; Anil Bas; Banu Calis Uslu</i>	
CRITICAL SUCCESS FACTORS AND CHALLENGES FOR CLOUD ERP SYSTEM IMPLEMENTATIONS IN SMES: A VENDORS' PERSPECTIVE	181
<i>Sunchai Tongsuksai; Sanjay Mathrani; Kasuni Weerasinghe</i>	
SUB-GROUP BASED MACHINE LEARNING FOR GAS CONSUMPTION PREDICTION	187
<i>Xudong Hu; Biplab Sikdar</i>	
A PRELIMINARY STUDY OF CONVOLUTIONAL NEURAL NETWORK ARCHITECTURES FOR BREAST CANCER IMAGE CLASSIFICATION	193
<i>Siti Shaliza Mohd Khairi; Mohd Aftar Abu Bakar; Mohd Almie Alias; Sakhinah Abu Bakar; Choong-Yeun Liong</i>	
DEVELOPMENT AND VALIDATION OF A BIOSIGNAL MEASUREMENT DEVICE TO ASSIST IN TELEOPERATED DIAGNOSIS	198
<i>William S. Barbosa; Flavia M. Gonçalves; Felipe R. Henriques; Felipe C. Gouvea; Renan F. F. Wanderley</i>	
CROSS-DOMAIN FAULT DIAGNOSIS OF BEARINGS USING SIMPLE STRUCTURE MODEL COMBINING WITH SIGNAL PROCESSING METHOD	204
<i>Taeyun Kim; Jangbom Chai</i>	
CARDIOTOCOGRAM BIOMEDICAL SIGNAL CLASSIFICATION AND INTERPRETATION FOR FETAL HEALTH EVALUATION	210
<i>Ggaliwango Marvin; Md. Golam Rabiul Alam</i>	
MULTI ADAPTIVE HYBRID NETWORKS (MAHNET): ENSEMBLE LEARNING IN CONVOLUTIONAL NEURAL NETWORK	216
<i>Mahmut Cakar; Kazim Yildiz; Yakup Genc</i>	
ENHANCING PERFORMANCE OF IR SHIP DETECTION WITH BASELINE AI MODELS OVER A NEW BENCHMARK	220
<i>Abraar Raza Samar; Adeel Mumtaz</i>	
CUSTOMER SIZE PREDICTION USING MACHINE LEARNING APPROACH FOR MOBILE PACKAGE	226
<i>Desalegn Medhin Firdu; Rosa Tsegaye Aga</i>	
INTERNET OF THINGS IN SMART AGRICULTURE: CHALLENGES, OPPORTUNITIES AND FUTURE DIRECTIONS	231
<i>Navod Neranjan Thilakarathne; Hayati Yassin; Muhammad Saifullah Abu Bakar; Pg Emerolyrariffion Abas</i>	

RECONSTRUCTION AND UPSCALING OF 3D MODELS FROM SINGLE OR MULTIPLE VIEWS.....	240
<i>Aditya Gunjal; Atharva Kulkarni; Chinmay Joshi; Ketaki Gokhale</i>	
FLOOD PREDICTION USING MACHINE LEARNING MODELS: A CASE STUDY OF KEBBI STATE NIGERIA.....	245
<i>Zaharaddeen Karami Lawal; Hayati Yassin; Rufai Yusuf Zakari</i>	
NOVEL AI BASED PRE-SILICON PERFORMANCE ESTIMATION AND VALIDATION OF COMPLEX SYSTEM-ON-CHIP.....	250
<i>Manoj Kumar Munigala; Surinder Sood; K. N. Madhusudhan</i>	
A PERFORMANCE COMPARISON OF FAKE NEWS DETECTION APPROACHES.....	256
<i>Haichao Zhu; Richard O. Sinnott</i>	
ENUMERATING MINIMAL GENERATORS FROM CLOSED ITEMSETS – TOWARD EFFECTIVE COMPRESSION OF NEGATIVE ASSOCIATION RULES.....	263
<i>Koji Iwanuma; Kento Yajima; Yoshitaka Yamamoto</i>	
BLOCKCHAIN-BASED ACCESS CONTROL FOR THE INTERNET OF THINGS: A SURVEY.....	270
<i>Ebtihal Abdulrahman; Suhair Alshehri; Asma Cherif</i>	
PREDICTION OF VOLUMETRIC DRAG COEFFICIENT OF TRI-LOBED AIRSHIP ENVELOPES USING ML TOOLS.....	276
<i>Anudeep Peela; Manikandan Murugaiah; Rajkumar S. Pant</i>	
AN EFFICIENT DEEP LEARNING APPROACH FOR DETECTING LUNG DISEASE FROM CHEST X-RAY IMAGES USING TRANSFER LEARNING AND ENSEMBLE MODELING.....	282
<i>Mostofa Kamal Sagor; Shakib Mahmud Dipto; Ishrat Jahan; Susmita Chowdhury; Md Tanzim Reza; Md Ashrafal Alam</i>	
PANIC BEHAVIOR DETECTION USING UNSUPERVISED MACHINE LEARNING TECHNIQUES: A COMPARATIVE STUDY.....	287
<i>Doaa Shehab; Heyfa Ammar; Asma Cherif</i>	
FACE IMAGE SCANNING FOR DIFFERENTIATION OF CHILD/ADULT IMAGES USING A CNN-BASED MODEL.....	293
<i>Mirza Jamal Ahmed; Nurul Aza Abdullah</i>	
SELECTIVE FLUSHING OF MODIFIED DATA FOR SMARTPHONE BUFFER CACHE MANAGEMENT.....	299
<i>Soojung Lim; Hyokyung Bahn</i>	
A SURVEY ON CUSTOMER CHURN PREDICTION USING MACHINE LEARNING AND DATA MINING TECHNIQUES IN E-COMMERCE.....	305
<i>Priya Gopal; Nazri Bin Mohdnavi</i>	
COVIDENVELOPE: AN AUTOMATED FAST APPROACH TO DIAGNOSE COVID-19 FROM COUGH SIGNALS.....	313
<i>Md Zakir Hossain; Md. Bashir Uddin; Yan Yang; Khandaker Asif Ahmed</i>	
STUDYING TRANSFER OF LEARNING USING A BRAIN-INSPIRED SPIKING NEURAL NETWORK IN THE CONTEXT OF LEARNING A NEW PROGRAMMING LANGUAGE.....	319
<i>Mojgan Hafezi Fard; Krassie Petrova; Nikola Kasabov; Grace Y. Wang</i>	
CONTACT TRACING APPLICATION FOR AVIATION- A DIGITAL INOCULATION.....	325
<i>Muni Prashneel Gounder; Neeraj Anand Sharma</i>	
LEARNING COMPUTER MODULES USING MULTIMEDIA AND SOCIAL MEDIA PLATFORM IN A DEVELOPING COUNTRY.....	333
<i>Monesh Sami; Neeraj Anand Sharma</i>	
A REVIEW OF INFORMATION SECURITY LAWS TO COUNTER ONLINE THREATS AND ATTACKS IN FIJI.....	342
<i>Hermann Jamnadas; Anal Kumar; Vishal Sharma; A. B. M. Shawkat Ali</i>	
COVID-19 UNIFIED INFORMATION SYSTEM FOR FIJI.....	349
<i>Jashnil Kumar; Neeraj Anand Sharma</i>	
IN-FLIGHT CATERING MANAGEMENT SYSTEM AS A BUSINESS PROCESS OPTIMIZATION FOR AIR TERMINAL SERVICES (FIJI) PTE LIMITED.....	353
<i>Prasant Kumar; Neeraj Anand Sharma</i>	
DIGITAL CONTACT TRACING THROUGH THE USE OF NFC ON MOBILE APPLICATIONS AS A FUTURE VIABLE ALTERNATIVE TO QR CODE SCANNING IN THE CONTEXT OF FIJI.....	357
<i>Hermann Ken Jamnadas; Neeraj Anand Sharma</i>	
MODEST ONLINE PRICE PUBLISHER: A HOLISTIC AND INSIGHTFUL PLATFORM FOR PRICE PUBLICATIONS, LOOKUPS, AND COMPARISONS.....	363
<i>James Rajesh Chandra; Neeraj Anand Sharma</i>	
HERDING PREDATORS USING SWARM INTELLIGENCE.....	367
<i>Sandeep A. Kumar; Kunal Chand; Lata I. Paea; Imanuel Thakur; Maria Vatikani</i>	

LYAPUNOV-BASED CONTROLLERS OF AN N-LINK PRISMATIC ROBOT ARM	373
<i>Ronal P. Chand; Sandeep A. Kumar; Ravinesh Chand; Robert Tamath</i>	
A CAR-LIKE MOBILE MANIPULATOR WITH AN N-LINK PRISMATIC ARM	378
<i>Ravinesh Chand; Sandeep A. Kumar; Ronal P. Chand; Shabnam Reddy</i>	
IMPROVING PROJECT CONTROL BY UTILIZING PREDICTIVE DATA ANALYTIC MODELS	384
<i>Kamal Jaafar; Ahmad Aloran; Mohamad Watfa</i>	
IMPACT OF COVID 19 ON WORK INTEGRATED LEARNING FOR COMPUTING EDUCATION	390
<i>Sanjay Jha; Sweta Thakur; Shafiqur Rahman; Meena Jha</i>	
CRYPTANALYSIS OF STREAM CIPHER: METHOD IMPLEMENTATION	396
<i>Aiman Al-Sabaawi</i>	
DIGITAL SUPPLY CHAIN MANAGEMENT ECOSYSTEM POWERED BY BLOCKCHAIN TECHNOLOGY	400
<i>Syed Rifat Ahsan; Ismat Sifat Yousuf; Zunaira Khan; Yousra Mehrin; Mahbub Alam Majumdar</i>	
MULTIMODAL SEGMENTATION BASED ON A NOVEL 3D U-NET DEEP LEARNING ARCHITECTURE	406
<i>K. M. Swaroopa; Girija Chetty</i>	
DEEP LEARNING BASED DECISION SUPPORT FRAMEWORK FOR CARDIOVASCULAR DISEASE PREDICTION	414
<i>Nitten Singh Rajjliwal; Girija Chetty</i>	
ANALYSIS OF TECHNOLOGY-MEDIATED PEDAGOGIES: EXPERIENCES FROM A BYOD INITIATIVE IN NEW ZEALAND	426
<i>Janak Adhikari; Anuradha Mathrani; Chris Scogings</i>	
A NEW DATASET OF WIDEBAND RADAR SIGNALS FOR TRAINING DEEP NEURAL NETWORKS ON CLASSIFICATION AND DETECTION TASKS	432
<i>Mohamed A. Ammar; Mohamed S. Abdel-Latif; Khaled Mahmoud Badran; Hossameldin A. Hassan</i>	
REAL WORLD OBJECTS AUGMENTATION IN VIRTUAL 3D ENVIRONMENT REALSENSE SDK, DEEP LEARNING AND GAME ENGINE	438
<i>Shadman Shahriar Hasan Arko; Md Tamjid Hossain; Shakib Mahmud Dipto; Samiul Islam Shad; Md Ashrafal Alam</i>	
A COLOR VISION APPROACH CONSIDERING WEATHER CONDITIONS BASED ON AUTOENCODER TECHNIQUES USING DEEP NEURAL NETWORKS	444
<i>Mohammad Mainuddin Raj; Samaul Haque Tasdid; Maliha Ahmed Nidra; Jobaer Noor; Sanjana Amin Ria; Md. Ashrafal Alam</i>	
CLASSIFICATION OF DIFFERENT MAGNETIC STRUCTURES FROM IMAGE DATA USING DEEP NEURAL NETWORKS	456
<i>Fahad Ibn Hasib; Nakiba Farhana Swarna; Md. Ashrafal Alam</i>	
INTEGRATION OF HANDCRAFTED AND DEEP NEURAL FEATURES FOR MELANOMA CLASSIFICATION AND LOCALIZATION OF CANCEROUS REGION	462
<i>Mohammad Saminoor Rahman; Md. Jubayer Hossain; Md. Kamrul Hasan Sujon; Md. Nafiul Kabir; Siful Islam; Md. Tanzim Reza; Md. Ashrafal Alam</i>	
AN EFFICIENT APPROACH FOR SKIN DISEASE DETECTION USING DEEP LEARNING	468
<i>Jihan Alam</i>	
A SYSTEMATIC REVIEW OF MODERN MALICIOUS SOFTWARES AND APPLICABLE RECOMMENDATIONS	476
<i>Neeraj Anand Sharma; Kunal Kumar; Manisha Aradhna Raj; A B M Shawkat Ali</i>	
AN OVERVIEW OF GAMIFICATION IN CONFLICT RESOLUTION AND COMPLEX PROBLEMS USING SCALED DOWN ARENAS IN AREAS OF CONTENTION	482
<i>Maneerat Rumsamrong; Andrew Chiou</i>	
SUITABLE CROP SUGGESTING SYSTEM BASED ON N.P.K. VALUES USING MACHINE LEARNING MODELS	488
<i>Shakib Mahmud Dipto; Asif Iftekher; Tomalika Ghosh; Md Tanzim Reza; Md Ashrafal Alam</i>	
APPLICATION OF SECONDARY WATER SUPPLY WATER QUALITY EVALUATION METHOD BASED ON K-MEANS CLUSTERING AND ENTROPY METHOD	494
<i>Wu Linjing; Yu Jiali; Zeng Jiayu; Shu Shihu</i>	
IOT CYBERSECURITY: ON THE USE OF MACHINE LEARNING APPROACHES FOR UNBALANCED DATASETS	500
<i>Salahuddin Azad; Syeda Salma Naqvi; Fariza Sabrina; Shaleeza Sohail; Sweta Thakur</i>	
THE IMPACT OF DEMOGRAPHICS ON USER SATISFACTION IN CLOUD-BASED PAYMENT SYSTEMS IN AUSTRALIA	506
<i>Domingos Mondego; Ergun Gide</i>	

DEEP ASYMPTOTIC EXPANSION: APPLICATION TO FINANCIAL MATHEMATICS	512
<i>Yuga Iguchi; Riu Naito; Yusuke Okano; Akihiko Takahashi; Toshihiro Yamada</i>	
MULTI-MODAL EMOTION RECOGNITION FOR DETERMINING EMPLOYEE SATISFACTION	518
<i>Farhan Uz Zaman; Maisha Tasnia Zaman; Md. Ashrafal Alam; Md. Golam Rabiul Alam</i>	
A CONCEPTUAL FRAMEWORK TO ENHANCE BUSINESS PERFORMANCE USING SOCIAL MEDIA: AN AUSTRALIAN CONTEXT	524
<i>Meena Jha; Suresh Khatiwada; Lily D. Li</i>	
RETAIL ANALYTICS TO ANTICIPATE COVID-19 EFFECTS USING BIG DATA TECHNOLOGIES	530
<i>Jessica Sharma; Deepikesh Sharma; Krishneel Sharma</i>	
MULTI-DIMENSIONAL COMPARISON AND SELECTION OF HIGH-QUALITY DRINKING WATER RENOVATION PROJECT SCHEMES FOR COMMUNITIES	536
<i>Zeng Jiayu; Liu Siwei; Lu Yao; Cao Haochen; Zhu Yanping; Shu Shihu</i>	
HAND GESTURE RECOGNITION SYSTEM FOR GAMES	542
<i>Nhat Vu Le; Majed Qarmout; Yu Zhang; Haoren Zhou; Cungang Yang</i>	
TOTEM SDK: AN OPEN TOOLSET FOR TOKEN CONTROLLED COMPUTATION MANAGED BY BLOCKCHAIN	548
<i>Behfar Behzad; Dhanya Therese Jose; Antorweep Chakravorty; Chunming Rong</i>	
USING SCORE-BASED STRUCTURE LEARNING TO COMPUTATIONALLY LEARN DIRECT INFLUENCE BETWEEN HIERARCHICAL DYNAMIC BAYESIAN NETWORKS	556
<i>Ritesh Ajoodha; Benjamin Rosman</i>	
A CONDITIONAL GENERATIVE ADVERSARIAL NETWORK FOR NON-RIGID POINT SET REGISTRATION	562
<i>Haolin Tang; Yanxiao Zhao</i>	
AUTONOMOUS UAV LANDING ON MOBILE PLATFORMS	568
<i>Darmesh Kumar; Jai Raj; Krishna Raghuwaiya; Jito Vanualailai</i>	
SOCIAL MEDIA RUMOUR DETECTION THROUGH GRAPH ATTENTION NETWORKS	574
<i>Xinpeng Zhang; Shuzhi Gong; Richard O. Sinnott</i>	
RUN OR PAT: USING DEEP LEARNING TO CLASSIFY THE SPECIES TYPE AND EMOTION OF PETS	580
<i>Richard O. Sinnott; Uwe Aickelin; Yunjie Jia; Elizabeth R. J. Sinnott; Pei-Yun Sun; Rio Susanto</i>	
DUAL-STAGE ATTENTION-BASED RECURRENT NEURAL NETWORKS FOR MARKET MICROSTRUCTURE	586
<i>Chaeshick Chung; Sukjin Park</i>	
CANTEEN AUTOMATION SYSTEM: AN APPROACH FOR “SMART CITY” PLANNING	592
<i>Syeda Tanzina Farhin Toma; Dolan Karmaker; Sumaiya Iqbal; Md Humayun Kabir Pantho; Raihana Shams Islam Antara</i>	
FINDING THE DRIVERS FOR ERP SYSTEMS UPTAKE IN SMES – AN EXPLORATORY MULTIPLE-CASE STUDY OF SELECTED FIJIAN COMPANIES	598
<i>Sanmugam Goundar; M. G. M. Khan; Karuna Garan Reddy</i>	
AUSTRALIAN COVID-19 DATA VISUALISATION AND FORECAST MODELLING PERFORMANCE ANALYSIS	605
<i>Proma T. Ali; Ayesha K. Reddy</i>	
IMPROVED PREDICTION OF MONTHLY PAN EVAPORATION UTILISING SUPPORT VECTOR MACHINE TECHNIQUE	611
<i>Mustafa Abed; Monzur Imteaz; Ali Najah Ahmed; Yuk Feng Huang</i>	
DECOY-FILE-BASED DECEPTION WITHOUT USABILITY DEGRADATION	616
<i>Yu Aoike; Masaki Kamizono; Masashi Eto; Noriko Matsumoto; Norihiko Yoshida</i>	
CYBER-PHYSICAL SYSTEMS AND DIGITAL TWINS IN PRACTICE – A REAL-LIFE APPLICATION EXAMPLE	623
<i>Ulrich Dahmen; Marc Priggemeyer; Juergen Rossmann</i>	
SUPPORTING END USER COMPREHENSION IN INTELLIGENT DECISION SUPPORT SYSTEMS USING DATA VISUALISATION TECHNIQUES	631
<i>Maneerat Rumsamrong; Andrew Chiou</i>	
RECURSIVE HIERARCHICAL REGRESSION CLUSTERING	637
<i>Asma Z. Yamani; Rabah A. Al-Zaidy</i>	
IMPLEMENTING ALGEBRAIC EFFECTS AND HANDLERS IN NON-FUNCTIONAL PROGRAMMING LANGUAGES	643
<i>Ryu Noguchi; Noriko Matsumoto; Norihiko Yoshida</i>	

INVESTIGATING HOURLY GLOBAL HORIZONTAL IRRADIANCE FORECASTING USING LONG SHORT-TERM MEMORY	649
<i>Asma Z. Yamani; Sarah N. Alyami</i>	
APPLICATION OF GAUSSIAN PROCESS PREFERENCE LEARNING FOR VISUALIZING FACIAL FEATURES RELATED TO PERSONALITY TRAITS	655
<i>Keito Shiroshita; Masashi Komori; Koyo Nakamura; Maiko Kobayashi; Katsumi Watanabe</i>	
CONNECTION PHASE ESTIMATION OF POLE MOUNTED DISTRIBUTION TRANSFORMERS BY INTEGER FORM OF POPULATION BASED INCREMENTAL LEARNING CONSIDERING MEASUREMENT ERRORS AND OUTLIERS BY CORRENTROPY	661
<i>Kaichi Matsumoto; Yoshikazu Fukuyama; Kojiro Seki; Akihiro Oi; Toru Jintsugawa; Hisashi Fujimoto</i>	
USING MACHINE LEARNING TO CREATE A CREDIT SCORING MODEL IN BANKING AND FINANCE	667
<i>Nhan Thi Cao; Long Hoang Tran; An Hoa Ton-That</i>	
DEMYSTIFYING DEEP LEARNING MODELS FOR RETINAL OCT DISEASE CLASSIFICATION USING EXPLAINABLE AI	672
<i>Tasnim Sakib Apon; Mohammad Mahmudul Hasan; Abrar Islam; Md. Golam Rabiul Alam</i>	
SMART GARBAGE MONITORING AND ALERT SYSTEM:AN ECO-EFFICIENT APPROACH TOWARDS ENVIRONMENTAL SUSTAINABILITY AND RECYCLING	678
<i>Dolan Karmaker; Mahjabin Muntaha; M. Sifat Ibn Awlad; Sumaiya Iqbal</i>	
SOLAR RADIATION AND WIND SPEED FORECASTING USING DEEP LEARNING TECHNIQUE	684
<i>Md Mainul Islam; Mahmood Nagrial; Jamal Rizk; Ali Hellany</i>	
DETERMINE THE OPTIMUM OPERATING CONDITIONS FOR BLACK PEPPER DRYING IN A TRAY DRYER TO MINIMIZE THE TOTAL DRYING ENERGY	690
<i>Ishan Virantha; Anusha Wijewardane</i>	
OPTIMAL ALLOCATION OF DISTRIBUTED ENERGY STORAGE SYSTEMS IN UNBALANCED DISTRIBUTION NETWORKS	696
<i>Dong Zhang; Choton K. Das; G. M. Shafiullah; Kok Wai Wong</i>	
PERFORMANCE EVALUATION OF THE WEAKLY HARD REAL-TIME TASKS FOR GLOBAL MULTIPROCESSOR SCHEDULING APPROACH	702
<i>Habibah Ismail; Dayang N. A. Jawawi; Ismail Ahmedy; Mohd Adham Isa</i>	
IDENTIFICATION AND PRIORITISATION OF ELECTRICITY DRIVING FACTORS FOR POWER SUPPLY SUSTAINABILITY: A CASE OF DEVELOPING AND UNDERDEVELOPED NATIONS	708
<i>Hanif Auwal Ibrahim; Michael Kwenejo Ayomoh</i>	
REVEALING THE CENTURY OLD TECHNIQUE OF SLICING JAPANESE CEDAR (CRYPTOMERIA JAPONICA) BY JAPANESE CRAFTSMEN BY ASSESSING ITS MECHANISM OF CRACK PROPAGATION	714
<i>Raviduth Ramful</i>	
NUMERICAL INVESTIGATION OF THE FRACTURE PATTERN IN CEDAR WOOD BY FINITE ELEMENT METHOD BY CONSIDERING GRAIN DIRECTION	718
<i>Raviduth Ramful</i>	
MODELLING ANALYSIS OF SAVONIUS AND DARRIEUS WIND TURBINE MODELS USING SOLIDWORKS FLOW SIMULATION	722
<i>Liew Hui Fang; Noor Afiq Ikram Mohd Noor; Muhammad Izuan Fahmi Romli; Muhammad Zaid Aihсан; Junaidah Ali Mohd Jobran; Norhanisa Kimpol</i>	
AN INTEGRATED LEAN AND ISO 14001 IMPLEMENTATION FOR SUSTAINING ENVIRONMENTAL PERFORMANCE IN THE MEAT INDUSTRY	728
<i>Aqeel Ahmed; Sanjay Mathrani</i>	
LIGHTING ENERGY CONSUMPTION ESTIMATION MODELS FOR A LIBRARY BUILDING WITH DIFFERENT LIGHTING SCENARIOS	734
<i>Wan Yun Hong; Bibi N. Rahmat</i>	
A DMAIC APPROACH TO INVESTIGATE THE GREEN LEAN SIX SIGMA TOOLS FOR IMPROVING ENVIRONMENTAL PERFORMANCE	739
<i>Amna Farrukh; Sanjay Mathrani; Aymen Sajjad</i>	
INFLUENCE OF AXIAL PULLEY MISALIGNMENT ON POWER LOSS IN LAYERED STEEL BANDS AND OF METAL V-BELT TYPE CVT	745
<i>Daiki Murai; Tooru Yagasaki; Kazuya Okubo; Kiyotaka Obunai</i>	
AUTOMATED PASSIVE MEASURES: THE NEXT STEP IN REDUCING THE CARBON FOOTPRINT OF OUR BUILDINGS	749
<i>Nishita Ramessur; Mahendra Gooroochurn</i>	

A DESIGN OF SELF-ASSISTED PATIENT CONTROL TECHNIQUE FOR EARLY REHABILITATION INTERVENTIONS TO PREVENT THE REDUCED ELBOW JOINT ROM OF COVID-19 PATIENTS	755
<i>Syed Mehmood Ali</i>	
THREE - DIMENSIONAL TUNNEL PASSING MANEUVERS OF MOBILE ROBOTS	761
<i>Madhur Verma; Sanjana Chetty; Praviserk Chand; Hafswa Bibi; Jai Raj</i>	
EFFICIENCY AND QUALITY-OF-LIFE IN USING AN EYE-CONTROLLED WHEELCHAIR: A CASE STUDY	767
<i>Kamala Krishnan; Tan Lee Fan; Danny Ng Wee Kiat; Premala Krishnan</i>	
HUMAN BEHAVIOR IDENTIFICATION AND RECOGNITION SYSTEM	773
<i>Josese Bula; Eddie Arukelana; Arishnil Bali; Bibhya Sharma; Rahul Kumar; Mansour Assaf</i>	
A STATE-SPACE MODEL FOR INDUCTION MACHINE STATOR INTER-TURN FAULT AND ITS EVALUATION AT LOW SEVERITIES BY PCA	779
<i>Krish K. Raj; Sukhde H. Joshi; Rahul Kumar</i>	
MACHINE LEARNING SOLUTIONS FOR INVESTIGATING STREAMS DATA USING DISTRIBUTED FRAMEWORKS: LITERATURE REVIEW	785
<i>Kunal Kumar; Neeraj Anand Sharma; A B M Shawkat Ali</i>	
DECENTRALIZED ELASTIC ELECTRICITY DEMAND SCHEDULING	791
<i>Bruno Mendivez Vasquez; Lachlan L. H. Andrew; Julian Garcia</i>	
A MATHEMATICAL ANALYSIS OF DISCRETE WAVEFORM RELAXATION ALGORITHMS FOR TRANSMISSION LINE TYPE CIRCUITS	797
<i>Mohammad Al-Khaleel; Shu-Lin Wu</i>	
MOBILITY ASSISTANCE FOR VISUALLY IMPAIRED USING LIDAR	802
<i>Vikrant Gurav; Abhinav Parameshwaran; Kevin Sherla</i>	
Author Index	