

ICIRPS- 2020

2nd International Conference on Interdisciplinary Research and Physical Sciences

(16-17 August, 2020)

E-Book of Abstracts



Organized by:

MAA SHAKUMBARI TRUST, Greater Noida, Gautam Budha Nagar
(Registration No. Trust/05/2019)

Conference website: <http://mstrust.in/icirps-2020/>

Preface

ICIRPS is intended to provide a common platform for mathematicians, computer scientists, engineers, statisticians throughout the world to present their latest findings, ideas, developments and applications covering aspects of recent trends in Science and engineering and Technology. It is a matter of great pleasure that the conference received an overwhelming response and enthusiasm which can be judged from the fact that over ninety plus abstracts have been submitted from various institutions. Nearly four hundred plus delegates are expected to participate in this event. On behalf of organizing committee, we express our gratefulness to the authors who contributed in the form of research papers. The speakers of plenary and invited talks are also gratefully acknowledged. All the abstracts in this book have been included without any major editing except minor syntactical and typographical errors. However, due care has been taken in compiling/editing but the typographical errors cannot be ruled out due to paucity of time. We are grateful to our esteemed Chairmen, Prof. (Dr) Anil Kumar for his constant support and encouragement which made it possible for us to organize this event. We are indebted the Maa ShakumbariTrust Greater Noida for the cooperation to organize this conference. We extend a warm welcome to all delegates and invited speakers for their participation in the conference. We hope that the deliberations during the conference will provide directions for future research and the conference will have a lasting impact on the academic/research works of all the participant and delegates



Message, Conference Chair

Dr. Anil Kumar

Dear Participant,

It is with great pleasure that I invite you to attend the 2nd International Conference on Interdisciplinary Research and Physical Sciences (ICIRPS-2020) to be held under the patronage of *Maa Shakumbari Trust Greater Noida UP india*. The event will take place on 16-17 August, 2020 at the virtual online Greater Noida Gautam Budha Nagar UP India.

ICIRPS-2020 will provide an excellent opportunity for regional and international operators and owners as well as technology, product and service providers to connect, network and discuss how to develop innovative ideas and feasible solutions that will address the growing needs of the environmental and pandemic and chemical properties of upstream and downstream.

The theme selected for ICIRPS-2020 is "Transforming Engineering and Technology and Science through Innovation" and its objective is to create a forum for facilitating the exchange of practical experiences in all aspects of process engineering in addition to seeking solutions to the various challenges that process engineers face.

Some of the main topics that will be addressed during the technical program of the conference are Revolutionary Technology, Energy Efficiency and Sustainability amongst others.

ICIRPS-2020 will attract hundreds of international companies, professionals and scientists taking part in the different facets of the conference as sponsors, exhibitors, presenters and speakers or simply as delegates. The technical program will feature specialized topics best suited to meet the needs of process engineers at this global event that is guaranteed to attract a widespread audience.

I look forward to welcoming all of you at ICIRPS-2020.

With my best and warm regards,

Prof. (Dr.) Anil Kumar

President, MST, Greater Noida UP India

Conference Chairman ICIRPS-2020

Professor

Swami Vivekanand Subharti University Meerut UP

Email. anilmathappsc@gmail.com



Message of Convenor

Dr. Amit K. Awasthi

It is my great pleasure to present the proceedings of the 2nd International Conference on Interdisciplinary Research and Physical Sciences, ICIRPS-2020. This conference is being organized by Maa Shakumbhari Trust during the Covid-19 period. It's objective is to provide a research platform to young researchers in various interdisciplinary areas. We were honored to have Prof. D S Chauhan, Ex. VC AKTU as the Chief Guest, Prof. B.P. Sharma, VC, Gautam Buddha University as the Guest of Honor, Dr S K Varshney as Guest of Honour and our eminent Keynote speakers.

We have finalized 59 research papers after critical review.

As the convener of the conference, I extend my gratitude to our Advisory committee members. I would like to thank technical program committee, local organizing committee, volunteers and the staff members for their dedicated support. Special gratitude is paid here to the MST, Greater Noida India for organizing such wonderful conference.

Finally I would like to thank all the authors, volunteers and persons who directly or indirectly contributed to the conference. Without their cooperation and full support, this conference would not have been possible.

Dr Amit K Awasthi
Convener ICIRPS-2020
Mathematics GBU, Greater Noida

International Advisory Board

- Dr S N Mishra Department of Mathematics, W. S. University, Mthatha, South Africa
- Dr. Ahmed Kadhim Hussein, Professor Department of Mechanical Engineering College of Engineering University of Babylon Republic of Iraq.
- Dr Santosh Kumar, Department of Mathematics, College of Natural and Applied Sciences, University of Dares Salaam, Tanzania.
- Dsr. P S VEDI, Department of Chemistry Wollega University Addis Ababa Ethiopia.
- Dr. Chan Moon Choon, Department of Computer Science, National University of Singapore.
- Dr. S. Arumugham, Adjunct Professor, Dept of Computer Science, Ball State University, Muncie, USA
- Prof. Dr. Pradeep Kumar Atrey, (State University New York, Albany Campus).

National Advisory Board

- Dr D S Chauhan, Ex Vice Chancellor UP Technical University Lucknow Uttar Pradesh India
 - Dr R K Khandal, Ex Vice Chancellor AKTU Lucknow
 - Dr B P Sharma, Vice Chancellor Gautam Buddha University Greater Noida UP India
 - Dr Sundar Lal, Ex Vice Chancellor Veer Bahadur Singh Purvanchal University Jaunpur UP India
 - Dr B K Punia, (former Vice Chancellor Maharishi Dayanand University, Rohtak) Haryana School of Business, Guru Jambheshwar University of Science and Technology Hisar Haryana
 - Dr Vijai Krishna Singh, Vice Chancellor DDU University Gorakhpur UP India
 - Dr. Ashok Diwakar Vice Chancellor, Starex University, Gurugram India
 - Dr S K Varshney, Head & Adviser, Department of Science and Technology, New Delhi India.
 - Prof. Dr. G. C. Sharma, Former Pro-VC, Agra University, India
 - Prof. Dr. V.P.Saxena, (Former Vice-Chancellor, Jiwaji University, Gwalior)
 - Dr RR Bhargava Ex Professor Mathematics, Indian Institute of Technology Roorkee
 - Professor (Dr.) D. K. Ghosh, UGC BSR Faculty Fellow, Saurashtra University, Rajkot, India
 - Prof. Dr. Peeyush Chandra, (Former Professor, Dept. of Mathematics, IIT Kanpur, India)
 - Prof. Dr. C. K. Jaggi, Department of Operational Research, Delhi University, Delhi,
-

India

- Prof.(Dr.) C K Goel CCS University Meerut, India
- Dr Sachin Kumar, Deputy Director Sardar Swaran Singh National Institute of Bio Energy Kapurthala Punjab
- Dr. C L Varshney, Ex. Professor , Shri Varshney College Aligarh UP India
- Dr. Arvind Kumar Gupta, Professor in Mechanical Engineering, J C Bose University of Science and Technology, YMCA Faridabad
- Prof. Dr. S. C. Agarwal, Former HOD Mathematics, CCS University, Meerut
- Dr. Purnima Gupta, SV College, Delhi University, India
- Prof. Dr. PaulrajRajamani, SES, JNU, India.
- Dr Suresh Singhal, Starex University Gurugram
- Dr S S Chauhan, Associate Dean Chandigarh University Chandigarh
- Dr Surendra Kumar, Former Senior Scientist, BARC.New Delhi
- Dr. H.C. Taneja, Delhi Technological University, Delhi, India
- Dr V S Verma, Mathematics DDU University Gorakhpur UP India
- Dr. Msanoj Kumar, Mathematics, MNIT Allahabad UP
- Dr D S Hooda, Mathematics, Guru Jambheshwar University of Science and Technology Hisar Haryana
- Dr Ajay Shukla, Professor Mathematics SVNational Institute of Technology, Surat
- Dr V K Katiyar, Ex. Professor Mathematics, Indian Institute of Technology, Roorkee
- Dr Paras Ram, Professor Mathematics National Institute of Technology, Kurukshetra
- Dr. Nanhay Singh, Department of Computer Science and Engineering Ambedkar Institute of Advanced Communication Technologies & Research Delhi
- Dr Arvind Kumar Gupta, Associate Professor Indian Institute of Technology, Ropar
- Dr Rajesh Kumar Sharma, Mathematics, National Institute of Technology, Hamirpur
- Dr RR Sinha, Mathematics and Statistics,Dr.BR Ambedkar National Institute of Technology, Jalandhar Punjab
- Dr. Anju Khandelwal, SRMS College of Engineering, Bareilly, U.P., India
- Dr. Gajendra Kumar Vishwakarma, Indian Institute of Technology, Dhanbad, India
- Dr RamJiwari, Mathematics, Indian Institute of Technology, Roorkee
- Dr AK Thakur, Dr CV Raman University Kota Bilaspur
- Dr Amit Sharma, BhartiVidyapeeth,s College of Engineering New Delhi
- Dr Aftab Alam , Swami VivekanadSubharti University Meerut

Technical Committee

- Dr Amit Ujlayan, Mathematics, GautamBudha University Greater Noida
- Dr. Sushil Kumar, Mathematics, GautamBudha University Greater Noida
- Dr Sachin Kumar, Mathematics, Krishan Institute of Engineering and Technology Ghaziabad
- Dr Vinod Kumar, Mathematics Guru Kashi University Punjab
- Dr Rakesh Kumar Yadav, Computer Science Engineering, SRM University NCR Ghaziabad
- DR. Vishnu Narayan Mishra, Mathematics, Indira Gandhi National Tribal University, Madhya Pradesh, India
- Dr Padam Singh Tomar, Mathematics, Galgotia College of Engineering and Technology Greater Noida UP
- Prof.(Dr.) Ravish Kumar Srivastava Department of Mechanical Engineering SITE, Swami vivekanandsubharti university, Meerut
- Dr Sajjan Lal Maurya, Mathematics Feroze Gandhi Institute of Engineering and Technology Rae Bareeli UP India
- Dr SB Kulshrestha, RBS Engineering Technical Campus Bichpuri Agra
- Dr Veer Pal Singh, Mathematics Dronacharya College of Engineering, Greater Noida
- Dr Vijay Kumar, Manav Rachna Institute of Research and Studies Faridabad
- Dr Harjeet Kumar, Mathematics , NSIT Patna Bihar
- Dr Rajesh Kr Singh CSE, MIET Meerut UP
- Dr Ravendra Kumar, KR Mangalam University Gurugram

Guest of Honor

1	Dr DS Chauhan	Ex Vice Chancellor UPTU Lucknow	Chief Guest
2	Dr B P Sharma	Vice Chancellor GBU Greater Noida	Guest Honor
3	Dr S K Varshney	Advisor and Head DST New Delhi	Guest Honor
4	Dr Ajay Shukla	SV National Institute of Technology, Surat	Inauguration
5	Dr S K Varshney	Advisor and Head Department of Science and Technology New Delhi	Focus on Frontier & Future Technologies
6	Dr Sachin Kumar	Deputy Director Sardar Swaran Singh National Institute of Bio Energy Kapurthala Punjab	Renewable biogas production: A Sustainable Approach for Circular Economy

7	Dr. S P Singh	Principal and Medical Superintendent Professor Ayurveda Physiology M.J.F. Ayurveda Medical College and Hospital, Jaipur Rajasthan drjaijania_sps@rediffmail.com	Ayurveda Aspect of the COVID19 Virus Disease and Treatment
8	Dr. DS Hooda	Guru Jambheshwar University of Science and Technology Hisar Haryana ds_hooda@rediffmail.com	Estimation of Missing Data in Design of Experiment and Contingency Table
9	Dr. Manu Pratap Singh	Department of Computer Science, Institute of Engineering and Technology, Dr. B.R. Ambedkar University, Agra, UP, India	Artificial Intelligence: The new Paradigm
10	Dr. RR Sinha	Dr. BR Ambedkar National Institute of Technology, Jalandhar Punjab	Estimation of parameters under Large Sample Approach
11	Dr. Vishwas Tripathi	School of Biotechnology Gautam Budha University Greater Noida drvishwastripathi@gmail.com	Drug repurposing and vaccination in COVID-19 Pandemic
12	Dr. Nanhay Singh	Professor and Head Department of Computer Science & Engineering Ambedkar Insitute of Advanced Communication Technologies and Research Delhi nsingh1973@gmail.com	Internet of Things and its Applications.
13	Dr Suresh Singhal	Starex University Gurugram sureshsinghaal@gmail.com	Qualities of Research Scholar
14	Dr Surendra Kumar Yadav	Department of Environmental Studies, Jesus & Mary College, University of Delhi, Chanakypuri, New Delhi	Spacial Technology in Effective Health Care Delivery System During COVID- 19 Infection
15	Dr.S.Bala	S.I.V.E.T.College, Gowrivakkam, Chennai, Tamilnadu, India	Graph Theory and Its Applications to Operations Research
16	Dr Vijay Kumar	Faculty of Engineering &Technology, Manav Rachna International Institute of Research & Studies, Faridabad	Decision Making Through Mathematical Models
17	Prof.(Dr.) DK Ghosh	UGC BSR Faculty Fellow, Saurashtra University, Rajkot, India	Orthogonal main Effects Plan using Factorial 16/08/2020
18.	Dr RR Bhargva	Department of Mathematics, Indian Institute of Technology Roorkee	Sciences (Mathematics) utility in Engineering and Technology
19	Nanda R. Wagh	Information Technology DBATU, Lonere, India Nrwagh17@gmail.com	Latest Trend in Information Technology
20	Dr Surendra Kumar	Director ,RIET Jaipur	Artificial Intelligence - A Multidimensional and Multidisciplinary Approach

Invited Talks

IT-01: Sciences (Mathematics) utility in Engineering and Technology

R.R.Bhargava

Formely (Department of Mathematics)
Indian Institute of Technology Roorkee
rajrbfma@gmail.com

Abstract: Sciences are the building block of engineering and subsequently in technology. Every time the science cannot be converted and engineering into technology. With the innovation of smart materials many things have changed in engineering and consequently in technology. The smart material was accidentally found by Chemist. Then further studies were carried in other sciences viz. physics, mathematics, material science. Usages of smart materials greatly developed in last 50 years. Smart materials are widely used in engineering and technology. And by 2025 its usages will be doubled. Presently they are being used in engineering technology, medical technology, defiance, buildings, sports, clothes, music, construction etc. There are many aspects of these smart materials which are basically obtained from existing materials to be studied and investigated. These materials are fragile and we study the strength of materials in case of crack initiation and propagation. We form mathematical models to arrest the crack propagations under different conditions.

IT- 02: Spatial Technology in effective healthcare delivery system during covid-19 infection

Dr Surendra Kumar Yadav

Department of Environmental Studies,
Jesus & Mary College, University of Delhi,
Chanakyapuri, New Delhi-110021, India.
Phone: +91-8010513998; Email: skyccsu@gmail.com

Abstract: Spatial technology includes Geographical Information System (GIS), Remote Sensing (RS) and Global Positioning System (GPS), play important role in assessment, estimation, forecasting, effective planning for better policy for health care delivery system in COVID-19 infection management. GPS provide latitude and longitude of an object like location of Primary Health Centre, Community Health Centre, COVID Hospital, Private Clinics, Locations of different ambulances etc. Satellite data provide spatial information/ data on different aspects and facilities. GIS is extremely helpful in analysis and modelling to get desired output in different combinations for program management to handle COVID cases nicely. Modeling for different purposes (scenario analysis, emergency response, risk management etc), the need for adaptability (coupling of models, parameter adjustment etc) and control

is possible by spatial technology. Remote Sensing or satellite data due to synoptic coverage, repetitive data gathering capabilities, spatial information, economically cheaper & sustainable technology, real time data collection & computer compatibility, coupled with GIS. Satellites provide both spatial and temporal information needed to understand changes in COVID infection for their distribution, qualitative & quantitative assessment of functioning of Health Care Delivery System. Remote sensing/ Satellite images help Scientists to observe (distribution of health facilities and intensity of infection in a particular area etc.), monitor (change in infection over an area, improvement and recovery cases etc.), classify (areas in Red, Orange and Green Zones etc.), measure (distances between 2 or more health facilities etc.), detect (hotspot areas and road connectivity with health facility/ hospital) etc. for infection management. Because reflected electromagnetic radiations are different for different substance or object therefore digital number (DN) value is different for different objects, this DN value is useful for object identification & image interpretation which is done through involvement of shape, size, tone, shadow, pattern, texture, size (location), association and resolution of satellite imagery/ data. GIS can handle huge data sets (spatial & non-spatial data). All the data (spatial & non-spatial) are integrated in GIS and analysis & modeling in GIS using satellite and other data is done for monitoring, planning & management plans and finally for decision making & development programs and plans for control of COVID infection in a region/ area.

Keywords: *remote sensing, GIS, GPS, COVID, health, infection management.*

IT -03 : Orthogonal Main effects Plan using Factorial

D. K. Ghosh

UGC BSR Faculty Fellow, Saurashtra University, Rajkot, India

ghosh_dkg@rediffmail.com

Abstract: Concept of orthogonal main effect plans is extended in the form of square matrix such that diagonal elements are one constant and all off diagonal elements are another constant. Moreover we have discussed the construction of orthogonal main effects plans as well as orthogonal arrays from 2^n symmetrical factorial and 3^n symmetrical factorial experiments. However construction of orthogonal main effect plans for $[2(s^n - 1)/(s - 1) - 1]$ factors each at s levels with $2s^n$ trials is carried out in two steps. In first steps it is observed that some columns are pair wise semi orthogonal while remaining columns are pair wise orthogonal. This properties is also found true in second steps. However adding these two steps, all the columns are found orthogonal pair wise. Orthogonal arrays OA[18, 7, 3, 2] is available in literature. However OA[16, 7, 3, 2] is developed here using trial and error method.

Keywords: *Projective geometry, orthogonal arrays, trials, Galois field and factorial experiments.*

IT 04: Artificial Intelligence: The New Paradigm

Prof. (Dr.) Manu Pratap Singh
Department of Computer Science & Application,
Institute of Engineering & Technology,
Dr. B. R. Ambedkar University, Khandari, Agra
E-mail: manu_p_singh@hotmail.com

Abstract: Computer and power of computation is expanding vary vastly. Initially the computer was evolved with the thought of computation for only numerical processing. Various application of numerical processing has been developed and explore. All these approaches of computation are considered as the hard computing. The hard computing has been used to solve the real world problems for them the deterministic model exists and outcome of the problem was certain. After that the new thought in computation has evolved with the concept of symbolic processing. It opens the doors for handling the real world's problems where no such deterministic model exists and outcome of the problem is uncertain. Therefore the concept of Artificial Intelligence as a technique to solve such type of problems emerged. The Artificial Intelligence computing further explores the possibility for machine learning and one of the powerful tools for Big Data analysis. The new age of computation is related with internet of things which includes the cloud computing and Big data analysis. The new era of computation i.e. techniques of artificial intelligence is an emerging tool for analyzing the Big data, mining of data, data science, business intelligence and knowledge empowerment.

IT04: Estimation of missing data in design of experiment and contingency table

D.S. Hooda
Honorary Professor in Mathematics,
G.J. University of Science and Technology,
Hisar-124001(India)
Email: ds_hooda@rediffmail.com

Abstract: Missing data in design of experiment and contingency table causes incomplete information which leads to more ambiguity and difficulty in decision making process. Thus, to estimate missing data is an important and challenging problem. In the proposed talk the estimation of missing data in design of experiment by applying the maximum entropy principle is described. An algorithm to estimate the missing values in a fuzzy matrix is defined and applied in estimation of missing data in contingency table. Discussion and conclusion are also given in the end.

IT 05: ESTIMATION OF PARAMETERS UNDER SAMPLE APPROACH

R. R. Sinha

Department of Mathematics
Dr. B. R. Ambedkar National Institute of Technology, Jalandhar, India

Abstract

The present study is based on the estimation of parameters using auxiliary characters under complete and incomplete information. Different types of estimators using the information of auxiliary characters under different circumstances of incompleteness of data have been presented and their properties are discussed. A comparative study of the estimators has been carried out with an empirical study based on real data set of census handbook published by Government of India.

IT 06: Decision Making Through Mathematical Models

Vijay Kumar

Department of Mathematics,
Manav Rachna International Institute of Research & Studies
Faridabad, Haryana India
drvijaykumarsudan@gmail.com

In this talk, decision making through mathematical models have been discussed with the help of case studies. Intuitionistic fuzzy based models have been presented among the researchers to handle real life situations

IT -07: Graph Theory and its Applications to Operations Research

Dr. S. Bala

Assistant Professor in Mathematics
S.I.V.E.T.College
Gowrivakkam, Chennai-600 073, Tamilnadu, India

Abstract: This talk is about various research trends in the field of graph theory and operation research.

Technical Session

ICIRPS-01: A new Approach for the Prognosis of Lung Cancer at early Stage in CT Scan using Deep Learning

Sasidhar B.

Professor, Department of Computer Science & Engineering, School of Engineering,
Nalla Narasimha Reddy Education Society's Group of Institutions,
Hyderabad, India
bolasasi37@gmail.com

Abstract: The prognosis of lung cancer in CT scan image at early stage saves patient's life, so a new approach is proposed for the detection of lung cancer in CT scan. The existing approaches fail in detection of lung cancer with more accuracy. A general framework is proposed for the detection of lung cancer which involves segmentation of lung regions and detection of lung cancer. The Segmentation of lung regions involves morphological operators and active contour. The detection of lung nodules involves feature extraction with Convolutional Neural Network classifier. The accuracy of the proposed method is satisfactory when compared to the existing method.

ICIRPS-02: Firmware Attack Detection using Deep Latent Dirichlet

Allocation (FD -LDA)

Dr.E.Arul¹ and A.Punidha²

1 Assistant Professor, Department of IT

2 Assistant Professor, Department of CSE

Coimbatore Institute of technology, Coimbatore, Tamilnadu, India

arulcitit@gmail.com

Abstract: A cyber assault is an entity or company's intentional and fraudulent effort to access another person or organization's network network. The perpetrator typically wants a sort of advantage when the victim's infrastructure is interrupted. LDA used unmonitored classification technique on firmware to classify a range of malicious measures as a combination of various API services groups. Such groups itself are a range of likelihood over the functions. LDA is a learning algorithm of probabilities, which is to get a framework in which outcomes malicious attack API service calls and components are distributed according to dependent variable. It is

against unequal frameworks that seek to understand where thresholds form outputs. The result demonstrated a great real meaning of 97.28% and a reduced malware harassment of 0.01%, thus it was outfitted to locate a strange pattern in unknown firmware of FAI Deep LB.

Keywords: Classifier, Latent Dirichlet Allocation, regression analysis Learner, spam ware devices, srootkits, software, apps, identify.

ICIRPS-03: Firmware MaliciousAttack Detection using Deep Poisson Regression (FM-DPR)

Dr.E.Arul¹ and A.Punidha²

1 Assistant Professor, Department of IT

2 Assistant Professor, Department of CSE

Coimbatore Institute of technology, Coimbatore, Tamilnadu, India

arulcitit@gmail.com

Abstract: A data breach is an intrusion conducted on a specific or numerous network device by malicious hackers utilizing any or more devices. A cyber assault will malicious intent deactivate machines, steal data, or use a compromised machine for many other threats. Malicious hackers offer a range of cyber-attack techniques, which include malware , phishing, spyware, denial - of - service, etc. GLM is a good beginning to learn quite rigorous analytics modeling. Poisson downward trend is used to forecast a predictor variables consisting of "count data on firmware malicious file," given yet another or more categorical variable from the cyber-attacks. The variable that we would like to predict is termed malicious API calls the divergent (the answer phishing, result spyware, goal cyber-attack or error non-predictable term sometimes). These changes are known autonomous for various cyber-attacks(or perhaps the determinant, referential or reverser) variables to anticipate the value of a malicious files variable based. The result produced a strong real meaning of 96.25% and a low malware attack of 0.03%, thus it was trained outfitted locate a potentially malicious pattern in unknown firmware of FAI Deep PR.

Keywords: Classifier, Poisson Regression, regression analysis Learner, spamware: devices, rootkits, software, apps, identify.

ICIRPS 04: Real time driver drowsiness detection using deep leaening and Raspberry Pi

Chanchal Singh, Pyuish Rai and Nidhi Prashad

Department of Computer Science

Institute of Engineering and Technology

Ayodhya, India

chanchalsinghh36@gmail.com

Abstract: Traffic accidents due to Driver error reason of many death and injuries around in the world. Driver drowsiness is leading causes of motor vehicle crashes. The sensation of drowsiness diminishes the level of vigilance of the driver and results in perilous situations. While eminent automobile manufacturers like Volvo, Mercedes-Benz and Bosch have ventured into the development of drowsiness detection technologies, use of these safety systems is not widespread among drivers due to their availability in luxury cars only. This project proposes a non-intrusive period of time Driver temporary state Detection System exploitation Deep Learning and Raspberry Pi. The project aims to utilize the driving video dataset developed by the University of TX, urban centre for coaching and testing the deep learning model. The developed model can then be deployed on Raspberry Pi (with Pi Camera module) to form predictions and alert the driving force in real time.

Keywords: Machine learning, Driver observance System; temporary state Detection; Deep Learning; Raspberry Pi., Android, Neural network; HOG SVM Detector.

ICIRPS 05: Regression-Cum-Exponential Estimator for Product of Two Population Means in the Presence of Non-Response on Study Variables

R R Sinha¹, Shiwani Sharma² and Suraj Gangwar³

^{1,3}Department of Mathematics, Dr. B. R. Ambedkar National Institute of Technology, Jalandhar, India

²Department of Operational Research, Faculty of Mathematical Sciences, University of Delhi, Delhi, India

shiwani.sharma.8668@gmail.com

Abstract: Estimation of the product of two population means is often regarded as a major issue in the field of engineering, agriculture, forest surveys, etc. and in many situations, auxiliary information helps to increase the efficiency of the estimate in sampling. This study deals with the problem of estimating the product of two population means using the information of auxiliary character under double sampling the non-respondents. In accordance, the situation of incomplete information on the study variables but complete information on the auxiliary variable has been considered for suggesting the estimator to estimate the product of two population means. The bias and mean square error are obtained up to the first order of approximation, and the conditions for obtaining the minimum mean square error of the suggested estimator are derived. The applicability of the proposed regression-cum-exponential type estimator for estimating the product of two population means is numerically demonstrated by solving with real data sets published by the Government of India and the key conclusions are that the proposed estimator is more efficient than the conventional and admissible estimators used in practice.

ICIRPS 06 : Estimation of Ratio of Two Population Means by Pooled Estimators under Double Sampling the Non-Respondents

R. R. Sinha, Priya Thakur and Himani Dhingra
Department of Mathematics,
Dr. B. R. Ambedkar National Institute of Technology, Jalandhar, India
thakurpriya1196@gmail.com

Abstract: The present paper aims at improving traditional generalized estimators, regression estimator and class of estimators by proposing regression cum exponential estimators for estimating ratio of two population means. In this problem we have considered incomplete information on study characters but complete information on auxiliary characters. Under simple random sampling without replacement scheme the minimum mean square error of suggested estimators is derived by obtaining bias and mean square error (MSE) up to first order of approximation. Theoretically and empirically it is found that proposed estimator is more efficient than the relevant estimators.

ICIRPS 07 : Regressed Exponential Type Estimator to Estimate the Population Mean Using Auxiliary Variable

R. R. Sinha and Bharti*
Department of Mathematics,
Dr B R Ambedkar National Institute of Technology, Jalandhar, 144011, Punjab, India

Abstract: In this article, we have proposed a regressed exponential type estimator for estimating the population mean of study variable using auxiliary variable. The bias and mean square error of the proposed estimator are calculated up to the first order of approximation under simple random sampling without replacement. Further conditions to obtain the minimum mean square error and optimum value of minimum mean square error of proposed estimator are derived. Theoretical comparisons have been made with relevant existing estimators. The improved efficiency of the proposed estimator has been justified empirically by using the real data sets.

**To be presented by Bharti*

ICIRPS 08: Estimation of Product of Two Population Means by Regressioncum-Exponential Estimator under Double Sampling the NonRespondents

R R Sinha¹ , Suraj Gangwar² and Shiwani Sharma³
^{1,2}Department of Mathematics, Dr. B. R. Ambedkar National Institute of Technology, Jalandhar, India ³Department of Operations Research, University of Delhi, Delhi,

India
tsurajgangwar@gmail.com

Abstract: In this paper, we have considered the problem of estimating the product of two population means using the information on auxiliary variables in the presence of non-respondents. A regression cum exponential estimator under incomplete information on both study and auxiliary variables is suggested. The optimum properties of the proposed estimator are studied. Further, comparative study has been done to show the merits of the suggested estimator over the conventional and other relevant estimators. The results of both theoretical and empirical studies have demonstrated the usefulness and effectiveness of the proposed estimator for estimating the product of two population

ICIRPS 09: The Impact Of The COVID-19 On GDP Growth And Indian Financial Services and Policy Measures.

Nikhil Khajuria
Department of Commerce Udhampur campus,
University of Jammu.
nikhilkhajuria5@gmail.com

Abstract: Human history is facing a tough time fighting an invisible enemy; the novel COVID-19. Across the world, the COVID-19 has come up with serious disturbance even compared to the financial crisis during 2007-2008. The present study is undertaken to investigate the impact of COVID-19 on the GDP growth rate of India and the financial services sector particularly on the Banking, Non-banking financial services, and insurance sectors. This paper outlines the economic measures undertaken in India through the Economic stimulus package towards combating COVID-19. Measures are categorized into two parts, the first part includes the measures undertaken by the Government of India through Fiscal package by making changes in Fiscal policy. The second part includes the measures undertaken by the Reserve Bank of India through the Monetary package by making changes in Monetary policy.

ICIRPS 10: Effect of Annealing Temperature on Structural, Morphological and Optical Properties of Tetragonal BaTiO₃ Nanoparticles Synthesized by Wet Chemical Method

Aruna M. Sudapalli^a and Navinchandra G. Shimpi^{b*}
Department of Chemistry, University of Mumbai, Laboratory for Materials Science,
Santa Cruz (E),

Mumbai- 400098, Maharashtra, India
aruna.sudapalli10@gmail.com

Abstract: BaTiO₃ nanoparticles of tetragonal morphology have been synthesized using the wet-chemical route and subjected to various characterizations X-ray diffraction (XRD), Fourier transform infrared spectroscopy (FTIR), UV-Vis diffuse reflectance spectrophotometry (UV-DRS), Raman spectra, zeta potential, field emission scanning electron microscopy (FESEM), energy dispersive X-rays analysis (EDAX) and high-resolution transmission electron microscopy (HRTEM). BaTiO₃ showed tetragonal morphology and was due to annealing at 1100 °C, which might show agglomeration few places. This agglomeration due to two reasons a) Temperature of annealing was very high, i.e., 1100 °C. b) The dominance of electrostatic forces over the surface of BaTiO₃ nanoparticles. The particle size of BaTiO₃ has obtained within the range between ~ 34-39 nm, with the optical band gap considerably decreases as the annealing temperature increase from 900-1100 °C. Overall, it was observed that annealing of BaTiO₃ shows significant improvements in its optical, structural, and morphological properties. Moreover, the reduced particle size of BaTiO₃ was also due to control over experimental conditions.

Keywords: *Wet chemical synthesis, tetragonal BaTiO₃ nanoparticles, morphological and structural study.*

ICIRPS 11: A Novel Method to Cope Local Measurement Ambiguity Problem in Particle Filter

BIBIN A.D and Dr. D. MURUGAN
Manonmanian Sundaranar
University, Tirunelveli

dhanushkodim@yahoo.com and bibinraj.ad@gmail.com

Abstract: Particle filter (pf) is the major role in indoor localization and object tracing with in a building by the help of active or passive RFID reader and tags and Wi-Fi much more devices are used. Which will be used to gather indoor user or object density measure by using particle. The main use of Pf is used to estimate the nonlinear vector space Here the particle will be measure the object density ambiguously. Once the object is measure on a one vector state then it store after moves the same object to another one vector state, it will store and update will make some trouble this trouble is overcome by using Sequential important sampling method (SIS). We accept an explanation to the out-of-sequence dimension problem on the framework of the particle filter with sequential importance resampling. Once an ambiguous measurement update is detected, the proposed method hops the measurement update at the time step and exploits the measurement later when the particle distribution becomes tolerable for the dimension update. This strategy provides a preparation to the ambiguity problem to obtain correct current position estimate with lower covariance. Numerical imitation is presented to prove effectiveness and routine of the proposed method. Compared to other methods, such as the standard particle filter, the auxiliary particle filter, the mixture particle filter,

and the receding-horizon Kalman filter, the proposed method shows better performance in terms of root-mean-square error and estimated covariance. Here we define the ambiguous measurement update as the measurement update that leads to increase in covariance of the particles. The ambiguous measurement update causes larger dispersion of particles and provides a less confident estimate. so we can use the particle filter method in this work to get necessary result instead of kalmanfilter(Kf). Kf is mainly used in linear indoor vector space to estimate the object.

Keywords: Particle Filter (PF), Kalman Filter (kf), Sequential Importance Sampling (SIS).

ICIRPS 12: A Effective Social Media Community using Optimized Clustering Algorithm

Prachi Malviya¹ and Pyuish Rai²
M.TECH STUDENT¹ and ASSISTANT PROFESSOR²
INSTITUTE OF ENGINEERING AND TECHNOLOGY AYODHYA
chanchalsinghtyugg@gmail.com

Abstract : Now-a-days social media is employed to introduce new problems and discussion on social media. a lot of variety of users participates in discussion via social media. totally different completely different users belong to different quite teams. Positive and negative comments are going to be announce by the user and that they can participate in discussion . Here we have a tendency to planned a system to cluster completely different quite users and system specifies from that class they belong to. Once the social media knowledge like user messages are parsed and network relationships are known, data processing techniques will be applied to cluster of various sorts of communities. we have a tendency to used K-Means bunch algorithmic program to cluster knowledge. during this system we have a tendency to discover communities by bunch messages from massive streams of social knowledge. Our planned algorithmic program provides higher bunch results and provides a unique use-case of grouping user communities supported their activities. This application is employed to spot cluster of individuals World Health Organization viewed the post and commented on the post.

Keyword :Data mining , clustering algorithm , feature extraction , k- mean cluster

ICIRPS 13: Utilizing web-enabled sensors towards water resources optimization

Dr. A. G. Matani
Professor- Mechanical Engineering,
Government College of Engineering,
Amravati - 444 604 (M.S.)India,
Email: ashokgm333@rediffmail.com, dragmatani@gmail.com

Abstract: Sensors and big data gathering allow real time monitoring of water quantity and quality, precision irrigation, smart leakage detection, enabling better planning and decision-making. Advanced Artificial Intelligence and Geographic Information Systems are transforming large-scale measurement; while internet and wireless technologies, intelligent decision support systems and other innovations are impacting across the water sector. Web-enabled sensors and communication networks provide an opportunity for water stakeholders to obtain information in near real time about physical and environmental variables such as temperature, soil moisture levels and rainfall. Smart metering technologies can also provide individuals, businesses and water companies with information in near real time about their own water use, thus raising awareness about usage, locating leakages & offering better control over water demand.

ICIRPS 14: A Product Recommendation System for Solving the Cold Start Problem

Prof. Shrutika Chouhan and Dr. Ankush Verma
SAGE University, Bypass Road, KailodKartal, Indore

Abstract: The recommendation of product or service based on application needs different product attributes and user requirements to be analyze. But if both the kinds of information are unavailable then such kind of issue in recommendation system is known as the cold start problem. In this presented work the effort is made in order to understand and resolve the issue of recommendation system. Thus a four phase recommendation system is introduced in this work. In first phase the web usage data is preprocessed which is used for further recommendations of products. In next phase the frequent pattern based recommendation is performed. In third phase the recommendation is made on the basis of user current search (user click streams) and similar user behaviors available in web access logs. Additionally the final recommendation is made on the basis of filtering the results obtained in third phase and the cost, brand and social review of the product or service. The implementation of the system is performed on JAVA technology and the results in terms of accuracy, error rate is computed. The results show the prediction is accurate and required less computational resources. Thus the model is acceptable for use and future extension of work for solving the issue of cold start problem in recommendation system design.

Keywords: Recommendation system, cold start problem, frequent pattern, k-nearest neighbor.

ICIRPS 15: Implementation of Decentralized Electronic Polling System using Ethereum Block chain

Atul Kumar and Shailender Kumar
Department of Computer Science and Engineering

Delhi Technological University New Delhi, India
shailenderkumar@dce.ac.in
kumar.atul@live.com

Abstract: Elections have been the subject of the perpetual altercation, desegregation and reassertion of authority among different leaders at various levels from ages. This process of an election may range from selection of ward counselor to Member of Parliament and from a boardroom meeting election to polling your opinion in a survey. The election is a sophisticated process which has grown with the advancements in the technology to practices in politics. In centralized architectures, the results of polling activities have often questioned and spotted differently through methods of electors. Block chain as an incipient advancement in technology has shown many possibilities in various domains such as financial sector & digital assets, digital identity & security, pharmaceuticals and health, insurance sector, supply chain management, election etc. In this paper, we rendered the fundamental features of the Block chain technology like distributed-ledger, decentralized, irreversible, consensus mechanism, transparent etc. to develop an electronic polling system for the present democratic ecosystem. The proposed electronic voting system is formulated using Ethereum Virtual Machine (EVM), Smart contracts and Web3.js along with software dependencies like NPM, Truffle framework, Metamask and Ganache to replicate the Block chain environment. Use cases were employed for identification of the roles of the voters based on Ethereum account types. Enumeration of various stages of the election has been performed through phases like pre-polling activities, casting of vote and counting of votes. The proposed system was found to fulfil the requisites of an e-Voting arrangement such as transparency, secrecy, quantifiability, security, integrity, precision, scrutiny etc.
Keywords – Blockchain, Election, Ethereum, e-Voting.

ICIRPS 16: 0-Cauchy Completion of Partial Fuzzy Metric Spaces

AanchalTehlanand Vijay Kumar
Manav Rachna International Institute of Research & Studies,
Faridabad, India

Abstract: Every metric space have a unique cauchy completion. On the other hand partial metric spaces (PMS) which are generalization of metric spaces have 0-cauchy completion [1]. Fuzzy metric spaces using fuzzy numbers are well defined by George and Veermani [2]. In this paper some important results related to the concept of 0-cauchy completion of partial fuzzy metric spaces (PFMSs) using fuzzy numbers are proved. Key Words: Fuzzy partial metric space, Fuzzy numbers, Metric space.

ICIRPS 17: Blood Flow Of Through Stenosed Artery In Presence Of Magnetic Effects

Anil Kumar* and Veer Pal Singh#
*Department of Applied Mathematics,
Subharti Institute of Technology and Engineering, Meerut UP, India
#Department of Applied Mathematics,
Dronacharya College of Engineering, Greater Noida UP, India

Abstract: In this paper, consider a blood flow in a stenosed artery in presence of magnetic effect is investigated. The growth projects into the lumen of the artery and blood flow is disturbed; thus, a potential coupling develops between the growth and the blood flow through the artery with magnetic effect. All the result has been obtained and discussed through graphs. The results obtained in the investigation are in reasonably good agreement with experimental findings existing in the literature.

Keywords: Hartmann Number, Stenosed Artery, Newtonian Fluid, Shear Stress, Blood Flow.

ICIRPS 18: Design and simulation of Openloop and Closedloop control for SEPIC converter

Mr. Dongare Rajesh Devlal
Department of Electrical Power System
P.E.S. College of Engineering Aurangabad, Maharashtra
rajdongare1@mail.com
Dr.B.N. Chaudhari
Head of Department Electrical Power System
P.E.S. College of Engineering Aurangabad, Maharashtra
bnc.pes@gmail.com

Abstract: This Paper Present complete design and matlab Simulink of open loop and closed loop SEPIC. SEPIC converter can work in CCM (Continuous Conduction Mode) and DCM (Discontinuous conduction mode) but here CCM consider and find out all element values for open loop SEPIC converter and for closed loop control SSA (State space analysis) technique use which provide fourth order transfer function. By using this transfer function PID controller tune in matlab software. Both open loop and closed loop matlab Simulink model shown with output voltages.

Keywords: DC-DC Converter; SSA; PID.

ICIRPS 19: Object Detection and Mapping for Quad- Copter Control Movement Application

Mohamed Hannan Sohail¹
¹Dept. of Electrical Engineering
National Institute of Technology Patna, India.
mohamedhan- nans.pg19.ee@nitp.ac.in

Pawan Kumar Dhakal²
Master Degree Student,
Department Electrical and Computer Engineering
University of Oviedo Oviedo, Spain
pawan.dhakal38@gmail.com

Gurunayk Nayak³
³ Department of Electrical and Electronics
M. S. Ramaiah Institute of Technology Bangalore, India
guru@msrit.edu

Abstract: In our paper we introduce a method of visual based 2D mapping to generate a control approach for quad copter through image processing. The basic idea behind this work is to understand how a visual based control can be used for the control of an unmanned aerial vehicle. In our method, we have used a 2D real time image processing to control the movement of Quad-Copter in 2D space parallel to the ground. Our paper tells about detection of an object in an image frame (indoor) and estimating its 2D position for proper navigation of the quad-copter. The reason we require future position of the object is that, quad copter is inherently unstable by its dynamics, and requires certain time to stabilise. So considering ball catching quad copter as a benchmark example, an estimation algorithm for tracking the object, and controlling the quad to stabilise is analysed. Our method involves usage of image processing filter to clear the image from the noise. We have used contour method for the detection of the object in the image. The estimation of the trajectory of the control object is done through Euler's Extrapolation method and is explained in this paper. Finally the processed data which is the control input parameter for the quad copter is communicated for proper navigation of the quad copter.

Keywords: Mapping, Estimation, Quad-Copter Kalman Estimator.

ICIRPS-20: Design of compact microstrip Ultra Wideband Lowpass Filter using Defected Microstrip Structure and Defected Ground Structure Techniques

Hussain Bohra* , Amrit Ghosh, Anand Bhaskar and Arvind Sharma
Department of Electronics and Communication Engineering,
Sir Padampat Singhanian University, India
Email: hussain.bohra@spsu.ac.in

Abstract: In this paper, a compact ultra-wideband lowpass filter employing defected microstrip structure and defected ground structure is proposed. The proposed filter is equipped with capacitive coupling for strong impedance matching. The measured 3-dB bandwidth is recorded to be 8.0 GHz. The prototype has insertion loss less than 1.0 dB and attenuation of 45.0 dB at 5.15 GHz in the passband. This creates a notched band for removal of WiFi IEEE 802.11a frequency thereby avoiding interference. The

simulated group delay is recorded as 0.2 ns that correspond to good filter linearity. The proposed filter can be used for wireless sensors and tracking applications.

Keywords: *Bandpass Filter (BPF), Defected ground structure (DGS), Defected Microstrip structure (DMS), Microstrip, Ultra wide band (UWB)*

ICIRPS 21 :Real Time Driver Drowsiness Using Deep Learning And Raspberry Pi

Chanchal Singh¹, Pyuish Rai² and Nidhi Prashad³

¹M.tech Student Institute of Engineering Technology, AYODHYA

²Assistant Professor Institute of Engineering Technology, AYODHYA

³Assistant Professor Institute of Engineering Technology, AYODHYA

E-mail: chanchalsinghh36@gmail.com

Abstract: Traffic accidents due to Driver error reason of many death and injuries around in the world. Driver drowsiness is leading causes of motor vehicle crashes. The sensation of drowsiness diminishes the level of vigilance of the driver and results in perilous situations. While eminent automobile manufacturers like Volvo, Mercedes-Benz and Bosch have ventured into the development of drowsiness detection technologies, use of these safety systems is not widespread among drivers due to their availability in luxury cars only. This project proposes a non-intrusive period of time Driver temporary state Detection System exploitation Deep Learning and Raspberry Pi. The project aims to utilize the driving video dataset developed by the University of TX, urban centre for coaching and testing the deep learning model. The developed model can then be deployed on Raspberry Pi (with Pi Camera module) to form predictions and alert the driving force in real time.

Keywords: *Machine learning, Driver observance System; temporary state Detection; Deep Learning; Raspberry Pi., Android, Neural network; HOG SVM Detector.*

ICIRPS 22:A SurveyOf Authentication Methods For Internet Of Things

Mihir Mehta¹ and Kajal Patel²

¹Research Scholar, Gujarat Technological University

mihir240491@gmail.com

²Associate Professor, VGEC - Chandkhe

fatma@unisza.edu.my

Abstract— Internet of things is becoming the most important technology now a days and it is next era of communication. By the use of IOT, various physical things can communicate, interact and exchange data seamlessly. IOT brings intelligence and automation in different areas like agriculture, transportation, industry, health and

many more. The ultimate goal of the IOT applications is to increase comfort and efficiency of the users. IOT architecture comprises of various objects and things which are connected to open network. This openness/this exposure provides fertile ground for various types of security attacks. Security and Protection are the significant perspective of IOT Network. Conventional Security approaches can't be applied directly to the resource constrained network. Authentication confirms the identity of each individual registered entity in the network. It is very much important to verify and validate identity of device as compromised device can damage to the network. IOT applications can significantly be useful to society when these security issues at each layer (Perception, Network and Application) are analyzed and solved. In this paper, a detailed review of the security related challenges specially related to Authentication and source of threats in IOT applications is discussed. A brief comparison of recent advancements in various domains of IOT Authentication security is also summarized with future direction for research.

Keywords: IOT, Authentication, Authorization, Encryption, Spoofing attack, MITM attack

ICIRPS 23 :Effect Of Hall Current Ona Mathematical Model For Newtonian And Non -Newtonian Flow Through Tapered Tubes In Presence Of Porous Medium

Dr. Janamejay Singh
 Deptt. of Applied Mathematics
 Vivekananda College of Technology & Management Aligarh, India
jjmathematics@gmail.com

Abstract: The objective of this paper to study the effect of hall current on a mathematical for Newtonian and non- Newtonian flow throw through tapered tubes. In this model we take a steady and laminar flow of Newtonian and non Newtonian fluid, Navire stock's equations are used in the formulation of the model. In this work, we take Re numbers up to 10 for Newtonian fluid and 5.7 for non Newtonian fluid and taper angle α is 0.5, 0.75, 1.0, and 1.25. Pressure gradient. Here Newtonian and non Newtonian fluids were examined in the presence of magnetic field. The experimental data's were compared with theoretical predictions.

Keywords: Newtonian and non Newtonian fluid, tapered tubes, Magnetic field, Hall current.

ICIRPS 24 :Facial Feature Extraction with Constrained Local Models (CLM)

Ayah Alsarayreh

Faculty of Informatics and Computing,
Universiti Sultan Zainal Abidin, Besut Campus, 22200 Besut, Terengganu, Malaysia
aya_izzat_89@yahoo.com
Fatma Susilawati Mohamad
Faculty of Informatics and Computing,
Universiti Sultan Zainal Abidin,
Besut Campus, 22200 Besut, Terengganu, Malaysia.
fatma@unisza.edu.my

Abstract: Face identification and recognition indicated that an advanced improvement in the field of computer research could also result in the collection of industry premiums that could be affirmed, for example, by perceiving different uses on types of business applications, selfadjustment through advanced cameras, human computer interfaces in smartphones, alternately Indeed feature reconnaissance cameras for airports. Because of the opposition to this developing premium, eagerness will also execute this face identification technology and face recognition technology, this paper will provide readers with basic knowledge of how face identification basically meets expectations and should assist readers in creating decent ideas or plans using face identification technology. The main purpose of this research paper is to introduce significant principles of current face detection method with constrained local models (CLM) in a comprehensive manner and to provide some advantages and disadvantages about CLM to use it in future work.

Keywords – *Features Extraction, Shape Model, Appearance Model, CLM.*

ICIRPS 25: Solid-state Super capacitor based on Polymer Film Separator and Thermal Coated Silver Electrode

Saurabh Daripa and Amrish K Panwar
Delhi Technological University, Delhi
E-mail: panwaramar@gmail.com

Abstract: The evolution of practical, efficient, and functional energy storage devices is crucial in the developing world. A super capacitor is going to bridge the gap between fast charging electrolytic capacitor and longer charge storage devices like rechargeable batteries. In this paper, a polymer-based solid-state super capacitor is designed and fabricated using silver deposit electrode and PVA/Phosphoric acid-based electrolyte. The electrode material is fabricated using a vapor deposition technique, depositing silver onto the glass substrate at a high vacuum environment. X-ray diffraction (XRD) has been used to identify and confirm the proper phase formation of the crystalline material. Surface characterization has been performed using atomic force microscopy (AFM). The specific capacitance (C_p) of Ag deposited on Glass substrate (type A electrode) type supercapacitor is observed 0.71 F/g and for silver deposited on Glass substrate and annealed at 200 °C (type B electrode) type super capacitor is found 1.05 F/g at a high scan rate of 10mv/sec.

Keywords: Super capacitor, Polymer, AFM, Cyclic Voltammetry, EIS.

ICIRPS 26: Status and Scope of Organic Based Processed Food Products and their Role for Human Health

Vishal Kumar# and Anil Kumar*

#Department of Food Technology

SITE, Swami Vivekanand Subharti University, Meerut (UP)

*Applied Science (Mathematics) Department,

SITE, Swami Vivekanand Subharti University, Meerut (UP)

vishalkumarsingh129@gmail.com & anilmathappsc@gmail.com

Abstract: People in general have getting progressively mindful of the significance of sound sustenance for general wellbeing and in general prosperity. Prepared nourishments which are high in immersed fats, sugar and sodium, and low in fundamental supplements are liable for overweight issues as well as demonstrated to be significant supporters of various medical issues including diabetes, hypertension and coronary illness. To compound the situation, there are likewise different counterfeit additives, flavor enhancers and various different synthetic substances with questionable impacts on wellbeing. In any case, then again, natural nourishments are not as solid as they appear to be either on the grounds that the majority of them are expectedly developed which implies with the utilization of pesticides, compound manures, anti-infection agents, development hormones and who comprehends what else. Luckily, there is a more secure and more advantageous elective natural food.

Key words: *Compound the situation, synthetic substances, wellbeing, anti-infection.*

ICIRPS 27: Challenges and Opportunities in the development of Shape Memory Alloys: A Comprehensive Review

Kamaljeet Motia¹, Raman Kumar², Sunil Luthra³

¹Research Scholar,

¹DME, Chandigarh University, Gharuan, Mohali, Punjab-140413, India

²Associate Professor, DME, Chandigarh University, Gharuan, Mohali, Punjab-

140413, India ³Assistant Professor, DME, Government Polytechnic, Jhajjar, Haryana-

124104, India

kamaljeet147@gmail.com, ramankakkar@gmail.com and sunilluthra1977@gmail.com

Abstract: Development of smart materials can help to achieve sustainable

development in material sciences field. Shape-memory alloys (SMA) are a distinctive category of smart memory materials that have potential to recover to their previous shape and size after exposure to the appropriate thermomechanical or magnetic procedure. Due to their unique properties like pseudo-elasticity, high specific strength, elastic deformation, reorientation of martensite variants, high corrosion resistance, plastic deformation, and high anti-fatigue property, SMAs are significantly distinct from other materials. This difference is due to the Shape Memory Effect (SME). Due to extensive fundamental and applied research on SMAs in the last few years, these materials have widely been used in a different domains of engineering and for societal interest. To get a deeper insight into research challenges and opportunities in the domain of SMAs and associated shape-memory materials (SMMs), this paper presents the review of existing research work on SMAs. The manuscript focuses on the general overview, historical background, the properties of SMAs and their potential applications. Existing design challenges, associated limitations, and comprehensive analysis of recent advancements and potential application are elaborated. The authors believe that this review paper will act as a useful resource for researchers and designers who work on SMAs and related applications.

Keywords: *Shape Memory Alloys (SMA), Shape Memory Materials (SMMs), Smart Structures, Titanium-Nitinol, Shape Memory Effect (SME).*

ICIRPS 28:SLA Violation Preventive Task Scheduling for QoS Delivery in Cloud Computing Environment

Ismail Zahraddeen Yakubua^{ab*}, Zainab Aliyu Musa^b, Lele Muhammed^b,
Badamasi Ja'afaru^c, Fatima Shittu^d, Zakari Idris Matinja^b

^aDepartment of Computer Science and Engineering, SRM Institute of Science and Technology, India ^bDepartment of Computer Science, Federal Polytechnic Bauchi, Nigeria

^cDepartment of Mathematical Sciences, Abubakar Tafawa Balewa University Bauchi, Nigeria ^dDepartment of Computer Science, Federal Polytechnic Damaturu, Nigeria

ysbfamily2010@gmail.com, zynerb@gmail.com, ysbfamily2017@gmail.com
ibtihalzy2016@gmail.com, leleringhanny@gmail.com, zakariidris@yahoo.com

Abstract: Cloud computing as a model, provides an environment for execution of large computationally or data intensive task under some agreed Service Level Agreement (SLA). Today, the rate of service level agreement violation in cloud environment has immensely increased as a result of imbalance tasks allocation across the cloud resources. This problem has affected the user quality of service expectations that resulted to numerous service dissatisfactions. Researchers in the literature have proposed several techniques that maps complex task to cloud resources considering quality of service requirements which records significant improvements with the need for more ideal solutions. This paper proposed an efficient SLA violation preventive task scheduling to reduce the level of SLA violation by providing the QoS specified during SLA contract. Processing capacity,

bandwidth, storage, response time, waiting time and task deadline are considered as QoS parameters for mapping of task to resource. The proposed method was implemented using CloudSim simulation tool and the performance result of the method outperformed Round Robin (RR), First Come First Serve (FCFS), and Random algorithm in terms of client QoS expectations.

Keywords: Service Level Agreement, Quality of Service, Task Scheduling.

ICIRPS 29: Short-term Financial Time Series Forecasting using Machine Learning Techniques with ICA

RasmikantaPati

SUIIT, Samablpur University Odisha , India

rkpati@suiit.ac.in

Prabhat Kumar Sahu

SUIIT, Samablpur University Odisha , India

Prabhat1015@gmail.com

Ram Chandra Barik

Vikash Institute of Technology Odisha, India

ramchbarik@gmail.com

Abstract: Stock market Prediction is one of the most challenging problems in recent decades. It has experienced a great deal of attention due to its volatile nature. A small improvement in the prediction model is highly beneficiary to individual as well as institutional investor's. With the rapid development of the different Machine learning and Artificial Intelligence technique, forecasting of time series is now more accurate as well as trustworthy. Machine learning Techniques, namely Artificial Neural Network (ANN) and Support Vector Regression (SVR) has already shown their ability of stock prediction is quite successful over the years. The research in this direction has witnessed that presenting data in such a way so that the most relevant Technical variable can be extracted from the raw data for prediction. Independent component Analysis (ICA) is a modern signal processing techniques which can map the practical multivariate time series linearly into a new statistically independent space. This paper used ICA as preprocessing techniques for the raw data to neutralize the effect of noise in the features before use of SVR and ANN. Experiment were carried out on four different stock indexed out of which two index for developing country India and China as well as for two developed country German and Taiwan. Experimentally we demonstrate that ICA-SVR shows empirically better prediction rate for developing countries than the developed countries. Similarly ICA-ANN performs better for developed countries than developing countries.

Keywords: Financial Time series, Forecasting, ICA, SVR, ANN.

ICIRPS 30: Internet of Things Features & Application in Health Care

Mihir Mehta¹ and Kajal Patel²

¹Research Scholar, Gujarat Technological University
mihir240491@gmail.com

²Associate Professor, VGEC - Chandkheda
kspldce@gmail.com

Abstract: IOT is a gathering of interconnected gadgets and individuals where gadgets can speak with one another without human intercession. The web of things permits individuals and things to be associated whenever, wherever with anything and anybody, in a perfect world utilizing any way/organize and any service]. A definitive target of IOT is to make "A superior World for individuals", where objects around us recognize what we like, what we need and what we need and consequently act in like manner without express directions. IOT is particular important for health related application in society now a days. Doctors can monitor patients' vital health records at any time, from anywhere. So, it can be useful for saving a patients' life in critical situation. In this article, we have presented architecture and application of IOT. We have developed health care related application by using Arduino and presented here results for that.

Keywords: IOT, Health Care, Sensors, Heart Rate.

ICIRPS 31: Use of AHP Method to Evaluate the Procedural Approach for Design Layout

Dr. Ravish Kumar Srivastava¹ and Dr Bikas Prasad²

¹Deptt. Mechanical Engineering,
SITE, Swami Vivekanand Subharti University, Meerut, (U.P.), India

² Principal,
Govt. Polytechnic Dehri-on-sone, Rohtas, Bihar

Email: rk_281@rediffmail.com

Abstract: The focus of this paper is to apply Multiple Attribute Decision Making (MADM) approach & Analytic Hierarchy Process (AHP) for ranking the procedural approaches available for solving the facility layout design problems (FLP). Analytic hierarchy process is applied to rank the approaches, whereas the weight to a factor is assigned using Modified Digital Logic (MDL) method. Based on assigned weight the matrix is generated, and the factors selected for analysis are as: Initial Data Required (IDR), Use of Charts (UC), Use of Graphs and Diagrams (UG), Future Expansion Considered (FE), Constraints Considered (CC), Procedure Implementation (PI), Material Handling Equipment Selection Considered (MH). The approaches which have been compared are as: Nadler's Procedure (NP), Immer's Procedure (IP), Muther's Procedure (MP), Apple's Procedure (AP), and Reed's Procedure (RP). The outcome of the present study predicts that MP gets higher rank in the compared procedures. The output ranks along with their overall priority from the present study is as: MP (0.355) > AP (0.232) > RP (0.228) > NP (0.098) > IP (0.088). The different parameter is used in this study are weighted in the order as: UC (0.22) > UG (0.195) > MH (0.171) > PI (0.146) > CC (0.098) = IDR (0.098) > FE (0.073).

Keywords: Multiple attribute decision making; analytic hierarchy process; procedural approaches; facility layout design problem.

ICIRPS32: Stock Market Prediction using Machine Learning Approach

Dr Himanshu Jain , Dr Akhilesh Mishra and Shakti Nagpal

Panipat Institute of Engineering & Technology

Panipat HR India

himanshujain259@gmail.com

akhilesh.mishra.kumar@gmail.com

shakti.nagpal@gmail.com

Abstract: The growth of investment in the stock market has already attracted the attention of many researchers and analysts. While many believe that it is based on the random walk theory and doesn't follow any pattern and trying to predict any pattern is a fool's game. But many researchers have proved it wrong. Normous research work has already been done in this area, but was based on the traditional methods of prediction like linear regression and futuristic analysis. The core motive of the present research paper is to propose a machine learning-based model to predict the performance of the NIFTY 50, in terms of the closing price on the day, with almost perfection. The proposed algorithm will drive the NIFTY 50's closing value based on different inputs. These inputs include Open Value, Day's High, Day's Low, and the volume of the day. Results obtained in this study are superior to the existing methods. In this paper, Multiple regression and SVM machine learning models are applied to the dataset to achieve higher accuracy in the prediction.

Keywords: Nifty 50, Stock Market, SVM(Support Vector Machine), Random Generation, efficiency, Regression.

ICIRPS 33: An Automated Chilli Yield Estimation Approach Based on Image Processing

Chanki Pandey¹ ,Prabira Kumar Sethy^{2*}, Santi Kumari Behera³ , Jaya Vishwakarma⁴ ,
Sharad Chandra Rajpoot⁵

^{1,4} Department of ET&T Engineering, GEC Jagdalpur, CSVTU, CG, India

²Department of Electronics, Sambalpur University, Odisha, India

³Department of Computer Science and Engineering, VSSUT, Odisha, India

⁵Department of Electrical Engineering, GEC Jagdalpur, CSVTU, CG, India

¹chankipandey1@gmail.com, ^{2*}prabirsethy.05@gmail.com,

skbehera_cse@vssut.ac.in,

⁴jayavishwakarmasri@gmail.com,

⁵scrajpoot90@gmail.com,

* Corresponding Author's Email: prabirasethy@ieee.org

Abstract: India is the largest consumer and exporter of chilli. Exports of chillies sum up to around one lakh tons, which makes 33% of the total spices exported from the country. The contribution of chilli powder to the spice market depends on the production of ripen chilli. So, yield estimation of ripen chilli is necessary to make the spice export more viable. The manual yield estimation based on human visual information is tedious, labour-intensive, prone to error and time-consuming. This manuscript suggests an automated chilli yield estimation method based on image processing. The recommended method able to fit the bounding box in ripen chilli and also count the number of chillies on the natural environment. It achieved 99.64% of accuracy on 25 number of on-tree image samples.

Keyword: Chilli Yield estimation; Image Processing; object detection; binarization.

ICIRPS 34: A BMP Ratio Technique for Showing Convergence of Known Distributions to Normality or Non-normality

Subhash Bagui* and Kl Mehra#

*University of West Florida, United States

#University of Alberta, Canada

sbagui@uwf.edu and kmehra@ualberta.ca

Abstract: The paper presents a simple technique for deriving the convergence of known discrete/continuous type distributions to limiting normal or non-normal distributions. The method utilizes the ratio of the pmf/pdf at hand at two consecutive/nearby points. This ratio method is illustrated via a few well-known discrete and continuous distributions. The presentation should be of interest to teachers and students in probability and statistical areas.

Keywords : Binomial, Normal, Levy's Ratio Method, limiting distributions.

ICIRPS 35: Design and development of X-bar chart through Genetic Algorithm

Dr. Ravish Kumar Srivastava¹ and Dr Bikas Prasad²

¹Professor, Mechanical Engg.

SITE, Swami Vivekanand Subharti University, Meerut, (U.P.), India

²Principal, Govt. Polytechnic Dehri-on-sone, Rohtas, Bihar

Email: rk_281@rediffmail.com

Abstract : Control chart is referred as tool in Statistical Process Control (SPC). This chart is one of the statistical tool is used to monitor the quality of a process. It gives a visual look of the status of the process indication that the process is under control or not. It is used for finding any variation present in any of process. Control charts reflect the variation in a process, so that anyone can easily identify whether the process is within control or it is out of control. For the design of X-bar control chart

we need to find the optimal values of sample size, sampling frequency & width of control limit. In our work, we made a computer program in MATLAB based on Genetic Algorithm for finding the optimal values of above three parameters so that the total expected cost is minimized. Our result showed that Genetic Algorithm provides better result as compared to others reported in the literature. **Keywords** :X Chart; MAT Lab; SPC; Algorithm.

ICIRPS36. Joule Heating Effect on Radiating and Chemically Reacting Visco-elastic Unsteady Magneto Hydro Dynamics Fluid Flow through an Absorbent Media between Upstanding Equidistant Plates with Constant Suction and Slip Condition

Dr. Tripti Mehta* Dr. Ruchika Mehta# and Sanju Jangid#

*S. S. Jain Subodh P.G. College , Jaipur

#Manipal University Jaipur

m.tripti24@gmail.com, ruchika.mehta1981@gmail.com

&sanjujangir04@gmail.com

Abstract: The present study is to explore Joule heating effect on incompressible, electrically conducting, radiating and chemically reacting viscoelastic unsteady magnetohydrodynamic fluid flow and heat transfer through an absorbent media between upstanding equidistant plates with constant suction and slip condition have investigated. The Lorentz force in momentum equation and Joule heating in energy equation are considered. It is assumed that the fluid has small electric conductivity and the electromagnetic force produced is very small. A consistent magnetic field is applied perpendicular to the plane of the plates. The oscillatory time-dependent coupled equations (non-linear) are simplified to provide result for the fluid velocity, heat transfer and mass transfer by using structured perturbation execution. It has been noticed that the fluid velocity and heat transfer increase due to increase in Grashof number, modified Grashof number, Eckert number, heat source parameter or slip parameter while decrease as permeability parameter, radiation parameter or wave length rises. As Hartmann number rises the fluid velocity diminishes, while opposite behaviour is noted in case of heat transfer. The velocity, heat transfer and mass transfer of the fluid rise with Schmidt number, cross flow Reynolds number, chemical reaction parameter or frequency of the oscillation. Numerical results for the motion, heat transposition and mass transfer profiles for various physical parameters as well as the local skin friction coefficient, local Nusselt number and Sherwood number are discussed numerically, presented graphically along with various parameters.

Keywords : Unsteady Flow , magnetohydrodynamic, Joule heating, absorbent media, chemical Reaction.

ICIRPS 37: Master-Slave Robot Using Swarm Intelligence Aniruddha

Prabhu B P¹, Suraj Duncan T², Sandeep C S³, Rithin John⁴, Manish Raj⁵
Department of Computer Science and Engineering
Cambridge Institute of Technology Bengaluru
[1aniprabhubp@gmail.com](mailto:aniprabhubp@gmail.com)²suraj98d@gmail.com³sandeepcsa98@gmail.com
[4rithin15john@gmail.com](mailto:rithin15john@gmail.com)&5manishrj98@gmail.com

Abstract: Swarm intelligence (SI) is the collective behavior of decentralized, self-prepared systems, natural or synthetic. The concept is employed in paintings on artificial intelligence. Nature inspired optimization algorithms are efficiently implemented to clear up low, mid and excessive level computer vision problems. Typically, classical strategies depend upon cost function derivatives to reach a foremost solution. This can be infeasible in many practical situations. Natural algorithms have a tendency to both reproduce most suit individuals or circulate the person closer to the pleasant feasible location with the passage of time, mimicking a few phenomena in nature. Artificial Bee Colony Algorithm can be used to solve Traveling Salesman Problems and its principals is used to find out answers for telling salesman problems where we use partial optimization techniques which affords theoretical foundations and some experimental outcomes on numerous datasets. Hence, it's miles dependable in effectiveness, usability and researchability.

Keyword: *Swarm intelligence, Asymmetric communication, Artificial bee colony algorithm, Nature-inspired Optimization.*

ICIRPS 38: A Novel Compartmental Model for Analysis and Projection of COVID-19 Dynamics in Bangladesh

Anil Kumar
Mathematics,
SITE Meerut

Email. dranilkumar73@rediffmail.com

Abstract: A novel compartmental model is proposed to project the COVID-19 dynamics in Bangladesh. The exposed population is divided into two classes: tested and not tested. Model parameters are estimated by fitting the output with empirical COVID-19 data of Bangladesh from 7 April 2020 to 15 June 2020. It is found that even if 90% of exposed individuals are tested, number of unidentified cases (recovered or dead) is 3 to 4 times than that of identified cases. As of 15 June 2020, Bangladesh is using the Reverse Transcriptase Polymerase Chain Reaction (RT-PCR) based test to detect the novel Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2). The impact of false negative rate of this test on unidentified infection is analyzed. It is found that the year-end total recoveries (deaths) surges 700 (800) times if the false negative rate is doubled. Periodic lockdown and relaxation intervals are incorporated by defining the effective contact rate (β) as a periodic function of time. Impact of lockdown is perspicuous from the periodic fluctuation of the basic reproduction number (R_0). It is observed that a 90-day-lockdwon reduces the final outcome by 3% while a 30-day-lockdwon increases it by 2%. On other hand, casualties are 10 to 100 times worse in case of no lockdown even with less than half

effective contact rate. Analysis of strictness of isolation reveals that a 12.5% increase in the strictness coefficient reduces the exposed population 2.5 times whereas a 37.5% decrease in it intensifies the outcome nearly 9 times. Projections up to 6 April 2021 suggests that the epidemic will reach its peak in Bangladesh.

ICIRPS 39: Security Analysis of a Robust Lightweight Algorithm for Securing Data in Internet of Things Networks

Abdulrazzaq H. A. Al-Ahdal¹¹, Galal A. AL-Rummana²¹, G. N. Shinde³¹, Nilesh K. Deshmukh⁴¹

¹School of Computational Sciences, S.R.T.M. University, Nanded, India.
alahdal201211@gmail.com

²School of Computational Sciences, S.R.T.M. University, Nanded, India.
Galal300z@gmail.com

³Yeshwant College, Nanded, Maharashtra, India.
Former Pro-Vice Chancellor, S.R.T.M. University, Nanded.
shindegn@yahoo.co.in

⁴Assistant Professor, School of Computational Sciences, S.R.T.M. University, Nanded, India.
nileshkd.srt@gmail.com

*corresponding author Abdulrazzaq H. A. Al-Ahdal

Abstract: Recently, the amount of important information and the tremendous sensitivity generated by the interconnectedness of millions of devices (embedded, wireless sensing, radio frequency identification) which are heterogeneous through promising such modern technologies as the IoT. In fact, these small computerized devices have limited capabilities of resources. Therefore, there is an extremely and dire need to protect and secure the sensitive data that generated by these devices taking into account their limited capabilities. However, the traditional coding algorithms like (AES and RSA) are not appropriate for these resource-limited devices due to their high computation cost and large memory consumption. In addition, the integrity and security of data should not be compromised by designing a simple encryption algorithm. Thus, a robust lightweight algorithm for encoding 64-bit data for an 80-bit key is suggested in this paper to provide high hardware security in just six rounds and work on a combination of Feistel and SP architectural methods to increase the encoding complexity. The suggested algorithm is simulated by FELICS and Matlab tools. Different data types such as text and images are used to implement this algorithm. The simulation results show the superiority of the proposed algorithm in different aspects as security, performance, and complexity.

ICIRPS 40: Impact of Global Warming on Katabatic Winds at Maitri Station Antarctica

Ashok Kumar and V. B. Gupta
Amrapali Institute of Applied Sciences, Haldwani
Devi Ahilya University, Indore
ashok_kumarg@yahoo.com

Abstract :Time series analysis of global temperature recorded at Maitri Station and Novolazarevskaya station, Schirmacher region, Antarctica has been studied. Due to global warming it is true that edges of Antarctic continent shall become more sloppiness and therefore velocity of katabatic winds will be increased. And of course slope of Antarctic continent over thousands of years may become slightly steeper. Results obtained are discussed in the present communication.

Keywords : *Global warming, katabatic winds, Schirmacher region, Antarctica.*

ICIRPS 41:Earthquake Detector using MPU6050

KarunyaD, Kanagapriya S, Dr.Jayarama Pradeep
St.Joseph's College of Engineering, OMR, Chennai-119, Tamilnadu.
Email: karunya.durai27@gmail.com

Abstract: Earth quake is one of the most dreadful disasters and most of the people are not aware of an upcoming earth quake and the result is that they tend to lose their lives. The current cycle of global warming is changing the rhythms of cycle that many natural calamities are happening with ease. According to the proverb "Prevention is better than cure" we have come up with a solution "The Earthquake detector". Earthquake detector is a device that detects earthquake shocks. In this paper, we infer that it can detect the minor shocks and alarm you to evacuate to a safe place.

Keywords: *Arduino, Buzzer, LCD, LED, MPU6050.*

ICIRPS 42:Simulation Modelling ProcessIn The Analysis Of (M/M/2) Queueing Modelling

Pradeep K Joshi¹
¹IPS Academy, Indore, India
pradeepkjoshi1@gmail.com
Nidhi Sharma²
² Research Scholar, IET ,DAVV,Indore, India
882nidhi@gmail.com
R.K. Sharma³
³ GOVT Holkar Science College, Indore, India
raj_rma@yahoo.co.in
Pragya Shukla⁴
⁴IET ,DAVV,Indore, India
pragyashukla_iet@yahoo.co.in

Abstract:In this paper, we present an introduction of simulation and it's processed with the help of flowcharts of arrival and departure event for understanding and

analyzing various system performance measure of multiple server queueing modelling (M/M/s) which give service to passengers. Also, through the statistical approach, the significance of data (of particular bus route), which was collected from AICTSL office, Indore (M.P.), India, are verified by t-test. In this paper, we also determine and compare the system performance measure of the queueing model (M/M/2) and also calculate the delay time of the system and Erlang value. Simulation calculation of various performance measures is performed by the WinQSB software for (M/M/2) queueing model when the service rate is varying. Using MATLAB software, various system performance measures of M/M/2 queueing model are graphically represented for optimizing the servers.

Key words : Simulation, queueing model, t-test, service rate MATLAB

ICIRPS 43: Genetic Algorithm for Solving Currency Identification Problem

Snehlata¹ and Vipin Saxena²

¹ Babasaheb Bhimrao Ambedkar University, Department of Computer Science, Lucknow, India

² Babasaheb Bhimrao Ambedkar University, Department of Computer Science, Lucknow, India

Abstract: Currency is the backbone of Indian economy. In the recent year, Currency Identification is a most important area of the research. After demonetisation there are so many Fake currencies found in India. In the advent technology, Image processing play the important role in currency identification. Feature extraction is most important technique for pattern recognition on the basis of texture analysis. This paper presents a flowchart for currency identification based on feature extraction method using Genetic Algorithm. The ultimate goal of this paper to step by step evaluate genetic algorithm for solving currency identification problem. In the end, this method will improve the accuracy of currency identification.

Keywords: Genetic Algorithm, Currency, Feature Extraction, Pattern Recognition.

ICIRPS 44: Study of Thermal Heating in Transparent Liquids using High Repletion Rate Femtosecond Lasers

Sandeep Kumar Maurya¹ * and Debabrata Goswami² *

*¹ Applied Sciences, Meerut Institute of Engineering and technology, Meerut 250005

*² Department of Chemistry, Indian Institute of Technology, Kanpur 208016, India

Email: smiitkarti@gmail.com, dgoswami@iitk.ac.in

Abstract: Intermolecular interactions in liquid play crucial role in the determination of nonlinear optical properties of materials. With this view point, using closed aperture z-scan technique for a series of organic liquids with high repetition rate

femtosecond laser pulses; we show that the self-defocusing effect is larger in lower density liquids. Comparisons are also made with respect to water as a universal liquid. Self-defocusing effect decreases with an increase in the density of the organic liquid as well as its chain length, thus enabling us to determine their intermolecular interactions.

Keywords: *High repetition femtosecond pulses; Nonlinear optics; thermal.*

ICIRPS 45: Analytical or Numerical Solutions of Epidemic Disease Models

Bhanu Sharma, Deepak Kumar and Pooja Khurana
Department of Applied Sciences
Manav Rachna International Institute of Research and Studies
Faridabad., India
sbhanu240@gmail.com, pooja.fet@mriu.edu.in
deepakman12@gmail.com

Abstract: In this paper, we present the existence of solutions for epidemic disease differential equations based models. We consider analytical solutions ordinary differential system (SIS, SIR, Sitr, SEIR) and partial differential equation (Age-dependent model). Since analytical solutions are introduced as mathematical expression, they offer an unmistakable view into how factors (variables) and relations between factors affect the result.

Keywords: *Mathematical modeling, epidemiology, differential equations.*

ICIRPS 46: Modeling of Blood Flow In Stenosed Artery Under MHD Effect In Presence of Porous Medium

#S P Agarwal and *Anil Kumar
Department of Civil Engineering
Sai nath University Ranchi
*Department of Applied Mathematics,
Subharti Institute of Technology and Engineering Meerut UP India
surya2475@gmail.com and dranilkumar73@rediffmail.com

Abstract: In this investigation, a mathematical model for studying oscillatory flow of blood in a stenosed artery under the influence of transverse magnetic field through porous medium has been developed. The equations of motion of blood flow are solved analytically. The analytical expressions for axial velocity, volumetric flow rate, pressure gradient, resistance to blood flow and shear stress have been derived. These expressions reveal significant alterations in blood flow due to stenosis. It is seen that magnetic field significantly controls the flow patterns. We have incorporated the magnetic field perpendicular to the flow of blood. The concept of porous medium is also taken into consideration which takes care of the suction

factor. The effects of various parameters particularly magnetic number and porosity constant on the blood flow through stenosis have been examined. To validate the analytical results, numerical experiment is performed. The results obtained in the investigation are in reasonably good agreement with experimental findings existing in the literature. **Keywords:** MHD flow, Stenosis, Magnetic number, Porosity, Axial velocity, Volumetric flow rate, Wall shear stress.

ICIRPS 47: Spectroscopic Variations of Rhodamine610

Amit Sharma

Department of Applied Sciences, Bharati Vidyapeeth's College of Engg.

A4, Paschim Vihar, New Delhi-110063.

Email: draksharma5477@gmail.com

Abstract: In a dye laser, a laser dye dissolved in some suitable solvent serves as a preferable gain media. Further incorporation of laser dyes into the solid hosts proves to be more advantageous. The properties of laser dye are influenced by its surroundings. Therefore the study of interaction between the laser dye and its surrounding medium is important. In the present paper effect of different environments is studied on rhodamine610.

ICIRPS 48: Heat and Mass Transfers of Unsteady MHD Free Convective Flow of a Nanofluid Past a Moving infinite Vertical Plate in the Presence of Chemical Reaction and Thermal Radiation.

P.Loganathan¹ and S.Arulmozhi^{2†}

¹Department of Mathematics, Anna University, Chennai, 600025, India

²Department of Mathematics, Easwari Engineering College,
Chennai, 600025, India

E-mail: arulrudhrasai@gmail.com

Abstract: In this article, we have analyzed an analytical solution to the MHD heat and mass transfer effects of unsteady natural convective flow of a nanofluid through porous media over a moving semi-infinite vertical with thermal radiation and chemical reaction. The plate is moved with a constant velocity U_0 , temperature and concentration are assumed to be fluctuating with time harmonically from a constant mean at the plate. The analytical solution of the boundary layer equations are assumed of oscillatory type and are solved by the perturbation technique. A range of nanofluids containing nanoparticles of aluminum oxide, copper, titanium oxide, and silver with nanoparticle volume fraction range are considered. The effect of various parameters occurring into the problem such as nanoparticle volume fraction,

nanofluid type, magnetic parameter, radiation parameter, suction parameter, and thermal Grashof number on the velocity, temperature, and concentration profiles.

Keywords: MHD, Chemical reaction, Nanofluids, Variable temperature, Thermal radiation, Porosity, Perturbation technique.

ICIRPS 49 : MHD convective flow and mass transfer of a viscoelastic fluid through porous medium with oscillatory suction

Sajjan Lal

Department of Applied Science (Mathematics)

Feroze Gandhi Institute of Engineering & Technology, Raebareli (U.P.) India

slmauryafgiet@rediffmail.com

Abstract: The present work investigates the study of the MHD effect on the convective flow and mass transfer of a visco-elastic fluid passes through porous medium with periodic suction. The governing equations are transformed into non-dimensional form and then solved by using Perturbation technique. The expressions for dimensionless temperature profile, velocity profile, skin friction and concentration profile at the wall and the effect of various values of the parameters involved in the solution have been obtained.

Keywords: Magnetohydrodynamics, Viscoelastic fluid, Porous plate, Skin friction.

ICIRPS 50 :Laser communication -Need of the Era

Dr. Priyanka Srivastava

Institute of Engineering & Technology,

Dr RL Avadh University ,Ayodhya

priyanka.srivastava73@gmail.com

Abstract: We can interpret communication as transfer of information and in this technical era, it is transfer of data. This data may be related to any field. So communication is not confined to a particular field. For example, weather forecast is now totally based on satellite communication.

This paper discusses various aspects of optical communication. Its advantages, challenges and future prospective. Due to its large information carrying capacity, high data transmission rate, high security features it becomes unparallel to other existing technologies.

The paper covers the two broad categories of optical communication, that is Optical Fibre communication and free space or wireless communication, giving more emphasis to wireless communication. Optical communication achieved its height after lasers, certainly we can call it 'laser communication'. For space communication or large distance communication there is no other alternative to this technology.

Keywords: Laser communication, wireless communication, optical fibre communication

ICIRPS 51: A Note on Generalization of Convolution Theorem for Some Integral Transforms

Deepika Jain¹ and Alok Bhargava²
Department of Mathematics
SKIT, Jaipur
Manipal University, Jaipur.
alok.bhargava@jaipur.manipal.edu

Abstract: In the present paper, generalization of the convolution theorem for Sumudu Transform, Elzaki Transform, Mellin Transform and Natural Transform have been studied respectively. Further, four corollaries have been derived showing that this study leads to the specific convolution property of the corresponding transformation by specifying parametric values.

ICIRPS 52 : Twitter Spam Detection using Hybrid Machine Learning Techniques

Hrishikesh V.
PES University Bangalore, INDIA
hrishi.vish@outlook.com
Ravendra Singh
PES University Bangalore, INDIA
ravendras2@gmail.com
Varun R. Gupta
PES University Bangalore, INDIA
varungupta3009@gmail.com

Abstract: This paper focuses on detection and classification of spam reviews in a data set of reviews scraped from Twitter. Detection of spam reviews is a major step in screening and blocking unwanted information posing as a review. It can further be used to blacklist users. It is not possible to conclusively classify anything as spam even by human beings. Expecting a machine to do so requires extensive training and exploration of different kinds of models that may offer a multi dimensional look at the problem that is superior to the discerning ability of human beings. Models should be devised in such a way that they look beyond simple sentiment analysis or simple hyper plane generation with support vector machine. With hybrid methods such as ensemble learning, it will be possible to exploit the advantages of multiple models and combine the results to classify a review as spam. We have explored one such method in this paper.

Keywords: Spam Detection, Cascaded Models, Random Forest, Support Vector Machines, Natural Language Processing, artificial intelligence and software reliability

ICIRPS 53: Rocker Bogie-A COVID Fighter

S.Kanagapriya,C. Monika,A.Jothika,D.Karunya,Dr.JayaramaPradeep
St.Joseph'sCollege of Engineering, OMR, Chennai-600119
E-mail: kanagapriya01@gmail.com

Abstract: The rocker-bogie system is the suspension arrangement used in the Mars rovers (mechanical robot) introduced for the Mars Pathfinder and also used on the Mars Exploration Rover (MER) and Mars Science Laboratory (MSL) missions. The term "rocker" comes from the rocking aspect of the larger links on each side of the suspension system. The term "bogie" refers to the links that have driven wheels at each end. Bogies were commonly used as load wheels in the tracks of army tanks as idlers distributing the load over the terrain. This robot can climb stairs and unusual terrains carrying loads. We are going to implement this as a preventive measure to avoid the spread of COVID-19. Corona is an emerging threatening disease which is spreading uncontrollably. In order to combat this disease human interaction must be minimized. This prototype is designed satisfying the reduction of human contacts. At hospitals, for providing food and medicines to the patients, this prototype could be used as an aid. This robot carries its load based on the design and specification of components used. The prototype that we have designed has been tested in our laboratory.

Keywords: *Unusual terrain, minimize human contact, carrying loads, control systems.*

ICIRPS 54: SOME CORDIAL LABELING FOR KITE RELATED GRAPH

S. BALA, S.SUNDARRAJ, K.THIRUSANGU

S.I.V.E.T. College, Gowrivakkam, Chennai-73

E-mail.: yesbala75@gmail.com, sjsundar89@gmail.com,
kthirusangu@gmail.com

Abstract: In 1967, Cahit was introduced the concept of cordial labeling. A function $f:V \rightarrow \{0,1\}$ is said to be a cordial labeling if each edge uv has the label $|f(u)-f(v)|$ such that the number of vertices labeled 0 and the number of vertices labeled 1 differ by at most one and the number of edges labeled 0 and the number of edges labeled 1 differ by at most one. A graph which admits cordial labeling is called cordial graph. In this paper we investigate the existence of cordial labeling, signed product cordial labeling and even sum cordial labeling for Triplicate Graph of kite related graph by presenting algorithm.

Keywords: *Kite graph, Triplicate Graph, Graph labeling.*

ICIRPS 55: CUBIC SPLINE APPROXIMATION FOR TWO DIMENSIONAL NON-LINEAR ELLIPTIC BOUNDARY VALUE PROBLEMS

Seema and Dinesh Verma

NIILM, University, Kaithal, Haryana

mppgerg@gmail.com

drdinesh.maths@gmail.com

Abstract: This section exhibits a nine point reduced discretization of order two in y-and three in x-bearings for the solution of two dimensional nonlinear elliptic boundary value problems on a non-uniform mesh using cubic spline approximations. We examine the total deduction strategy of the method in details and furthermore talk about how our discretization can handle Poisson's equation in polar coordinates. Convergence of the method has been set up. Some physical examples and their numerical outcomes are given to legitimize the convenience of the proposed method. The second order elliptic equations are gotten as the consistent state solutions of the illustrative and wave equations. Solutions of these equations are of incredible significance in numerous fields of science, for example, electromagnetics, astronomy, heat transfer, fluid mechanics and so on the grounds that they may speak to a temperature, electric or attractive potential, and relocation for an elastic membrane.

Keywords : *Non linear differential equation, two dimensional elliptic partial differential, Dirichlet boundary conditions.*

ICIRPS 56: APPLICATIONS OF INTEGRAL EQUATIONS BY DINESH VERMA TRANSFORM (DVT)

Dinesh Verma¹ and Aftab Alam²

¹*NIILM, University, Kaithal, Haryana*

²*Swami Vivekanand subharti University, meerut*

drdinesh.maths@gmail.com

Tyagi80aftab@gmail.com

Abstract: In this paper, we solve the integral equations via the application of Dinesh Verma Transform (DVT). This paper discusses a new technique to reveal the use of the application of Dinesh Verma Transform (DVT) for solving the integral Equations. It reveals that the Dinesh Verma Transform (DVT) is effective and powerful tool for the solving the integral equations.

Keywords : *Dinesh Verma transform (DVT), Convolution type, Integral Equations.*

ICIRPS 57: BASIC PRINCIPLES & NOTATION OF INTEGRAL EQUATIONS AND NUMERICAL WAVELET METHODS

Ritu Rani and Dinesh Verma

NIILM, University, Kaithal, Haryana

Mutrajaritu85@gmail.com

drdinesh.maths@gmail.com

Abstract: The wavelet analysis process is to adjust a prototype function, called mother wavelet. Temporal analysis is performed with a contracted, high frequency version of the prototype wavelet while frequency analysis is performed with an enlarged, low frequency version of a similar wavelet. Since the first signal can be spoken to as a wavelet extension, data activities can be performed utilizing the wavelet coefficients, ff we additionally picked the best wavelet as indicated by the data, the data is meagerly spoken to. Other connected fields that are influencing utilization of wavelets to incorporate astronomy, acoustics, nuclear engineering, sub band coding, signal and image processing, neurophysiology, magnetic resonance, imaging, speech discrimination, optics, fractals, turbulence, earthquake predictions, radar, human vision, and unadulterated mathematics application, for example, comprehending partial differential equations.

Keywords: *Integral equations, Differential equations, Wavelet method Coding, earthquake predictions.*

ICIRPS 58: Machine Learning, Deep Learning Modeling using Mathematical Paradigm

Nanda R.Wagh,
DBATU Lonere, India,
nrwagh17@gmail.com

Abstract: The Machine Learning (ML), Deep Learning (DL) are most big-bang technologies used in various techno-specific areas. The Human Life is also revolving around Machine Learning and Deep Learning. The ML, DL paradigm is used in healthcare, market analysis, medicine composition, speech recognition, image processing, video surveillance technologies, e-commerce, Smart factories, IOT. The ML, DL paradigm had developed Deep Blue, IBM Watson and Alpha Go against super human. But the paradigm power exists due to huge use of Mathematical magnum paradigm. The Mathematics supreme magic exist in statistical derivation. The Mean, mode, standard deviation, correlation, regression, kurtosis concepts are used for market-basket analysis and developing many applications of the real world. There are various performance parameters associated with application such as reliability, computational time, accuracy, latency, response time. The proposed system focuses of Women and Children Security using ML, DL paradigm.

Keywords: *Machine Learning, Deep Learning, Correlation, Regression.*

ICIRPS59: Predicting COVID-19 in Uttar Pradesh using Machine Learning Algorithms: Effectiveness of Weekend Lockdown

SUDHEER KUMAR SINGH¹, Dr. PRABHAT VERMA², Dr. PANKAJ KUMAR³

¹*Department of Computer science and engineering,
Dr. A.P.J. Abdul Kalam Technical University
& Integral University, Lucknow, India
sudheerhbtisomvansi@gmail.com*

²*Department of Computer Science and Engineering,
Harcourt Butler Technological University, Kanpur, India,*

³*Department of Computer Science and Engineering
Shri Ramswaroop Group of Professional College, Lucknow, India*

Abstract : COVID-19 the Coronavirus disease was identified in China in Mid of December 2019. Now the COVID-19 has grown to be a pandemic. In the current scenario, the coronavirus is spreading dreadfully around the world. In this paper, we have focused on the spreading trend of coronavirus disease in Uttar Pradesh, state of India. Indian Government was planted lockdown from the 25th March to 31th May 2020 for the reduced spreading the coronavirus in India. After the lockdown, the counting of the coronavirus cases has been rapidly increasing in the Uttar Pradesh from 1st June 2020 to 10th August 2020. The government of Uttar Pradesh has announced weekend lockdown for the stop spreading of coronavirus cases. Many scientists and researchers have been developed various predictive and forecasting models for analyzing the different parameters such as recovery rate, death rate, newly infected cases, and confirmed infected cases, etc. few existing models presumed control and preventive process such as masks, quarantines, social distancing, and lockdown. We analyzed existing models and presented a comparative analysis of coronavirus disease cases in all aspects during the lockdown and normal days. Generally, the models use data (COVID- 19) which has published on the Government's social websites for predictions of the

advancement of COVID-19. In this paper, we proposed a machine learning model for predicting the growth trend of coronavirus diseases in Uttar Pradesh during the weekend lockdown. We have discussed the comparative analysis of collected data of COVID-19 from 1st July to 10th August 2020 to predict the spreading trend of coronavirus disease during the weekend lockdown and normal days.

Keywords: *Coronavirus disease, COVID-19, Machine learning, Social distancing, Social.*

ICIRPS-60: Analysis of System Reliability of the System with Different Configurations Using Event Space Method

Pradeep K. Joshi¹, Hemlata Thakur², Chitaranjan Sharma³

¹*Department of Mathematics, IPS Academy, Indore, India*

²*Department of Mathematics, Govt. Degree College, Rau, Indore, India*

³*Department of Mathematics, Govt. Holkar Science College, Indore, India*

Abstract: In this study, we discussed system reliability of complex system, in different configurations (also known as Reliability Block Diagram) as system having two components, three components, four components and compare the system reliability. Such systems can be analyzed by calculating the reliabilities for the individual series and parallel section then combining in the appropriate manner. The aim of this study is to establish a goal to calculate the reliability of each system of various configuration using event space method. The result obtained is also shown graphically and compare the system reliability of system with various configurations.

Keywords: *Reliability, Reliability Block Diagram, event space method, failure rate.*

ICIRPS -61: TRIPLICATE GRAPH OF KITE FOR CORDIAL LABELING

S. BALA, S.SUNDARRAJ, K.THIRUSANGU

S.I.V.E.T. College, Gowrivakkam, Chennai-73.

E-mail.: yesbala75@gmail.com, sjsundar89@gmail.com, kthirusangu@gmail.com

Abstract: Let G be a path graph P_n , where n is the length of the path with vertex set $V = \{v_1, v_2, \dots, v_{n+1}\}$ and the edges set $E = \{e_1, e_2, \dots, e_n\}$. A triplicate graph of G denoted by $TG = (V_1, E_1)$ is defined by set V_1 of vertices such that $V_1 = \{v_i\} \cup \{v_i'\} \cup \{v_i''\}$ and $\{v_i\} \cap \{v_i'\} \cap \{v_i''\} = \emptyset$ where $1 \leq i \leq n+1$ and $v_i \in V$ and the edge set E_1 of TG is defined as follows: The edge $v_i v_j \in E$ if and only if $\{v_i v_j\} \cup \{v_j' v_i''\} \cup \{v_j v_i'\} \cup \{v_i' v_j''\}$ where $j = i+1$ are edges in E_1 . In this we investigate the existence of Hetro Cordial Labeling, Product Magic Cordial Labeling and 3-total Sum Cordial Labeling for Triplicate graph of kite graph by presenting algorithm.

Keywords: *Kite graph, Triplicate Graph, Graph Labeling.*

ICIRPS- 62: Recurrent Neural Network based Image Compression

Ashwini Kambar ¹ Prof. V.M.Chougala ² and Dr. Rajashekar Shettar ³

*Department of Electronics and Communication Engineering
K.L.S VEDIT, Haliyal¹ Uttar Kannada, India*

*Department of Electronics and Communication Engineering
K.L.S VEDIT, Haliyal² Uttar Kannada, India*

*Department of Electronics and Communication Engineering
BVBCET, Hubli³ Uttar Kannada, India*

ashwinikambar200@gmail.com, virapaxchougala@gmail.com and
raj@bvb.edu

Abstract: In this paper we described and implemented Image compression using recurrent neural network, the compression of image method is a type of information compression that will decrease the same amount of image to be transmitted, stored and evaluated, but without losing the information content. Here we are compressing image with one of most type of neural network i.e. Recurrent Neural Network (RNN). The architecture consist of recurrent neural network based encoder, binarizer, and decoder system. Using this reconstructed the image which is having better quality than the original image and along with this here we show the activation function i.e. Sigmoid, ReLU and tanh functions. And also we evaluated PSNR, MSE, CR, BPP and SSIM, MS-SSIM, parameters for comparing original and compressed images. For this we are taken selected images on the Kodak dataset images. And this work is performed by using python 3.6 version tool with some standard packages for AI functions. So this can demonstrates that our Deep learning achieves better generalization.

Keywords: Image compression, recurrent neural networks, Activation Functions.

ICIRPS- 63: Fractional Kinetic Equations Involving Generalized Mittag-Leffler Function

¹ Komal Prasad Sharma, ² Alok Bhargava
Department of Mathematics and Statistics,
Manipal University Jaipur, Jaipur (India)

¹ keshav4maths@gmail.com,

² alok.bhargava@jaipur.manipal.edu

Abstract: In the present work, new generalized fractional kinetic equations are proposed which involves the kMittag-Leffler function and their fractional derivatives. Further, by using the approach of Sumudu transform, solutions of the kinetic equations are obtained in terms of Mittag-Leffler function with graphical presentations and also obtain several significant special results

Key words: Generalized fractional kinetic equation, k-Mittag-Leffler function, Fractional derivative, Laplace Transform, Mittag-Leffler function.

2010 Mathematics Subject Classification: 26A33, 33E12, 33E20, 44A99

ICIRPS-64 A product recommendation system for solving the cold start problem

Prof Shrutika Chouhan^{#1}, Dr. Ankush Verma²

^{#1,#2}SAGE University, Bypass Road, Kailod Kartal, Indore

#shruti.lchouhan@gmail.com
#2ankush.verma080603@gmail.com

Abstract – The recommendation of product or service based on application needs different product attributes and user requirements to be analyze. But if both the kinds of information are unavailable then such kind of issue in recommendation system is known as the cold start problem. In this presented work the effort is made in order to understand and resolve the issue of recommendation system. Thus a four phase recommendation system is introduced in this work. In first phase the web usage data is preprocessed which is used for further recommendations of products. In next phase the frequent pattern based recommendation is performed. In third phase the recommendation is made on the basis of user current search (user click streams) and similar user behaviors available in web access logs. Additionally the final recommendation is made on the basis of filtering the results obtained in third phase and the cost, brand and social review of the product or service. The implementation of the system is performed on JAVA technology and the results in terms of accuracy, error rate is computed. The results show the prediction is accurate and required less computational resources. Thus the model is acceptable for use and future extension of work for solving the issue of cold start problem in recommendation system design.

ICIRPS -65:Spiking Activity of LIFH Neuron Model with Variable Input Stimulus

VDS Baghela

SET, SUV Gajraula, UP, India

Email-id: vdsbaghela@gmail.com

SK Choudhary

FCA, MRIIRS, Faridabad,

Haryana, India

Email-id: saket_au@rediffmail.com

Abstract: Neuronal information processing occurs in term of spikes. A neuron can emits various kinds of spiking patterns based on the applied input stimulus. In this article, we study the spiking pattern of LIFH neuron model in the presence of four different kinds of applied input stimulus, namely, constant input stimulus, uniformly distributed input stimulus, Gaussian distributed input stimulus and stochastic input stimulus. Here, we notice the tonic and semi-tonic spiking pattern for Gaussian distributed input stimulus and stochastic input stimulus.

Keywords – Gaussian distribution, Uniform Distribution, Hypo-Exponential Distribution, Spiking Activity, Information, Encoding.

