Editor In Chief
Dr. Shiv K Sahu
Ph.D. (CSE), M.Tech. (IT, Honors), B.Tech. (IT)
Director, Blue Eyes Intelligence Engineering & Sciences Publication Pvt. Ltd., Bhopal(M.P.), India

Dr. Shachi Sahu
Ph.D. (Chemistry), M.Sc. (Organic Chemistry)
Additional Director, Blue Eyes Intelligence Engineering & Sciences Publication Pvt. Ltd., Bhopal(M.P.), India

Vice Editor In Chief
Dr. Vahid Nourani
Professor, Faculty of Civil Engineering, University of Tabriz, Iran

Prof.(Dr.) Anuranjan Misra
Professor & Head, Computer Science & Engineering and Information Technology & Engineering, Noida International University, Noida (U.P.), India

Chief Advisory Board
Prof. (Dr.) Hamid Saremi
Vice Chancellor of Islamic Azad University of Iran, Quchan Branch, Quchan-Iran

Dr. Uma Shanker
Professor & Head, Department of Mathematics, CEC, Bilaspur(C.G.), India

Dr. Rama Shanker
Professor & Head, Department of Statistics, Eritrea Institute of Technology, Asmara, Eritrea

Dr. Vinita Kumari
Blue Eyes Intelligence Engineering & Sciences Publication Pvt. Ltd., India

Dr. Kapil Kumar Bansal
Head (Research and Publication), SRM University, Gaziabad (U.P.), India

Dr. Deepak Garg
Professor, Department of Computer Science and Engineering, Thapar University, Patiala (Punjab), India, Senior Member of IEEE, Secretary of IEEE Computer Society (Delhi Section), Life Member of Computer Society of India (CSI), Indian Society of Technical Education (ISTE), Indian Science Congress Association Kolkata.

Dr. Vijay Anant Athavale
Director of SVS Group of Institutions, Mawana, Meerut (U.P.) India/ U.P. Technical University, India

Dr. T.C. Manjunath
Principal & Professor, HKBK College of Engg, Nagawara, Arabic College Road, Bengaluru-560045, Karnataka, India

Dr. Kosta Yogeshwar Prasad
Director, Technical Campus, Marwadi Education Foundation’s Group of Institutions, Rajkot-Morbi Highway, Gauridad, Rajkot, Gujarat, India

Dr. Dinesh Varshney
Director of College Development Counseling, Devi Ahilya University, Indore (M.P.), Professor, School of Physics, Devi Ahilya University, Indore (M.P.), and Regional Director, Madhya Pradesh Bhoj (Open) University, Indore (M.P.), India

Dr. P. Dananjayan
Professor, Department of Department of ECE, Pondicherry Engineering College, Pondicherry,India

Dr. Sadhana Vishwakarma
Associate Professor, Department of Engineering Chemistry, Technocrat Institute of Technology, Bhopal(M.P.), India

Dr. Kamal Mehta
Associate Professor, Deptment of Computer Engineering, Institute of Technology, NIRMA University, Ahmedabad (Gujarat), India

Dr. CheeFai Tan
Faculty of Mechanical Engineering, University Technical, Malaysia Melaka, Malaysia

Dr. Suresh Babu Perli
Professor & Head, Department of Electrical and Electronic Engineering, Narasaraopeta Engineering College, Guntur, A.P., India
Dr. Binod Kumar  
Associate Professor, School of Engineering and Computer Technology, Faculty of Integrative Sciences and Technology, Quest International University, Ipoh, Perak, Malaysia

Dr. Chiladze George  
Professor, Faculty of Law, Akhaltsikhe State University, Tbilisi University, Georgia

Dr. Kavita Khare  
Professor, Department of Electronics & Communication Engineering, MANIT, Bhopal (M.P.), INDIA

Dr. C. Saravanan  
Associate Professor (System Manager) & Head, Computer Center, NIT, Durgapur, W.B. India

Dr. S. Saravanan  
Professor, Department of Electrical and Electronics Engineering, Muthayamal Engineering College, Resipuram, Tamilnadu, India

Dr. Amit Kumar Garg  
Professor & Head, Department of Electronics and Communication Engineering, Maharishi Markandeshwar University, Mullana, Ambala (Haryana), India

Dr. T.C.Manjunath  
Principal & Professor, HKBK College of Engg, Nagawara, Arabic College Road, Bengaluru-560045, Karnataka, India

Dr. P. Dananjayan  
Professor, Department of Department of ECE, Pondicherry Engineering College, Pondicherry, India

Dr. Kamal K Mehta  
Associate Professor, Department of Computer Engineering, Institute of Technology, NIRMA University, Ahmedabad (Gujarat), India

Dr. Rajiv Srivastava  
Director, Department of Computer Science & Engineering, Sagar Institute of Research & Technology, Bhopal (M.P.), India

Dr. Chakunta Venkata Guru Rao  
Professor, Department of Computer Science & Engineering, SR Engineering College, Ananthasagar, Warangal, Andhra Pradesh, India

Dr. Anuranjan Misra  
Professor, Department of Computer Science & Engineering, Bhagwant Institute of Technology, NH-24, Jindal Nagar, Ghaziabad, India

Dr. Robert Brian Smith  
International Development Assistance Consultant, Department of AEC Consultants Pty Ltd, AEC Consultants Pty Ltd, Macquarie Centre, North Ryde, New South Wales, Australia

Dr. Saber Mohamed Abd-Allah  
Associate Professor, Department of Biochemistry, Shanghai Institute of Biochemistry and Cell Biology, Yue Yang Road, Shanghai, China

Dr. Himani Sharma  
Professor & Dean, Department of Electronics & Communication Engineering, MLR Institute of Technology, Laxman Reddy Avenue, Dundigal, Hyderabad, India

Dr. Sahab Singh  
Associate Professor, Department of Management Studies, Dronacharya Group of Institutions, Knowledge Park-III, Greater Noida, India

Dr. Umesh Kumar  
Principal: Govt Women Poly, Ranchi, India

Dr. Syed Zaheer Hasan  
Scientist-G Petroleum Research Wing, Gujarat Energy Research and Management Institute, Energy Building, Pandit Deendayal Petroleum University Campus, Raisan, Gandhinagar-382007, Gujarat, India.

Dr. Jaswant Singh Bhomrah  
Director, Department of Profit Oriented Technique, 1 – B Crystal Gold, Vjalpore Road, Navsari 396445, Gujarat, India
Technical Advisory Board

Dr. Mohd. Husain
Director MG Institute of Management & Technology, Banthara, Lucknow (U.P.), India

Dr. T. Jayanthy
Principal, Panimalar Institute of Technology, Chennai (TN), India

Dr. Umesh A.S.
Director, Technocrats Institute of Technology & Science, Bhopal (M.P.), India

Dr. B. Kanagasabapathi
Infosys Labs, Infosys Limited, Center for Advance Modeling and Simulation, Infosys Labs, Infosys Limited, Electronics City, Bangalore, India

Dr. C.B. Gupta
Professor, Department of Mathematics, Birla Institute of Technology & Sciences, Pilani (Rajasthan), India

Dr. Sunandan Bhunia
Associate Professor & Head, Dept. of Electronics & Communication Engineering, Haldia Institute of Technology, Haldia, West Bengal, India

Dr. Jaydeb Bhaumik
Associate Professor, Dept. of Electronics & Communication Engineering, Haldia Institute of Technology, Haldia, West Bengal, India

Dr. Rajesh Das
Associate Professor, School of Applied Sciences, Haldia Institute of Technology, Haldia, West Bengal, India

Dr. Mrutyunjaya Panda
Professor & Head, Department of EEE, Gandhi Institute for Technological Development, Bhubaneswar, Odisha, India

Dr. Mohd. Nazri Ismail
Associate Professor, Department of System and Networking, University of Kuala (UniKL), Kuala Lumpur, Malaysia

Dr. Haw Su Cheng
Faculty of Information Technology, Multimedia University (MMU), Jalan Multimedia, 63100 Cyberjaya, Malaysia

Dr. Hossein Rajabalipour Cheshmehgaz
Industrial Modeling and Computing Department, Faculty of Computer Science and Information Systems, Universiti Teknologi Malaysia (UTM) 81310, Skudai, Malaysia

Dr. Sudhinder Singh Chowhan
Associate Professor, Institute of Management and Computer Science, NIMS University, Jaipur (Rajasthan), India

Dr. Neeta Sharma
Professor & Head, Department of Communication Skills, Technocrat Institute of Technology, Bhopal (M.P.), India

Dr. Ashish Rastogi
Associate Professor, Department of CSIT, Guru Ghansi Das University, Bilaspur (C.G.), India

Dr. Santosh Kumar Nanda
Professor, Department of Computer Science and Engineering, Eastern Academy of Science and Technology (EAST), Khurda (Orisa), India

Dr. Hai Shanker Hota
Associate Professor, Department of CSIT, Guru Ghansi Das University, Bilaspur (C.G.), India

Dr. Sunil Kumar Singla
Professor, Department of Electrical and Instrumentation Engineering, Thapar University, Patiala (Punjab), India

Dr. A. K. Verma
Professor, Department of Computer Science and Engineering, Thapar University, Patiala (Punjab), India

Dr. Durgesh Mishra
Chairman, IEEE Computer Society Chapter Bombay Section, Chairman IEEE MP Subsection, Professor & Dean (R&D), Acropolis Institute of Technology, Indore (M.P.), India

Dr. Xiaoguang Yue
Associate Professor, College of Computer and Information, Southwest Forestry University, Kunming (Yunnan), China
Dr. Veronica McGowan
Associate Professor, Department of Computer and Business Information Systems, Delaware Valley College, Doylestown, PA, Allman China

Dr. Mohd. Ali Hussain
Professor, Department of Computer Science and Engineering, Sri Sai Madhavi Institute of Science & Technology, Rajahmundry (A.P.), India

Dr. Mohd. Nazri Ismail
Professor, System and Networking Department, Jalan Sultan Ismail, Kuala Lumpur, MALAYSIA

Dr. Sunil Mishra
Associate Professor, Department of Communication Skills (English), Dronacharya College of Engineering, Gurgaon (Haryana), India

Dr. Labib Francis Gergis Rofaiel
Associate Professor, Department of Digital Communications and Electronics, Misr Academy for Engineering and Technology, Mansoura City, Egypt

Dr. Pavol Tanuska
Associate Professor, Department of Applied Informatics, Automation, and Mathematics, Trnava, Slovakia

Dr. VS Giridhar Akula
Professor, Avanthi’s Research & Technological Academy, Gunthapally, Hyderabad, Andhra Pradesh, India

Dr. S. Satyanarayana
Associate Professor, Department of Computer Science and Engineering, KL University, Guntur, Andhra Pradesh, India

Dr. Bhupendra Kumar Sharma
Associate Professor, Department of Mathematics, KL University, BITS, Pilani, India

Dr. Praveen Agarwal
Associate Professor & Head, Department of Mathematics, Anand International College of Engineering, Jaipur (Rajasthan), India

Dr. Manoj Kumar
Professor, Department of Mathematics, Rashtriya Kishan Post Graduate Degree, College, Shamli, Prabudh Nagar, (U.P.), India

Dr. Shaikh Abdul Hannan
Associate Professor, Department of Computer Science, Vivekanand Arts Sardar Dalip Singh Arts and Science College, Aurangabad (Maharashtra), India

Dr. K.M. Pandey
Professor, Department of Mechanical Engineering, National Institute of Technology, Silchar, India

Prof. Pranav Parashar
Technical Advisor, International Journal of Soft Computing and Engineering (IJSCE), Bhopal (M.P.), India

Dr. Biswajit Chakraborty
MECON Limited, Research and Development Division (A Govt. of India Enterprise), Ranchi-834002, Jharkhand, India

Dr. D.V. Ashoka
Professor & Head, Department of Information Science & Engineering, SJB Institute of Technology, Kengeri, Bangalore, India

Dr. Sasidhar Babu Suvanam
Professor & Academic Coordinator, Department of Computer Science & Engineering, Sree Narayana Gurukalam College of Engineering, Kadaiyuruppu, Kollam, Kerala, India

Dr. C. Venkatesh
Professor & Dean, Faculty of Engineering, EBET Group of Institutions, Kangayam, Erode, Tamilnadu (Tamil Nadu), India

Dr. Nilay Khare
Assoc. Professor & Head, Department of Computer Science, MANIT, Bhopal (M.P.), India

Dr. Sandra De Iaco
Professor, Dip.to Di Scienze Dell’Economia-Sez. Matematico-Statistica, Italy
Dr. Yaduvir Singh  
Associate Professor, Department of Computer Science & Engineering, Ideal Institute of Technology, Govindpuram Ghaziabad, Lucknow (U.P.), India

Dr. Angela Amphawan  
Head of Optical Technology, School of Computing, School Of Computing, Universiti Utara Malaysia, 06010 Sintok, Kedah, Malaysia

Dr. Ashwini Kumar Arya  
Associate Professor, Department of Electronics & Communication Engineering, Faculty of Engineering and Technology, Graphic Era University, Dehradun (U.K.), India

Dr. Yash Pal Singh  
Professor, Department of Electronics & Communication Engg, Director, KLS Institute Of Engg.& Technology, Director, KLSIET, Chandok, Bijnor, (U.P.), India

Dr. Ashish Jain  
Associate Professor, Department of Computer Science & Engineering, Accurate Institute of Management & Technology, Gr. Noida (U.P.), India

Dr. Abhay Saxena  
Associate Professor & Head, Department of Computer Science, Dev Sanskriti University, Haridwar, Uttrakhand, India

Dr. Judy. M.V  
Associate Professor, Head of the Department CS &IT, Amrita School of Arts and Sciences, Amrita Vishwa Vidyapeetham, Brahmasthanam, Edapally, Cochin, Kerala, India

Dr. Sangkyun Kim  
Professor, Department of Industrial Engineering, Kangwon National University, Hyoja 2 dong, Chuncheon, Gangwondo, Korea

Dr. Sanjay M. Gulhane  
Professor, Department of Electronics & Telecommunication Engineering, Jawaharlal Darda Institute of Engineering & Technology, Yavatmal, Maharashtra, India

Dr. K.K. Thyagarajan  
Principal & Professor, Department of Informational Technology, RMK College of Engineering & Technology, RSM Nagar, Thiruvallur, Tamil Nadu, India

Dr. P. Subashini  
Assoc. Professor, Department of Computer Science, Coimbatore, India

Dr. G. Srinivasrao  
Professor, Department of Mechanical Engineering, RVR & JC, College of Engineering, Chowdavaram, Guntur, India

Dr. Rajesh Verma  
Professor, Department of Computer Science & Engg. and Deptt. of Information Technology, Kurukshetra Institute of Technology & Management, Bhor Sadian, Pehowa, Kurukshetra (Haryana), India

Dr. Pawan Kumar Shukla  
Associate Professor, Satya College of Engineering & Technology, Haryana, India

Dr. U C Srivastava  
Associate Professor, Department of Applied Physics, Amity Institute of Applied Sciences, Amity University, Noida, India

Dr. Reena Dadhich  
Prof. & Head, Department of Computer Science and Informatics, MBS MArg, Near Kabir Circle, University of Kota, Rajasthan, India

Dr. Aashis. S. Roy  
Department of Materials Engineering, Indian Institute of Science, Bangalore Karnataka, India

Dr. Sudhir Nigam  
Professor Department of Civil Engineering, Principal, Lakshmi Narain College of Technology and Science, Raisen, Road, Bhopal, (M.P.), India

Dr. S. Senthil Kumar  
Doctorate, Department of Center for Advanced Image and Information Technology, Division of Computer Science and Engineering, Graduate School of Electronics and Information Engineering, Chon Buk National University Deok Jin-Dong, Jeonju, Chon Buk, 561-756, South Korea Tamilnadu, India
Dr. Gufran Ahmad Ansari  
Associate Professor, Department of Information Technology, College of Computer, Qassim University, Al-Qassim, Kingdom of Saudi Arabia (KSA)

Dr. R. Navaneetha krishnan  
Associate Professor, Department of MCA, Bharathiyar College of Engg & Tech, Karaikal Puducherry, India

Dr. Hossein Rajabalipour Cheshmejgaz  
Industrial Modeling and Computing Department, Faculty of Computer Science and Information Systems, Universiti Teknologi Skudai, Malaysia

Dr. Veronica McGowan  
Associate Professor, Department of Computer and Business Information Systems, Delaware Valley College, Doylestown, PA, Allman China

Dr. Sanjay Sharma  
Associate Professor, Department of Mathematics, Bhilai Institute of Technology, Durg, Chhattisgarh, India

Dr. Taghreed Hashim Al-Noor  
Professor, Department of Chemistry, Ibn-Al-Haitham Education for pure Science College, University of Baghdad, Iraq

Dr. Madhumita Dash  
Professor, Department of Electronics & Telecommunication, Orissa Engineering College, Bhubaneswar,Odisha, India

Dr. Anita Sagadevan Ethiraj  
Associate Professor, Department of Centre for Nanotechnology Research (CNR), School of Electronics Engineering (Sense), Vellore Institute of Technology (VIT) University, Tamilnadu, India

Dr. Sibasis Acharya  
Project Consultant, Department of Metallurgy & Mineral Processing, Midas Tech International, 30 Mukan Street, Jindalee-4074, Queensland, Australia

Dr. Neelam Ruhil  
Professor, Department of Electronics & Computer Engineering, Dronacharya College of Engineering, Gurgaon, Haryana, India

Dr. Faizullah Mahar  
Professor, Department of Electrical Engineering, Balochistan University of Engineering and Technology, Pakistan

Dr. K. Selvaraju  
Head, PG & Research, Department of Physics, Kandaswami Kandars College (Govt. Aided), Velur (PO), Namakkal DT. Tamil Nadu, India

Dr. M. K. Bhanarkar  
Associate Professor, Department of Electronics, Shivaji University, Kolhapur, Maharashtra, India

Dr. Sanjay Hari Sawant  
Professor, Department of Mechanical Engineering, Dr. J. J. Magdum College of Engineering, Jaysingpur, India

Dr. Arindam Ghosal  
Professor, Department of Mechanical Engineering, Dronacharya Group of Institutions, B-27, Part-III, Knowledge Park,Greater Noida, India

Dr. M. Chithirai Pon Selvan  
Associate Professor, Department of Mechanical Engineering, School of Engineering & Information Technology Manipal University, Dubai, UAE

Dr. S. Sambhu Prasad  
Professor & Principal, Department of Mechanical Engineering, Pragati College of Engineering, Andhra Pradesh, India.

Dr. Muhammad Attique Khan Shahid  
Professor of Physics & Chairman, Department of Physics, Advisor (SAAP) at Government Post Graduate College of Science, Faisalabad.

Dr. Kuldeep Pareta  
Professor & Head, Department of Remote Sensing/GIS & NRM, B-30 Kailash Colony, New Delhi 110 048, India

Dr. Th. Kiranbala Devi  
Associate Professor, Department of Civil Engineering, Manipur Institute of Technology, Takyelpat, Imphal, Manipur, India
Dr. M. Shanmuga Priya
Assoc. Professor, Department of Biotechnology, MVJ College of Engineering, Bangalore Karnataka, India

Dr. Leena Jain
Assoc. Professor & Head, Dept. of Computer Applications, Global Institute of Management & Emerging Technologies, Amritsar, India

Dr. S.S.S.V Gopala Raju
Professor, Department of Civil Engineering, GITAM School of Technology, GITAM, University, Hyderabad, Andhra Pradesh, India

Dr. Ani Grubisic
Department of Computer Science, Teslina 12, 21000 split, Croatia

Dr. Ashish Paul
Associate Professor, Department of Basic Sciences (Mathematics), Assam Don Bosco University, Guwahati, India

Dr. Sivakumar Durairaj
Professor, Department of Civil Engineering, Vel Tech High Tech Dr.Rangarajan Dr.Sakunthala Engineering College, Avadi, Chennai Tamil Nadu, India

Dr. Rashmi Nigam
Associate Professor, Department of Applied Mathematics, UTI, RGPV, Airport Road, Bhopal, (M.P.), India

Dr. Mu-Song Chen
Associate Professor, Department of Electrical Engineering, Da-Yeh University, Rd., Dacun, Changhua 51591, Taiwan R.O.C., Taiwan, Republic of China

Dr. Ramesh S
Associate Professor, Department of Electronics & Communication Engineering, Dr. Ambedkar Institute of Technology, Bangalore, India

Dr. Nor Hayati Abdul Hamid
Associate Professor, Department of Civil Engineering, Universiti Teknologi Mara, Selangor, Malaysia

Dr. C.Nagarajan
Professor & Head, Department of Electrical & Electronic Engineering Muthayammal Engineering College, Rasipuram, Tamilnadu, India

Dr. Ilaria Cacciotti
Department of Industrial Engineering, University of Rome Tor Vergata Via del Politecnico Rome-Italy

Dr. V.Balaji
Principal Cum Professor, Department of EEE &E&I, Lord Ayyappa Institute of Engg & Tech, Uthukadu, Walajababd, Kanchipuram, Tamil Nadu, India

Dr. G. Anjan Babu
Assoc. Professor, Department of Computer Science, S V University, Tirupati, Andhra Pradesh, India

Dr. Damodar Reddy Edla
Assoc. Professor, Department of Computer Science & Engineering, National Institute of Technology, Goa, India

Dr. D.Arumuga Perumal
Professor, Department of Mechanical Engg, Noorul Islam University, Kanyakumari (Dist), Tamilnadu, India

Dr. Roshdy A. AbdelRassoul
Professor, Department of Electronics and Communications Engineering, Arab Academy for Science and Technology, Electronics and Communications Engineering Dept., POBox 1029, Abu-Qir, Alexandria, Egypt

Dr. Aniruddha Bhattacharya
Assoc. Professor & Head, Department of Computer Science & Engineering, Amrita School of Engineering, Bangalore, India

Dr. P Venkateswara Rao
Professor, Department of Mechanical Engineering, KITS, Warangal, Andhra Pradesh, India

Dr. V.Mahalakshmi M.L
Assoc. Professor & Head, Institute of Management Studies, Chennai CID Quarters, V.K.Iyer Road, Mandaveli, Chennai
### Authors:
Debasish Bhaskar, Mousumi Gupta, Rabindranath Bera

### Paper Title:
Adaptive Mitigation of Jammer & Clutter in an Airborne GMTI scenario using Sample Matrix Inversion Processing

### Abstract:
In this paper, we propose an adaptive jammer & clutter suppression scheme using digital beam formation (DBF) technology in RADAR with uniform rectangular phased-array antennas. Digital Beam Forming (DBF) algorithm is employed to cover a detection area of long range (2000 m) and angular orientation of [900, -35.260] w.r.t the RADAR platform flying in an Airplane under the airborne scenario. The airplane is actually a carrying a spaceborne radar with its baseband source using linear frequency modulated (LFM) waveform. The RF carrier is used as a single 3 GHz oscillator. The simulation of the flying radar is done with consideration of a ground clutter being generated near to the target zone and also the existence of a wideband Gaussian-distributed barrage-jammer is encountered. The back-end processing uses Sample Matrix Inversion (SMI) of Clutter & Jammer Covariance matrix with subspace-based DBF algorithm [1]. The proposed 3 GHz Adaptive Beamforming and Jammer Suppression (ABJS) in Airborne RADAR can be used for mitigating the Jammers and Clutters in a Ground Moving Target Indicator (GMTI) system prevailing under the war-field condition.

#### Keywords:
Digital beam formation, GMTI, Jammer suppression, Airborne RADAR, Gaussian distributed barrage-jammer.

### References:

### Authors:
Thiruneelakandand, B., Jayavel Raja Kumar, T., Dushiyanthan, C., Suresh, R., Karthikeyan, K., Davidraju, D

### Paper Title:
A Study on Spectral Reflectance with Surface Water Quality and Chlorophyll-A Concentrations in Muthupet Lagoon of Thiruvurur District, Tamilnadu

### Abstract:
In this paper, processing techniques for field measurements of spectral reflectance on chlorophyll-a in part of Muthupet lagoon, Thiruvurur district, Tamilnadu. This study focused upon improving the accuracy of chlorophyll quantification by applying wavelet analysis to reflectance spectra. Spectral reflectance measurement was carried out 5 different locations using ASD Field spectrometer in month of July 2011. The reflectance factor was computed and analyzed in RS3 software package the compared spectral curve shows peaks between 400 to 850 nm in most of the measuring locations. The chlorophyll-a content in spectral investigated locations 0.046, 2.258, 2.181, 3.569, 2.378 g/l. Our results show that spectral signatures for chlorophyll-a observed in the lagoon and the field had similar characteristics with high reflectance in visible region of the spectrum from 500 to 650 nm, but low in the NIR region from 750 to 850 nm.

#### Keywords:
chlorophyll-a, Reflectance, Spectral Signature.

### References:
Abstract: In modern world, ‘saving’ or ‘cut down costs’ are commonly used expressions. As an answer to the demands, the idea of integrated facility management and building automation, as part of it, has been proposed and recognized. While overall operating costs of a building may represents as much as 75% of all the expenses incurred on the building, they can be reduced 25% by means of integrated facility management comprising all system functions during the life cycle of the building which is one step closer to energy efficient and environmental aware buildings. That is the point that is worth thinking. This paper presents simulation model and structure of a SCADA application for Direct Digital Control (DDC) of HVAC (Heating Ventilation and Air-Conditioning) system in cooling/heating mode and design a system that provides suitable air quality in school through the existing air conditioning system using CO2-based demand controlled ventilation. For simulation of this applications, PLC model number Siemens S7-200 is used, extended with an analog module EM235. Program package Micro WIN Step7 is used for control algorithm creation. SCADA application in software package WinCC is used for visualization and monitoring the work of the HVAC system.

Keywords: HVAC system, PLC, SCADA, DDC, CO2 demand controlled ventilation.

References:
between stations is 500m; railcar needs 1.3kWh to reach the next station. If we assume that railcars arrive and depart every 10 minutes, and railcars are operated for 18 hours a day, the power generation capacity of 99,000kWh is necessary at each station in one year.

**Keywords:** Renewable energy, Solar energy, Wind energy, Biogas system.

**References:**

3. Fujimaka, M., ELECTRIC ENGINE CAR, Tokyo Denki University Press, Tokyo, Japan, first edition, November 2003
4. Hashiguchi, M., SOLARCAR, Sankaido, Tokyo, Japan, May 1993
12. Ochial, T., Study on the electric double layer capacitors, Master’s thesis, Tokyo Denki University, Tokyo, Japan, 2000
13. Ogasa, M., LRT Technology Up To Date 1, ROLLING STOCK & TECHNOLOGY, volume 16, 8, pp. 18–23, November 2010
14. Ogasa, M., LRT Technology Up To Date (Contactwire-less LRV), THE 4TH INTERNATIONAL WORKSHOP ON LIGHT RAIL TRANSIT, Organizing Committee on LRT WORKSHOP 2010, Okinawa, Japan, November 2010
15. Ogasa, M., LRT Technology Up To Date 2, ROLLING STOCK & TECHNOLOGY, volume 17, 2, pp. 2–5, February 2011

**Authors:** Seyed Arsalan Hoseyni, Javad Zaree, Pejman, Masoud Zahedizadeh

**Paper Title:** Feature Selection for Application on Predicting Alzheimer’s Disease Progress

**Abstract:** In this paper, the Bayes classifier is used to predict Alzheimer’s disease progress. The classifier is trained on a subset of the Alzheimer’s Disease Neuroimaging Initiative database. Subjects are diagnosed by doctors as belonging to healthy, mild-cognitive impaired, and Alzheimer’s disease class. A software tool for features selection and time regression is developed. The tool utilizes a variant of the Sequential Forward Selection (SFS) algorithm for feature selection, where the criterion used for selecting features is the correct classification rate of the Bayes classifier. The tool also employs linear regression to predict future values of selected biomarkers from past measurements, so that future class of the subject can be predicted.

**Keywords:** feature selection, alzheimer, prediction

5. **References:**

Abstract: Application of individual distributed generators can cause as many problems as it may solve. A better way to realize the emerging potential of distributed generation is to take a system approach which views generation and associated loads as a subsystem or a “microgrid”. During disturbances, the generation and corresponding loads can separate from the distribution system to isolate the microgrid’s load from the disturbance (providing UPS services) without harming the transmission grid’s integrity. This ability to island generation and loads together has a potential to provide a higher local reliability than that provided by the power system as a whole. In this model it is also critical to be able to use the waste heat by placing the sources near the heat load. This implies that a unit can be placed at any point on the electrical system as required by the location of the heat load.

6. Keywords: microgrid, distributed generation, CHP, intentional islanding, voltage droop, power vs. frequency droop, inverters.

References:
1. M. Valenti “Reaching for 60 percent, the General Electric H turbine system taking shape in Wales is making a bid for a new record in thermal efficiency.” Mechanical Engineering, April 2002.

Authors:

Paper Title: Development of PID Controller for Controlling Desired Level of Coupled Tank System

Abstract: The industrial application of Coupled Tank System (CTS) are widely used especially in chemical process industries. The overall process need liquids to be pumped, stored in the tank and pumped again to another tank for certain desired level. Nevertheless, the level of liquid in tank need to be controlled and flow between two tanks must be regulated. This paper presents development of Proportional-Integral-Derivative (PID) controller for controlling the desired liquid level of the CTS. Various conventional techniques of PID tuning method will be tested in order to obtain the PID controller parameters. Simulation is conducted within MATLAB environment to verify the performances of the system in terms of Rise Time (Ts), Settling Time (Ts), Stedy State Error (SSE) and Overshoot (OS). Four techniques which are trial and error method, auto-tuning method, Ziegler-Nichols (Z-N) method and Cohen-Coon (C-C) method will be implemented and all the performance results will be analyzed. It has been demonstrated that performances of CTS can be improved with appropriate technique of PID tuning methods.

Keywords: Coupled Tank System (CTS), PID Controller, PID Tuning Method, Water Level Control.

References:
Abstract: New technologies reach public utility enterprises with difficulty and are slow in finding their everyday application in less developed cities and municipalities in Serbia, particularly when it comes to the utilities of public interest to urban areas. Certain developmental attempts to introduce new technologies have provided initial results, primarily in increasing the effectiveness and optimization of certain work process costs. These attempts are present in a small number of communities and utility companies. This paper provides an example of an advanced system (expert shell) for controlling the process of solid waste collection and transportation within the fleet management system of a public utility company. Characteristic control methods, which are based on tracking the selected parameters in real-time and post-processing of the realized vehicle routes, are shown in the paper. Part of the original software algorithm to support the monitoring of the system and the analysis of the obtained results is also shown. The paper indicates the importance of using modern GPS technology in improving similar systems of city logistics. The original measured and calculated vehicle tracking parameters were used in the paper.

Keywords: Expert approach, fleet management, GPS application, signal processing, telecommunications.

References:

Abstract: In urban area congestion mostly occurs at the junctions. Junctions are the intersection of roads, where the flow of the vehicles is controlled by traffic police or traffic lights. When the flow of vehicles increases at the junctions, it causes traffic jams and stream of vehicles incur longer waiting time. When there is a crossing at a junction, a stream of vehicle has to wait for others. Sometimes, the longer stream of waiting vehicles at the junctions causes stalemate situation. Design of an uninterrupted traffic flow system at the traffic junctions without have to wait for others will lead to minimize severe traffic congestion. We have proposed a traffic flow system at the junctions to make the flow of traffic stream an uninterrupted flow system. This will also lead to design of a traffic light and traffic police free system at the junctions of urban traffic roads.


References:


- Richard A. Becker, Ramon Caceres, Karrie Hanson, Ji Meng Loh, Simon Urbanek, Alexander Varshavsky and Chris Volinsky, “Route Classification Using Cellular Handoff Patterns”, UbComp’11, September 17–21, 2011, Beijing, China. Copyright 2011 ACM 978-1-4503-0630-0(1)/10.


Authors: K.M Pandey, Gautam Choubey

Paper Title: Numerical analysis of Hypersonic Combustion of a Scramjet Combustor with a Central lobed Strut Injector at Flight Mach Number 7

Abstract: A numerical study of the inlet-combustor interaction and flow structure through a scramjet engine at a flight Mach number M = 7(Hypersonic Combustion) is presented. The scramjet configuration incorporates an inlet with an 8 degree compression ramp, followed by an isolator, and a divergent combustor. Fuel is injected at supersonic speed (M=2) through a central strut injector. The shape of the strut is chosen in a way to produce strong stream wise vorticity and thus to enhance the hydrogen/air mixing. To investigate the influence of the central injector on the flow behavior, reacting cases have been studied. For the reacting cases, the shock wave pattern is modified due to the strong heat release during combustion process. The shock structure and combustion phenomenon are not only affected by the geometry, but also by the flight Mach number and the trajectory. The k-ε realizability computations are capable of predicting trajectory and combustion simulations well and good. For all reacting cases, fuel-air stoichiometric conditions are used.

Keywords: Scramjet, Hypersonic Combustion, k-ε realizable model, Flameholder.

References:


6. N. MOMTCHILOFF, E. D. TABACK, AND R. F. BUSWELL “KINETICS IN HYDROGEN-AIR FLOW SYSTEMS. I. CALCULATION OF IGNITION DELAYS FOR HYPERSONIC RAMJETS”


Histology Based Image Retrieval in Multifeature Spaces

Abstract: Content-based histology image retrieval systems have shown great potential in supporting decision making in clinical activities, teaching, and biological research. In content-based im-age retrieval, feature combination plays a key role. It aims at enhancing the descriptive power of visual features corresponding to semantically meaningful queries. It is particularly valuable in his-tology image analysis where intelligent mechanisms are needed for interpreting varying tissue composition and architecture into histological concepts. This paper presents an approach to auto-matically combine heterogeneous visual features for histology im-age retrieval. The aim is to obtain the most representative fusion model for a particular keyword that is associated with multiple query images. The core of this approach is a multiobjective learn-ing method, which aims to understand an optimal visual-semantic matching function by jointly considering the different preferences of the group of query images. The task is posed as an optimization problem, and a multiobjective optimization strategy is employed in order to handle potential contradictions in the query images associated with the same keyword. Experiments were performed on two different collections of histology images. The results show that it is possible to improve a system for content-based histology image retrieval by using an appropriately defined multifeature fu-sion model, which takes careful consideration of the structure and distribution of visual features.

Keywords: Content-based image retrieval (CBIR), feature fusion, histology image retrieval, multiobjective optimization.

References:
Energy Saving Opportunity in a Waste Water Treatment Plant

Authors: Deepika Sandhu, Ruchi Pandey

Abstract: About 90 per cent of sewage and 70 per cent of waste water including industrial and domestic domains in developing countries are discharged without treatment, often polluting the usable water supply and also causes massive harm to the marine life as well, for the very fact that the ultimate destination for all the water sources and streams is ultimately the sea. Although the sewage is 99% pure water, still the approximate 1% is harmful to a very large extent. While talking about the economics, a major part is dedicated to the machinery and installation costs, while a considerable portion is also inclined towards the energy costs. In a conventional waste water treatment plant, working on conventional activated sludge process, a portion of energy is spent in operation of the primary clarifiers. If the Extended Aeration process is followed, the energy spent in the operation of primary clarifiers will not be required and thus, without affecting much of the plant operation, for small establishments. A similar wastewater treatment plant working on activated sludge process is in operation at an educational institution, namely Educational Institute in Jabalpur. Originally, the plant is working on Activated Sludge Process. Process modification has been suggested in the research work. Also, an aspect of environmental modeling has been highlighted.

Keywords: BOD (Biochemical Oxygen Demand), TSS (Total Suspended Solids), Activated Sludge Process, Extended Aeration Process, Process, Modification, Energy.

References:
3. Alcatel Shanghai Bell, Alcatel-Lucent, “STBC-II scheme with nonpaired symbols for LTE-Advanced uplink transmit diversity, R1-090058, 3GPP TSG RAN WG 1 Meeting no 55 bis, Jan 2009.
The case depths were observed to be about 20 μm in order to improve the wear resistance like strength etc. However, because of its low hardness and wear resistance, the application of corrosion resistance stainless steels are greatly limited. Nevertheless, the performance of these alloys can be improved further for both aqueous and high temperature applications and environments by case hardening techniques like carburizing, nitriding and so on. These surface hardening processes offer high corrosion resistance in addition to improved hardness and wear resistance. In the present study, the effect of gas nitriding on the properties like micro hardness, corrosion resistance and wear resistance of type AISI 316LN grade austenitic stainless steels were investigated. The salt bath nitriding was carried out at a temperature of 500°C for durations of 60, 90 and 120 minutes with a post oxidation process for a period of 30 minutes and named as SBN1, SBN2, SBN3 respectively. The resultant intermetallic phases were analyzed with optical microscope and micro hardness tester for micro hardness, micro structural changes, nature and composition of the diffused elements. It has been found that the matrix element interacted with alloying elements and formed a ξ phase or σ phase consisting of hard complex Fe-Cr nitrides. These phases showed significant influence on the properties. From the experiment results, it was observed that gas nitriding increases the micro hardness to a considerable amount. A maximum of 1410 HV could be obtained on the austenitic stainless steels, nitriding, micro hardness, corrosion resistance, microstructure

**Keywords:** stainless steels, nitriding, micro hardness, corrosion resistance, microstructure

**References:**


**Authors:**

Ram.Subbiah, S.Satheesh, Shoan C.Sunny, G.Kishor, K.Fahad, R.Rajavel

**Paper Title:** Assessment of Properties on AISI 316LN Austenitic Stainless Steel Material under Low Temperature Liquid Nitriding Processes

**Abstract:** Austenitic stainless steels have been widely used in highly corrosive environments for power generation, chemical, fertilizer, marine, and food and petrochemical reactors. These materials are well known for their good corrosion resistance and mechanical properties like strength etc. However, because of its low hardness and wear resistance their applications are greatly limited. Nevertheless, the performance of these alloys can be improved further for both aqueous and high temperature applications and environments by case hardening techniques like carburizing, nitriding and so on. These surface hardening processes offer high corrosion resistance in addition to, improved hardness and wear resistance. In the present study, the effect of gas nitriding on the properties like micro hardness, corrosion resistance and wear resistance of type AISI 316LN grade austenitic stainless steels were investigated. The salt bath nitriding was carried out at a temperature of 500°C for durations of 60, 90 and 120 minutes with a post oxidation process for a period of 30 minutes and named as SBN1, SBN2, SBN3 respectively. The resultant intermetallic phases were analyzed with optical microscope and micro hardness tester for micro hardness, micro structural changes, nature and compositions of the diffused elements. It has been found that the matrix element interacted with alloying elements and formed a ξ phase or σ phase consisting of hard complex Fe-Cr nitrides. These phases showed significant influence on the properties. From the experiment results, it was observed that gas nitriding increases the micro hardness to a considerable amount. A maximum of 1410 HV could be obtained on the austenitic stainless steel specimens, which were investigated among the various specimens, in order to improve the wear resistance. The untreated specimens were compared with the nitride specimen. The reason for the increase in the micro hardness could be attributed to the presence of the Mo and the other alloying elements in the solid solution. The value of hardness at the surface level increases with the diffusion time up to a certain level. Beyond this, limit further increase in diffusion duration does not have any impact on the surface hardness. To evaluate the effect of post-oxidation on nitried specimen’s corrosion and tribological properties were determined. From the results, it was observed that post-oxidation has no significant effect on the hardness but improves the corrosion resistance in comparison with non-oxidized specimen in a larger factor. Also it was observed that the change in the properties was due to the formation iron oxide layer on the specimen and especially during the subsequent treatment in the oxidizing bath. From the micro structural analysis of the nitrided specimens, the case depths were observed to be about 20 – 50 microns (μm).

15. **Authors:** Vijay Jumb, Mandar Sohani, Avinash Shrivas
Abstract: In this paper, an approach for color image segmentation is presented. In this method foreground objects are distinguished clearly from the background. As the HSV color space is similar to the way human eyes perceive color, hence in this method, first RGB image is converted to HSV (Hue, Saturation, Value) color model and V (Value) channel is extracted, as Value corresponds directly to the concept of intensity/brightness in the color basics section. Next an Otsu’s multi-thresholding is applied on V channel to get the best thresholds from the image. The result of Otsu’s multi-thresholding may consist of over segmented regions, hence K-means clustering is applied to merge the over segmented regions. Finally background subtraction is done along with morphological processing.

This proposed system is applied on Berkley segmentation database. The proposed method is compared with three different types of segmentation algorithms that ensure accuracy and quality of different types of color images. The experimental results are obtained using metrics such as PSNR and MSE, which proves the proposed algorithm, produces better results as compared to other algorithms.

Keywords: Color image segmentation, HSV color space, Otsu’s multi-thresholding, K-means clustering, morphological processing, PSNR and MSE.

References:

Authors: Tanvi Dharmarha, Ajay Jain

Paper Title: Load Testing Strategy Review When Transitioning to Cloud

Abstract: The core objective of testing is to certify the product to a quality level at which the application is ready for releasing to the end customers. Apart from functional parameters, there are many other key parameters, especially operational parameters, which play a major role in deciding how the testing is performed. This paper focusses on reviewing the strategy for load testing and changes that a testing team undergoes when transitioning their in-house infrastructure to the cloud. Further to this, the paper also talks about the advantages and efficiencies for the testing team, when shifting to cloud.

Keywords: Cloud Testing, Infrastructure, Load Testing, Testing Efficiency.

Authors: Mohini Reddy, Vidya Sawant

Paper Title: WSN based Parameter Monitoring and Control System for DC Motor

Abstract: Wireless based industrial automation is a prime concern in our day-to-day life. The approach to Zigbee Based Wireless Network for Industrial Applications has been standardized nowadays. In this paper, a wireless control and monitoring system for a D.C motor is realized using the Zigbee communication protocol for safe and economic data communication in industrial fields where the wired communication is either more expensive or impossible due to physical conditions. The D.C motor can be started and stopped wireless due to the computer interface developed with Zigbee. It is also possible to protect the motor against some faults such as over current, higher/lower voltage, over temperature in windings, overloading of motor. Moreover, a database is built to execute online measurements and to save the motor parameters received by radio frequency (RF) data acquisition system. Therefore, controlling, monitoring, and protection of the system are realized in real time. Since the wireless communication technology is used in this study, controlling abilities of the system are increased and also hardware and the necessities of other similar equipment for data communication are minimized. The system is fully controlled by the Personal Computer through Visual Basics GUI (Graphical User Interface).The GUI is developed based on application by the user. All the processor and controllers are interconnected to personal computer through Zigbee. The Personal Computer will continuously monitor all the Data from remote processing unit and compare with value preloaded process structure. If any error is found the personal computer takes necessary action. An 8- bit AVR
microcontroller has been used to interface the sensor using the IEEE 802.15.4 standard, ZigBee protocol. ZigBee has the characteristics of low power consumption, low cost and self organizing features. The designed embedded system can be used in applications such as food industry, chemical industry, etc.

**Keywords:** DC Motor, Control and monitoring System, Wireless communication, ZigBee Networks.

**References:**


**Authors:** Lalit Dhande, Priya Khune, Vinod Deore, Dnyaneshwar Gawade

**Paper Title:** Hide Inside-Separable Reversible Data Hiding in Encrypted Image

**Abstract:** Recently, more and more attention is paid to reversible data hiding (RDH) in encrypted images, since it maintains the excellent property that the original cover can be losslessly recovered after embedded data is extracted while protecting the image content’s confidentiality. All previous methods embed data by reversibly memory space from the encrypted images, which may be subject to some errors on data extraction and/or image restoration. In this paper, we propose a novel method by reserving memory space before encryption with a traditional RDH technique, and thus it is easy for the data hider to reversibly embed data in the image. The proposed method can achieve real reversibility, that is, data extraction and image recovery are free of any error.

**Keywords:** Data Encryption, Reversible Data Hiding, Image Encryption, Privacy Protection, Data Extraction.

18. **References:**


**Authors:** P. Samundiswary, K Dilip

**Paper Title:** Performance Analysis of Energy Aware LAR Protocol in IEEE 802.15.4 based Mobile Wireless Sensor Networks

**Abstract:** In this paper, performance analysis of energy aware Location Aided Routing (LAR) Protocol is done for IEEE 802.15.4 based Mobile Wireless Sensor Networks considering mobile nodes. Random Waypoint Mobility Model is considered as the mobility model in the scenario. The various scenarios are designed and simulated by increasing the number of mobile nodes and varying the speed of the mobile nodes. The performance parameters such as throughput, average end to end delay, average jitter and residual energy for different type of scenarios are determined. The simulation is done by using Qualnet 6.1 simulator.

**Keywords:** MWSN, Random Waypoint Mobility Model, LAR, Requested Zone, Expected Zone.

**References:**


Authors: H.S. Hota

Paper Title: Identification of Breast Cancer Using Ensemble of Support Vector Machine and Decision Tree with Reduced Feature Subset

Abstract: Breast cancer is very common disease found in woman in which breast masses are increases abnormally. A recent survey in united kingdom proved that breast cancer is not only a problem of young woman but it is also a problem of old age woman those who have crossed the age of sixty or even seventy. An early identification and then prevention with proper medication of breast cancer can save life of human being. A robust and efficient breast cancer identification system is necessary for this purpose. Statistical technique like support vector machine and data mining technique like decision tree are widely used by the researcher since last few years. These techniques proved their ability to efficiently diagnose breast cancer problem. In this research work an ensemble model based on above two techniques are explored with special reference to feature selection. A rank based feature selection technique reduces features one by one based on its rank of breast cancer data downloaded from UCI repository site. An ensemble of support vector machine and C5.0 decision tree technique with reduced subset of only five features produced high accuracy of 92.59%.

Keywords: Decision Tree (DT), C5.0, Support Vector Machine (SVM), Feature Selection (FS).

References:
4. Jiawei Han, Kamber Micheline. Data mining: Concepts and Techniques, Morgan Kaufmann Publisher,2009.

Authors: V. Prasath R.Buvanesvari, N. Thilartham, K. Nirosa

Paper Title: Image Super Resolution Reconstruction Using Wavelet Transform Method

Abstract: Image super-resolution (SR) has been extensively studied to solve the problem of limited resolution in imaging devices for decades. This paper addresses the problem of recovering a super-resolved image from a set of warped blurred and decimated versions thereof. Several algorithms have already been proposed for the solution of this general problem. In this paper, we propose the image super-resolution reconstruction using wavelet transform method. By using multi surface fitting the low resolution pixel image is converted to high resolution image. The noise and the blur in the resulting image are reduced using our wavelet transform method.

Keywords: data fusion, multi surface fitting, super resolution, stationary wavelet transform.

References:

Authors: Padmini Sahu, Anurag Singh Tomer

Paper Title: Dynamic Modelling Of Seven- Link Biped Robot on Matlab/Simulink: Survey

Abstract: In this paper, we are going to propose an artificial neural network controller design based on radial basis neural network to control level walking of biped robot. The model used for the biped robot simulation consists of 7-links which are connected through revolute joints. The identical legs have hip, knee & ankle of both legs & torso. A PID controller is used on a linear model in state variable form in order to simulate the dynamic of the system in Matlab.

Keywords: Gait cycle, Biped robot, dynamic modelling, neural network

References:


Improving Web Service Selection using Fuzzy Quality of Protection

Abstract: We aim to solve the selection of secure web services in a global and flexible manner by introducing a fuzzy logic method. This paper presents a stride model based evaluation of web service security using quality of protection parameters like spoofing, tampering, reputation, information disclosure, denial of service, and elevation of privileges. In this paper quality of protection parameterized tasks that are given to fuzzier where the input values for decision making that are converted into the range between 0 and 1 for selection and choice of the most appropriate web service with respect to quality of protection.

Keywords: fuzzy, quality of protection, web service security

References:
8. Artiom Vautsikhun. “Quality of Protection Determination for Web Services”. This work was partly supported by the project EU-IST-T-SERENITY, contract N 27587.
c
<table>
<thead>
<tr>
<th>No.</th>
<th>Author(s)</th>
<th>Title</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td>Castelee, S.V.</td>
<td>Threat modeling for web application using STRIDE model.</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>Rachna Satsangi, Dr. Pankaj Dashore 2 and Dr. Nishith Dubey</td>
<td>“Risk Management in Cloud Computing Through Fuzzy Logic”. International Journal of Application or Innovation in Engineering &amp; Management Volume 1, Issue 4 December 2012</td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>Duan Youxiang 1, Gao Yang</td>
<td>“Evaluating Vulnerabilities Quantitatively Based On the Rank of Web Services confidentiality”</td>
<td>Journal of Next Generation Information Technology, volume 2, Number 1, February, 2011</td>
</tr>
</tbody>
</table>