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S. No		Page No.
1.	**Authors:** J. Samatha, K. Bhagya Laxmi **Paper Title:** A Survey on Big Data Analysis and Challenges	1-6

Abstract: One of contemporary big challenges in information systems is the issues associated with coping with and utilization of vast amounts of data. In this paper we present applications of big data , analysis of big data. The analysis of big data involves phases such as acquisition / recording, extraction / cleaning / annotation, integration / aggregation / representation, analysis / modeling, interpretation. We also discuss the challenges introduced in these phases.

Keywords: Bigdata, volume, velocity, variety, extraction, integration, analysis.

References:

1. E.Dumbill, "what is big data? An introduction to the big data landscape", Strata O'Reilly, 11 January 2012.
2. David Loshin, Addressing five emerging challenges of big data, whitepaper.
3. Marko Grobelnik, "Big data tutorial",Stavanger,8 May 2012.
4. Oracle enterprise architecture white paper "An enterprise architect's guide to big data" May 2015.
5. Amir H. Payberah "Introduction to big data", Swedish institute of computer science, 8 April 2014.
6. www.intel.com/bigdata
7. Kostas Glinos, "E-infrastructures for bigdata" ERCIM news, number 89, April 2012.
8. Silva Robak, Bogdan Franczyk, Marcin Robak "Research problems associated with big data utilization in logistics and supply chains design and management" ACSIS, Vol 3,2014

2.	**Authors:** Aarti Pandey, Prabhat Pandey **Paper Title:** A Survey on Semantically Data Classification Analysis Algorithm for Social Media	7-9

Abstract: Now in these days a number of users are participating in the social media and they are actively participating in conversation with their friends and community. Due to this sometimes the youth and teen agers are participating in non-social communities. Thus a new kind of data model is required to design by which the user communication and their patterns are accurately classified according to their semantics meaning. Thus a text content analysis technique is designed using the available automatic text classification technique. Using this technique the correlation between different words and their utilization in different semantics sentences are analyzed and based on the effects of these words a rule based classification technique is developed.

Keywords: sentiment, opinion, semantic, Data Processing

References:

1. Xia Hu, Lei Tang, Jiliang Tang, Huan Liu, "Exploiting Social Relations for Sentiment Analysisin Microblogging", permission and/or a fee.WSDM '13, February 4–8, 2013, Rome, Italy.Copyright 2013 ACM 978-1-4503-1869-3/13/02
2. Fei Jiang, Anqi Cui, Yiqun Liu, Min Zhang, and Shaoping Ma, "Every Term Has Sentiment:Learning from Emoticon Evidencesfor Chinese Microblog Sentiment Analysis",c Springer-Verlag Berlin Heidelberg 2013
3. Eric Baucom,AzadeSanjari, Xiaozhong Liu,Miao Chen, "Mirroring the Real World in Social Media: Twitter,Geolocation, and Sentiment Analysis",Copyright 2013ACM,78-1-4503-2415-1/13/10http://dx.doi.org/10.1145/2513549.2513559 Min Wang, Donglin Cao, Lingxiao Li, Shaozi Li, RongrongJi, "Microblog Sentiment Analysis Based on Cross-mediaBag-of-words Model",ICIMCS'14, July 10–12, 2014, Xiamen, Fujian, China.Copyright 2014 ACM 978-1-4503-2810-4/14/07
4. Felipe Bravo-Marquez, Marcelo Mendoza,Barbara Poblete, "Combining Strengths, Emotions and Polarities forBoosting Twitter Sentiment Analysis",WISDOM'13, August 11 2013, Chicago, IL, USACopyright 2013 ACM 978-1-4503-2332-1/13/08.
5. Pedro Calais Guerra, Wagner Meira Jr.,Claire Cardie, "Sentiment Analysis on Evolving Social Streams:How Self-Report Imbalances Can Help",WSDM'14, February 24–28, 2014, New York, New York, USA.Copyright 2014 ACM 978-1-4503-2351-2/14/02

3.	**Authors:** Zhivko Kiss'ovski, Vasil Vachkov **Paper Title:** Radiation of Monopole Microwave Plasma Antenna	10-12

Abstract: The radiation of cylindrical plasma monopole at low gas pressure is theoretically investigated by applying the theory for dielectric resonator antenna (DRA). The plasma column is placed in a thin dielectric tube with a longitudinal length equal to half wavelength of the surface wave which sustains the discharge. The resonance wavelength of the TM011 mode at frequency 2.45 GHz is obtained by dielectric waveguide model (DWM) in which dielectric is replaced by plasma medium. The expression for electric field in far-field zone of this plasma monopole is derived and the result shows that its radiation pattern is similar to that of metal dipole antenna. The radiated field strength of plasma monopole is greater than that of metal antenna with the same electrical conductivity and dimensions.

Keywords: plasma antenna, dielectric resonator antenna, plasma, surface waves

References:

1. T. Anderson "Plasma Antennas", Artech House; 2011.
2. E.N. Istomin, D.M. Karfidov, I.M. Minaev, A.A. Rukhadze, V.P. Tarakanov, K.F. Sergeichev, A.Yu. Trefilov, Plasma Physics Reports,; 32: 388-400 (2006).
3. Vachkov, Zh. Kiss'ovski, European Phys. J: Appl. Phys, 72/3, 30801 (2015)
4. Zh. Kiss'ovski, V. Vachkov, S. Iordanova, I. Koleva, "Microwave discharges in a finite length vessel", Journal of Physics: Conference Series; 356: 012009 (2012).
5. N. N. Bogachev, L. L. Bogdankevich, N. G. Gusein-zade, V. P. Tarakanov, Acta Polytechnica 53(2):1-3,(2013).
6. N N Bogachev, I L Bogdankevich, N G. Gusein-Zade, K F. Sergeychev Acta Polytechnica 55, p.34 (2015).
7. Vachkov, A. Ivanov, Zh. Kiss'ovski, ANNUAL JOURNAL OF ELECTRONICS, v. 2, p.72, ISSN 1313-1842 (2010)
8. Zh. Kiss'ovski, V. Vachkov, IJEAT, v. 45, p.234, (2015)

9. K-M Luk and K-W Leung, Dielectric Resonator Antennas, Institute of Physics PUBLISHING, Dirac House Bristol, 2003
10. Y M Pan, S Y Zheng, and B J Hu, IEEE ANTENNAS AND WIRELESS PROPAGATION LETTERS, VOL. 13, p.710, (2014)
11. Zh. Kiss'ovski, M. Kolev, A. Ivanov, St. Lishev, I. Koleva, 2009 "Small surface wave discharge at atmospheric pressure"; J Phys. D: Appl. Phys.; 42, 182004 (2009).
12. S. Nonaka, Jpn. J App. Phys., vol. 31, 1890 (1992)
13. Yu. M. Aliev, H. Schlüter and A. Shivarova, Guided-wave-produced plasmas, Springer, Berlin, 2000
14. Balanis C, Antenna theory, John Wiley & Sons, New Jersey, 2005

Authors: **V. S. Lavanya, V. K. Vaidyan**

Paper Title: **Extending ANN for Optical Elements - EDFA Characteristics**

Abstract: Artificial Neural Network has proved to be one of the best and widely used soft computation techniques in diversified fields such as Biology, Medicine, Energy, Bioinformatics etc. Modelling in Communication has come far way forward when the industry realized its benefits over conventional method of research and development. It mainly helps in two ways. The first advantage is such that the fabrication cost or wastage is highly reduced, second being the time to final solution implementation. There are various computational methods available in market, which were effectively used in the modelling of different application in diversified fields. In this work, we will discuss how effectively we can use ANN for optical elements and extend it to address the rapid explosion of information traffic and emerging applications in communication. We consider here a basic set up of forward pumped EDFA in a WDM long haul communication system and analyze the characteristics of it through proper signaling. The characterization of the gain, and amplifier noise is again modelled with the help of ANN by appropriately using the experimental data for both modelling and testing. The simulated output from the model agrees well with the experimental data and this approach can be extended to serve as a prediction tool for designing the complex systems in optical communication. The computational time(~ms) taken to model the system and mean-square error(10-5) limited is very promising to adapt the model for future activities as desired in further modelling or fabrication of the amplifier with preferred throughput. The results of modeling envisage how favorable ANN is on building the prediction formula in optical communication networks.

Keywords: ANN, EDFA, Modelling, Optical Amplifier

References:

1. E. Desurvire and J.R. Simpson, "Amplification of Spontaneous Emission in Erbium-Doped Single-Mode Fibers", J. Lightwave Tech., Vol.7, No.5, 835,1989.
2. P.C. Becker, N.A. Olsson, and J.R. Simpson, "Erbium-Doped Fiber Amplifiers", Academic Press, 1999.
3. G.P Agrwwal, "Fiber-Optic Communication Systems", Wiley Interscience, 3rd ed., 2002.
4. M. Melo, O. Frazao, A.L.J. Teixeira, L.A. Gomes, J.R. Ferreira D. Rocha, H.M. Salgado, "Tunable L-band erbium-doped fiber ring laser by means of induced cavity loss using a fiber taper", Applied Physics B, Vol.77, 139, 2003.
5. R. J. Mears, S. R. Baker, "Erbium Fiber Amplifiers and Lasers", Optical and Quantum Electronics, Vol.24, 517, 1992.
6. E. Desurvire, J. Simpson, and P.C. Becker, High-gain erbium-doped traveling-wave fiber amplifier," Optics Letters, vol. 12, No. 11, 1987, pp. 888–890
7. S. Lavanya, v. K. Vaidyan, "optimized flattened gain spectrum in c –band wdm using automatic gain control in bi-directionally pumped EDFA", INTERNATIONAL Journal of Engineering Research & Technology, Vol-4, No-10, Pages: 430 - 434, October 2015
8. J. Hertz, A. Krogh, and R.G. Palmer, Introduction to the "Theory Of Neural Computation, Addison-Wesley, Reading, Mass., 1991.
9. S. Haykin, Neural Networks: A Comprehensive Foundation, MacMillan College Publishing Co., New York, 1994.
10. W.S. McCulloch and W. Pitts, "A Logical Calculus of Ideas Immanent in Nervous Activity," Bull. Mathematical Bio-
11. R. Rosenblatt, Principles of Neurodynamics, Spartan Books, New York, 1962.
12. M. Minsky and S. Papert, Perceptrons: An lntroduction to Computational Geometry, MIT Press, Cambridge, Mass., 1969.
13. J.J. Hopfield, "Neural Networks and Physical Systems with Emergent Collective Computational Abilities," in Roc. Nat'l Academy of Sciences, USA 79,1982, pp. 2,5542,558.
14. P. Werbos, "Beyond Regression: New Tools for Prediction and Analysis in the Behavioral Sciences," PhD thesis, Dept. of Applied Mathematics, Harvard University, Cambridge, Mass.,1974.
15. D.E. Rumelhart and J.L. McClelland, Parallel Distributed Processing: Exploration in the Microstructure of Cognition, MIT Press, Cambridge, Mass., 1986.
16. J.A. Anderson and E. Rosenfeld, Neurocomputing: Foundations of Research, MIT Press, Cambridge, Mass., 1988.
17. S. Brunak and B. Lautrup, Neural Networks, Computers with Intuition, World Scientific, Singapore, 1990.
18. J. Eeldman, M.A. Fanty, and N.H. Goddard, "Computing with Structured Neural Networks," Computer, Vol. 21, No. 3, Mar. 1988, pp. 91-103.
19. D.O. Hebb, The OrganizationofBehavior, JohnWiley&Sons, New York, 1949.
20. R.P. Lippmann, "An Introduction to Computing with Neural Nets,"lEEEASSP Magazine, Vol. 4, No. 2, Apr. 1987, pp. 4-22.
21. A.K. Jain and J. Mao, "Neural Networks and Pattern Recognition," in Computational Intelligence: Imitating Life, J.M. Zurada, R. J. Marks 11, and C.J. Robinson, eds., IEEE Press, Piscataway, N.J., 1994, pp. 194-212.
22. T. Kohonen, Self Organization and Associative Memory, Third Edition, Springer-Verlag, New York, 1989.
23. G.A. Carpenter and S. Grossberg, Pattern Recognition by Self Organizing Neural Networks, MIT Press, Cambridge, Mass., 1991.
24. "The First Census Optical Character Recognition System Conference," R.A. Wilkinson et al., eds., . Tech. Report, NISTIR 4912, US Dept. Commerce, NIST, Gaithersburg, Md., 1992.
25. V. S. Lavanya, V. K. Vaidyan, "ANN based model of automatically gain controlled EDFA in WDM systems", J Optoelectronics and Advanced Materials, Vol-17, No-11-12, Pages: 1772 - 1777, December 2015
26. Steffen Nissen, Implementation of a fast artificial neural network library (FANN), Department of Computer Science, University of Copenhagen (DIKU) October 31, 2003
27. Martin Davis and Hillary Putnam. A computing procedure for quantification theory. ACM, 7:201–215, 1960.
28. John W. Dawson. G¨odel and the origins of computer science. In A. Beckmann, U. Berger, B. L¨owe, and J.V. Tucker, editors, Logical Approaches to Computational Barriers, CiE'06, volume 3988 of LNCS, pages 133–137, 2006.
29. F. Debart, P. Enjabert, and M. Lescot. Multimodal logic programming using equational and order-sorted logic. Theoretical computer science, 105(1):141–166, 1992.
30. Angluin, Frazier and Pitt (1990): D. Angluin, M. Frazier and L. Pitt, Learning conjunctions of Horn clauses. In Proceedings of the Thirtieth-First IEEE Symposium on Foundations of Computer Science, IEEE Computer Society Press, Washington DC.
31. Anthony and Biggs (1992): M. Anthony and N. Biggs, Computational Learning Theory: an Introduction, Cambridge University Press.
32. Bartlett (1992): P.L. Bartlett, Lower bounds on the Vapnik-Chervonenkis Dimension of multi-layer threshold networks. Technical report IML92/3, Intelligent Machines Laboratory, Department of Electrical Engineering and Computer Engineering, University of Queensland, Qld 4072, Australia, September 1992.

4. **13-17**

33. Baum (1990): E.B. Baum, Polynomial time algorithms for learning neural nets. In Proceedings of the Third Workshop on Computational Learning Theory. Morgan Kaufmann, San Mateo, CA.
34. Arthur d'Avila Garcez, Gerson Zaverucha, and Luis A.V. de Carvalho. Logical inference and inductive learning in artificial neural networks. In C. Hermann, F. Reine, and A. Strohmaier, editors, Knowledge Representation in Neural Networks, pages 33–46. Logos Verlag, Berlin, 1997.
35. Saleh, A. A. M., R. M. Jopson, J. D. Evankow, and J. Aspell, Modeling of gain in erbium-doped fiber amplifiers, IEEE Photon. Technol. Lett., Vol. 2, No. 10, 714 - 717, 1990.
36. Giles, C. R. and E. Desurvire, Modeling erbium-doped fiber amplifiers, J. Lightwave Technol., Vol. 9, No. 2, 271 - 283, 1991.
37. Lu, Y. B. and P. L. Chu, Gain flattening by using dual-core fiber in erbium-doped fiber amplifier, IEEE Photon. Technol. Lett., Vol. 12, No. 12, 1616 - 1617, 2000.
38. Martin, J. C., Erbium transversal distribution influence on the effectiveness of a doped fiber: Optimization of its performance, Opt. Commun., Vol. 194, 331 - 339, 2001.
39. R. Beale and T. Jackson ,Neural Computing - an introduction, Physics Publishing 1990
40. J. David Bolter, Turing's Man - Western culture in the computer age, Duckworth 1984
41. Alison Cawsey, Artificial Intelligence - The essence of, Prentice Hall 1998
42. Cheng, C. and M. Xiao, Optimization of an erbium-doped fiber amplifier with radial effects, Opt. Commun., Vol. 254, 215 - 222, 2005.
43. Cheng, C. and M. Xiao, Optimization of a dual pumped L-band erbium-doped fiber amplifier by genetic algorithm, J. Lightwave Technol., Vol. 24, No. 10, 3824 - 3829, 2006.
44. Chang, C. L., L. Wang, and Y. J. Chiang, A dual pumped double- pass L-band EDFA with high gain and low noise, Opt. Commun., Vol. 267, 108 - 112, 2006.
45. Choi, B. H., H. H. Park, and M. J. Chu, New pumped wavelength of 1540-nm band for long-wavelength-band erbium-doped fiber amplifier (L-band EDFA), J. Quantum Electron., Vol. 39, No. 10, 1272 - 1280, 2003.
46. Yeh, C. H., C. C. Lee, and S. Chi, S- plus C-band erbium-doped fiber amplifier in parallel structure, Opt. Commun., Vol. 241, 443 - 447, 2004.
47. Singh, R., Sunanda, and E. K. Sharma, Gain flattening by long period gratings in erbium doped fibers, Opt. Commun., Vol. 240, 123 - 132, 2004.

5.

Authors:	**Tsvetana Kostadinova Antipesheva**
Paper Title:	**Training Mechanics In The Preparation of Teachers of Engineering, Technology and Entrepreneurship**

Abstract: In this paper are considered some basic pedagogical issues related to technical training of educators. The suggestion is how much they will study mechanics and how to teach the knowledge. It is displayed a formula and a scheme which illustrates the material.

Keywords: training, mechanics

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References:

1. Andreev, M., Integrativni tendentsii v obuchenieto, Narodna prosveta, S., 1986

6.

Authors:	**Zlatko Vlajcic, Srecko Budi, Cedna Tomasovic Loncaric, Mislav Malic, Mladen Petrovecki**
Paper Title:	**Histological Evaluation of Human" in Vivo" Cutaneus Surgical Incisions Created by the Standard Scalpel, Conventional and Colorado Needle Electrosurgery, Radiofrequency, PEAK Plasma blade and Ultracision Harmonic Scalpel**

Abstract: We hypothesize that thermal damage to the subcutaneous microvasculature of skin incision may have contributed to the incision site complication rate. The purpose of this study was to histologically compare the zone of thermal necrosis for human cutaneus surgical incision made by different surgical cutting devices on vital tissue. Furthermore, for each specimen, the presence and character of micro bleeding was noted. Material And Methods: Human skin incisions were made "in vivo" on the lower abdomen prior to abdominoplasty by the standard scalpel, conventional and Colorado needle eletrosurgery, radiogrequency Ellman, PEAK PlasmaBlade and Ultracision Harmonic Scalpel. After formaldehyde fixation, the specimen was transported to pathology for histological evaluation and measurement of the thermal necrosis zone and micro bleeding zone. Results: As statistically significant ($P < 0.05$) we have three groups considering thermal necrosis zone: first group is only Standard Scalpel, second group PlasmaBlade and Conventional Electrosurgery and third group Colorado Needle Electrosurgery, Radiofrequency and Ultracision Harmonic Scalpel. With microbleeding zone, results are more dispersed, but also with statistically significances ($P < 0.05$) in between two groups of instruments: first group is Standard Scalpel, Conventional Electrosurgery, PlasmaBlade and Ultracision; and the second group consists of Colorado Needle Electrosurgery and Radiofregquency.

Keywords: cutting devices, histology, incisions

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References:

1. Massarweh NN, Cosgriff N, Slakey PD, Electrosurgery: History, Principles, and Current and Future Uses. Journal of the America College of Surgeons. March 2006Volume 202, Issue 3, Pages 520–530
2. Fine RE, Vose JG., Traditional electrosurgery and a low thermal injury dissection device yield different outcomes following bilateral skin-sparing mastectomy: a case report. J Med Case Rep. 2011 May 28;5:212. doi: 10.1186/1752-1947-5-212
3. Ruidiaz ME, Messmer D, Atmodjo DY, et all. Comparative healing of human cutaneous surgical incisions created by the PEAK PlasmaBlade, conventional electrosurgery, and a standard scalpel. Plast Reconstr Surg. 2011 Jul;128(1):104-11.
4. Charoenkwan K1, Chotirosniramit N, Rerkasem K. Scalpel versus electrosurgery for abdominal incisions. Cochrane Database Syst Rev. 2012 Jun 13;6:CD005987.
5. Arashiro DS1, Rapley JW, Cobb CM, Killoy WJ. Histologic evaluation of porcine skin incisions produced by CO2 laser, electrosurgery, and scalpel. Int J Periodontics Restorative Dent. 1996 Oct;16(5):479-91.
6. Molgat YM1, Pollack SV, Hurwitz JJ, et all. Comparative study of wound healing in porcine skin with CO2 laser and other surgical modalities: preliminary findings. Int J Dermatol. 1995 Jan;34(1):42-7.
7. Chang EI, Carlson GA, Vose JG, et all. Comparative healing of rat fascia following incision with three surgical instruments. J Surg Res. 2011 May 1;167(1): Epub 2011 Jan 22.
8. Loh SA, Carlson GA, Chang EI, et all. Comparative healing of surgical incisions created by the PEAK PlasmaBlade, conventional electrosurgery, and a scalpel. Plast Reconstr Surg. 2009 Dec;124(6):1849-59.

7.	**Authors:**	**Aswathy Mariam Jacob, S Viswanatha Rao, Sakuntala S Pillai**	
	Paper Title:	**Cross Layer Optimization Techniques in Sensor-MAC**	
	Abstract: Wireless Sensor Networks (WSN) is a field which has gained much importance in the past decade. WSN contain sensor nodes which are battery powered and hence reducing energy consumption is the most challenging issue in such systems. One important method to reduce energy consumption in WSN is to do cross layer optimization. Cross layer design can be between different layers of the OSI model. This paper is a survey on cross layer optimization involving Sensor-MAC (S-MAC). **Keywords:** Cross layer optimization, Energy conservation, Sensor-MAC(S-MAC),Wireless Sensor Networks (WSN). **References:** 1. Mihail L. Sichitiu, "Cross-Layer Scheduling for Power Efficiency in Wireless Sensor Networks", Twenty-third Annual Joint Conference of the IEEE Computer and Communications societies, Volume 3, INFOCOM, 2004. 2. Piyush Charan, Rajeev Paulus, Mukesh Kumar, Arvind Kumar Jaiswal,"A survey on the Performance Optimization in Wireless Sensor Network Using Cross layer Design", International Journal of Scientific and Research Publications, Volume 2, Issue 5, May 2012. 3. Goran Martinovic, Josip Balen, Drago Zagar, "A Cross-Layer Approach and Performance Benchmarking in Wireless Sensor Networks", Sensors, Signals, Visualization, Imaging, Simulation And Materials, 2009. 4. Kazem Sohraby, Daniel Minoli, Taieb Znati, "Medium Access Control Protocols for Wireless Sensor Networks", Wireless Sensor Networks, Technology, Protocols, and Applications, Published by John Wiley & Sons, Inc., Hoboken, New Jersey. 5. Bhaskaran Raman, Pravin Bhagwat, Srinivasan Seshan, "Arguments for Cross-Layer Optimizations in Bluetooth Scatternets", Proceedings of 2001 Symposium on Applications and the Internet, 2001. 6. Zhiwei Zhao, Xinming Zhang, Peng Sun and Pengxi Liu, "A Transmission Power Control MAC Protocol for Wireless Sensor Networks", Proceedings of the Sixth International Conference on Networking, 2007. 7. Qian Hu, Zhenzhou Tang, "An Improved Adaptive MAC Protocol for Wireless Sensor Networks based on Cross-layer Architecture", International Conference on Wireless Communications and Signal Processing (WCSP), 2009. 8. Yaw-Wen Kuo and Kwuang-Jyz Liu, "Enhanced Sensor Medium Access Control Protocol for Wireless Sensor Networks in the ns-2 Simulator", IEEE Systems Journal, 2014. 9. Tuirkmen Canhl, Farid Nait-Abdesselam and Ashfaq Khokhar, "A Cross-Layer Optimization Approach for Efficient Data Gathering in Wireless Sensor Networks", IEEE International Networking and Communications Conference (INCC), 2008. 10. Yuexia Hou, Honggang Wang, Jianxing Liang and Changxing Pei, "A Cross-Layer Protocol for Event-Driven Wireless Sensor Networks ',The 1st International Conference on Information Science and Engineering (ICISE), 2009 11. Felipe D. Cunha, Raquel A. F. Mini and Antonio A.F. Loureiro, "Sensor-MAC with Dynamic Duty Cycle in Wireless Sensor Networks", Globecom-Ad Hoc and Sensor Networking Symposium, 2012. 12. Qingxu Xiong, Xiang LI, "Cross-layer Design of MAC and Application Semantics in Wireless Sensor Networks", IEEE Computer Society, 2014. 13. Taejoon Kim, David J. Love, Mikael Skoglund and Zhong-Yi Jin, "An Approach to Sensor Network Throughput Enhancement by PHY-Aided MAC", IEEE Transactions On Wireless Communications, Vol. 14, No. 3, February 2015. 14. Halil Yetgin, Kent Tsz Kan Cheung, Mohammed El-Hajjar and Lajos Hanzo, "Cross-layer network lifetime optimisation considering transmit and signal processing power in wireless sensor networks", IET Wireless Sensor Systems, 2014. 15. Volkan Dedeoglu, Sylvie Perreau and Alex Grant, "Cross-layer Energy Minimization in Correlated Data Gathering Wireless Sensor Networks", IEEE 13th International Workshop on Signal Processing Advances in Wireless Communications (SPAWC), 2012. 16. Jingxian Wu and Geoffrey Ye Li, "Cross-Layer Design of Random On-Off Accumulative Transmission with Iterative Detections", IEEE Globecom, 2011. 17. Chih-Kuang Lin, Titos Kokkinos and Francis Mullany, "Extended-range Wireless Sensor Networks with Enhanced IEEE 802.15.4 CSMA/CA", IEEE Sensors, 2011. 18. D.Dessales, A-M.Poussard, R.Vauzelle, N.Richard, F.Gaudaire and C.Martinsons, "Physical Layer Study In A Goal Of Robustness And Energy Efficiency For Wireless Sensor Networks", Conference on Design and Archtectures for Signal and Image Processing (DASIP), 2010. 19. Jingxian Wu and Ye (Geoffrey) Li, "Low Power Collision-Tolerant Media Access Control with On-Off Accumulative Transmission", ICC, 2010 20. Thomas Beluch, Daniela Dragomirescu, Florian Perget and Robert Plana, "Cross-layered Synchronization Protocol for Wireless Sensor Networks", Ninth International Conference on Networks, 2010. 21. Kusumamba S, S M Dilip Kumar, "A Reliable Cross Layer Routing Scheme (CL-RS) for Wireless Sensor Networks to Prolong Network Lifetime", IEEE International Advance Computing Conference (IACC), 2015. 22. Marwan Al-Jemeli, and Fawnizu A. Hussin, "An Energy Efficient Cross-Layer Network Operation Model for IEEE 802.15.4-Based Mobile Wireless Sensor Networks", IEEE Sensors Journal, Vol. 15, NO. 2, February 2015. 23. Hongfeng Wang, Dingding Zhou and Shi Dong, "Cross Layer Optimization Routing Algorithm for Wireless AD HOC", International Journal of Smart Home Vol. 9, No. 7, 2015. 24. Munish Gupta, Paramjeet Singh and Shveta Rani, "Optimizing Physical Layer Energy Consumption for Reliable Communication in Multi-hop Wireless Sensor Networks", Indian Journal of Science and Technology, Vol 8(13), 54605, July 2015. 25. M.Amsanandhini, A. Jayamathi, "I-MAC with Minimum Delay and Cross Layer Optimization for Wireless Sensor Networks", International Journal of Innovative Research in Computer and Communication Engineering, Vol 2, Issue 4, April 2014. 26. Arwa Hamid, Samina Ehsan and Bechir Hamdaoui, "Rate-Constrained Data Aggregation in Power-Limited Multi-Sink Wireless Sensor Networks", International Wireless Communications and Mobile Computing Conference (IWCMC), 2014. 27. Alaa Awad and Amr Mohamed, "Distributed Cross-Layer Optimization for Healthcare Monitoring Applications", International Workshop on Resource Allocation, Corporation and Competition in Wireless Networks, 2014. 28. Jekishan K. Parmar and Mrudang Mehta, "A Cross Layered Approach to Improve Energy Efficiency of Underwater Wireless Sensor Network", IEEE International Conference on Computing Research (ICCIC), 2014. 29. Eleni Stai and Symeon Papavassiliou, "User Optimal Throughput-Delay Trade-off in Multihop Networks Under NUM Framework", IEEE Communications Letters, Vol. 18, No. 11, November 2014. 30. Santhosha Rao and Kumara Shama, "Cross Layer Protocols for Multimedia Transmission in Wireless Networks", International Journal of Computer Science and Engineering Survey(IJCSES), Volume 3, No.3, June 2012. 31. Mr.M.D.Nikose, "A Review Of Cross Layer Design", International Journal of Emerging Trends in Engineering & Technology (IJETET) Vol. 02, No. 01, 2013	**25-29**
8.	**Authors:**	**Pranoti P. Mahakalkar, Aarti J. Vyavahare**	
	Paper Title:	**Performance Analysis of Efficient Framework of Image Segmentation using Energy Minimization Function**	
	Abstract: Image segmentation plays very vital role in many image processing applications and domains. Efficient image segmentation leads to accurate results to end users. There are number of image segmentation techniques presented so far with different objectives. The existing segmentation techniques are based on various features of		**30-35**

image. Target objects segmentation from the input image which may from different application areas such as medical, security systems etc. The segmentation of images those are having many complex areas, mixed pixel intensities or noise corrupted data. The existing level set based image segmentation methods needs the prior information about the total number of image segments which is practically impossible for each image. Therefore to overcome such limitations and research challenges of image segmentation, in this paper we proposed the new image segmentation energy function with two distribution descriptors in order to distinguish automatically background and target region from input image. This paper presents the extensive analysis of this proposal method against the existing method in terms of execution time and JD error rates. In this propose scheme, first single background descriptor models the heterogeneous background with multiple regions. Then, the target descriptor takes into account the intensity distribution and incorporates local spatial constraint. The proposed descriptors, which have more complete distribution information, construct the unique energy function to differentiate the target from the background and are more tolerant of image noise. The simulation and evaluation of this proposed method is done by using well known image processing tool MATLAB.

Keywords: Image Segmentation, Image processing, Energy Minimization, Level Set Methods, Region based, Edge based, Minimizer

References:

1. Tranos Zuva,Oludayo O,Olugbara,Sunday O,Ojo and Seleman Ngwira,Image Segmentation Available Techniques,Developmaents and Open Issues, Canadian Journal on Image processing and Computer Vision Vol 2 No:3 March 2011 .
2. StanleyOsher and J. Sethian, Fronts propagating with curvature-dependent speed: Algorithms based on Hamilton-Jacobi formulations, J. Comp.Phys., vol. 79, no. 1, pp. 12–49, Nov. 1988
3. Kan Cheng, Lixu Gu, and Jianrong Xu,A Novel Shape Prior Based Level Set Method for Liver Segmentation From MR Images, Proceedings of the 5th International Conference on Information Technology and Application in Biomedicine, in conjunction with The 2nd International Symposium & Summer School on Biomedical and Health Engineering Shenzhen, China, May 30-31, 2008.
4. Samir BARA,Mounir Ait Kerroum,Ahmed Hammouch and Driss Aboutajdine,Variational Image Segmentation Models:Application to medical images MRI, -978-1-61284-732-0/11/$26.00 ©2010 IEEE.
5. Kaihua Zhang a, Lei Zhang a, 1 and Su Zhang,A Variational Multi Phase Level Set Approach To Simultaneous Segmentation And Bias Correction
6. Pan Lin, Chong-Xun Zheng, Yong Yang,Model-Based Medical Image Segmentation: A Level Set Approach,Proceedings of the 5th World Congress on Intelligent Control and Automation. June 15-19, 2004, Hangzhou. P.R.China
7. Zongjie Cao, Yiming Pi, Xiaobo Yang, Jintao Xiong, a Variational Level Set SAR Image Segmentation Approach Based on Statistical Model
8. Chunming Li, RuiHuang, Zhaohua Ding, Chris Gatenby, Dimitris Metaxas,and John Gore, A Variational Level Set Approach to Segmentation and Bias Correction of Images with Intensity Inhomogeneity,D. Metaxas et al. (Eds.): MICCAI 2008, Part II, LNCS 5242, pp. 1083–1091, 2008. Springer-Verlag Berlin Heidelberg 2008
9. El Hadji S. Diop, Silèye O. Ba, Taha Jerbi and Valérie Burdin,Variational and Shape Prior -based Level Set Model for Image Segmentation
10. Luminita A. Vese & Tony F. Chan, A Multiphase Level Set Framework for Image Segmentation Using the Mumford and Shah Model, International Journal of Computer Vision 50(3), 271–293, 2002© 2002 Kluwer Academic Publishers. Manufactured in the Netherlands.

9.

Authors: **Fatah Bouteldjaoui, Mohamed Bessenasse, Ahmed Kettab**

Paper Title: **Assessment of Climatic Variability in Zahrez Basin (Algeria)**

Abstract: The knowledge of the climatic behavior especially that one of semi-arid regions is required to optimize the management of water resources. Numerous studies have been carried out to analyze the precipitation variability throughout the world in general and more especially in Mediterranean basin and in African region [1]. The water resources which are available in Algeria are limited[2-3]. They are also subjected to cyclical extremes variations i.e. succession of cycles of severe drought. The drought observed during these last years in Algeria has also affected those located more to the south, characterized by semi-arid to arid climate. The decrease in rainfall and consequently that in runoff might penalize development projects linked with water supply. The Zahrez basin (Fig.1) is one of the endorheic basins of the vast steppes region in the central northern part of Algeria. The Zahrez hydrological basin covers approximately 8,989 km2. The catchment lies between longitudes 2° 15' to 4° 08'E and latitudes 34° 35' to 35° 30'N. The area is characterized by a semi-arid climate, typically Mediterranean, with an irregular annual rainfall. The mean annual rainfall and potential evapotranspiration are 250 and 1380 mm, respectively, exceeding rainfall for most of the year [4]. The objective of this work is the identification and the consequences of climate variability, based on statistical analysis evolution of the annual rainfall series, over a period of 34 years (1973/1974 -2006/2007), a set of stations (09) covering the study area. This analysis consists of the study of the interannual evolution of Nicholson rainfall indices, and the implementation of statistical tests of homogeneity of the time series. These tests are Pettitt test, the Buishand test, the Hubert segmentation procedure and Bois control ellipse. The results of the interannual evolution of rainfall indices show that 67% of retained stations are characterized by the alternating of wet period (1974-1982) and dry (1983-2007). Moreover, the homogeneity statistical tests indicate a break in stationarity of the rainfall series in Charef, Benhafaf and Aïn Maabed stations.

Keywords: Climate variability, water resources, semi-arid, statistic tests, Zahrez basin, Algeria

References:

1. . Meddi, "Impact des Changements Climatiques sur les Eaux Souterraines (Cas du Bassin Hydrographique Cheliff-Zahrez) ", conference Groundwater& Climate in Africa, Kampala, Uganda, 2008.
2. Kettab, "Water resources in Algeria : strategies, investments, and vision" , Desalination, vol.136, no.1-3, pp.25-33, 2001.
3. Kettab, "Water for all with quality and quantity: it is the concern of all", Desalination and Water Treatment, vol.52, pp.1965–1966, 2014.
4. F. Bouteldjaoui, M. Bessenasse, and A. Gendouz, "Etude comparative des différentes méthodes d'estimation de l'évapotranspiration en zone semi-aride (cas de la région de Djelfa) ", Revue Nature & Technologie, no.07, Juin, pp.109-116, 2012.
5. M. F. Sidi Moussa, and M.Deramchi, "Synthèse des études et exploitation des données existantes sur le Synclinal de Djelfa", Agence Nationale des Ressources Hydrauliques (ANRH), Rapport Technique, 40P, 1993.
6. M. F. Sidi Moussa , "Ressources Hydrauliques de la zone du projet GTZ-HCDS. Coopération Algero-Allmande", Agence Nationale des Ressources Hydrauliques (ANRH). Rapport Technique, 176 P, 2000.

7. N. H. Lubès, J.M. Masson, J.E. Paturel, E. Servat, and B.Kouamé, "De différents aspects de la variabilité de la pluviométrie en Afrique de l'Ouest et Centrale non sahélienne", Rev. Sci. Eau, 12(2), pp 363-387, 1999.
8. A.N. Pettitt, "A non-parametric approach to the change-point problem", Appl. Statist, vol. 28, no. 2, pp.126-135,1979.
9. T. A. Buishand, "Some methods for testing the homogeneity of rainfall records", Journal of Hydrology,vol. 58, pp.11–27. 1982.
10. T. A. Buishand, "Tests for detecting a shift in the mean of hydrological time series", Journal of Hydrology, vol. 73, pp.51-69, 1984.
11. N. H. Lubès, J.M. Masson, J.E. Paturel, and E. Servat, " Variabilité climatique et statistiques. Etude par simulation de la puissance et de la robustesse de quelques tests utilisés pour vérifier l'homogénéité de chroniques", Revue des Scienes de l'Eau, no. 3, pp. 383-408, 1998.
12. D. Sighonou, " analyse et redéfinition des régimes climatiques et hydrologiques du Cameroun : Perspective d'évolution des ressources en eau", Thèse de Doctorat, Université de Yaoundé, Faculté des sciences, 173 P, 2004
13. P. Hubert., J.P. Carbonnel, and A. Chaouche, "Segmentation des séries hydrométéorologiques - Application à des séries de précipitations et de débits de l'Afrique de l'Ouest", J. Hydrol, vol.110, pp. 349-367, 1989.
14. Chrystelle A, " Impact du changement climatique sur la ressource en eau en région Langueduc Roussillon. Thèse DEA, Université Pierre et Marie Curie, Université Paris Sud, Ecole des Mines de Paris, 49 P, 2002.
15. Kouakou, A. Goula Bi Tié, S. Issiaka, "Impacts de la variabilité climatique sur les ressources en eau de Surface en Zone Tropicale Humide : Cas du Bassin Versant Transfrontalier de la Comoé (Côte d'ivoire –Burkina Faso) ", European Journal of Scientific Research, vol. 16, n°.1, pp. 31-43, 2007.
16. JF. Boyer, "Khronostat statistical time series analyses software", Montpellier, UMR 5569 Hydrosciences, IRD-Maison des sciences de l'eau, 1998.

10.

Authors: **Anju T S, Nelwin Raj N R**

Paper Title: **Satellite Image Denoising Based on Entropy Thresholding using Shearlet Transform**

Abstract: Satellite images have become universal standard in almost all applications of image processing. However, satellite images are susceptible to noise arising due to unresolved flaws in acquisition and transmission system. Development of a denoising algorithm in satellite images is still a challenging task for many researchers. Most of the state of the art denoising schemes employ wavelet transform but the main limitation of wavelet transform is that it can preserve only point singularity. Shearlet transformation is a sparse, multiscale and multidimensional alternative to wavelet transform. Shearlet transform is optimal in representing image containing edges. In this paper, a novel image denoising algorithm utilizing shearlet transform and entropy thresholding is presented which was found to exhibit superior performance among other state of the art image denoising algorithms in terms of peak signal to noise ratio (PSNR).

Keywords: Denoising, Discrete Shearlet Transform, Entropy Thresholding

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References:

1. S.Mallat, and W.L.Hwang, "Singularity Detection and Processing with Wavelets,"IEEE Trans. Information Theory, vol.38, no.2, March 1992, pp.617-643.
2. J.L.Starck, E.J.Candes, and D.L.Donoho, "The curvelet transform for image denoising,"IEEE Trans. on image processing, vol.11, 2002, pp.670-684.
3. M. Do and M. Vetterli, "The contourlet transform: An efficient directional multiresolution image representation," IEEE Trans. on image processing, vol.14, no. 12, Dec. 2005, pp.2091-2106.
4. G. R. Easley, D. Labate, and W.Q. Lim, "Sparse directional image representations using the discrete shearlet transform,'' apple. Comput. Harmon. Analysis, vol.25, Jan. 2008, pp.25-46.
5. L.Moisan, "Periodic plus smooth image decomposition," Journal of Mathematical Imaging and Vision, vol.39, no.2, 2011, pp.161-179.
6. P.J. Burt, and E.H. Adelson, "The Laplacian pyramid as a compact image code,"IEEE Trans. Commun, vol.31, no.4, 1983, pp.532-540.
7. L.Ramiro and A. K. C. Wong, "A study into entropy-based thresholding for image edge detection, 'Vision Interface, 1995, pp. 38-44.
8. S.Mallat, A wavelet tour on Signal Processing, 1999, Academic Press.
9. B.Qi, "Image denoising based on non-subsampled shearlet trans- form,"IEEE Trans. on image processing, vol.10, no.1, 2013,pp.238-242.

11.

Authors: **Athira S Vijay, Nelwin Raj N. R**

Paper Title: **Adaptive Deblurring by Estimation of Motion Blur Kernels**

Abstract: One of the challenges in the field of photography is the motion blur. Motion blur is the smudging of images caused by the relative motion between the camera and the pictured object during the exposure time. Blur kernel is the fundamental cause for blurring. Thus, in order to restore the original image through deconvolution, we need to estimate the blur kernel. In this paper, the blur kernels are estimated by using a piecewise linear model. Then, estimated kernel is regularized by adjusting the spacing and curvature of the control points. In addition to this, the control parameters of the energy function is also optimized in order to achieve better edge enhancement. The estimated kernel is then optimized by using Gauss- Newton method. In order to improve the PSNR of the deblurred image, wavelet multiframe denoising is used. In addition to this, the quality of image is enhanced by using a colour image enhancement technique. The experimental result shows that, kernel estimation along with wavelet multiframe denoising and Colour image enhancement technique can improve the PSNR values as well as the quality of the resultant deblurred image. In addition to this, the proposed algorithm can accurately estimate the unknown kernel masked in the blurred image, without any prior knowledge.

Keywords: Motion blur, Piecewise-linear curve, Kernel estimation, Deblurring, Wavelet multiframe denoising, PSF, Blind deconvolution, Image enhancement.

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References:

1. S. Cho and S. Lee, "Fast motion deblurring", ACM Trans. Graph., vol. 28, no. 5, 2009, pp. 1-8.
2. J.-F. Cai, R. Chan, and M. Nikolova, "Fast two-phase image deblurring under impulse noise," J. Math. Imag. Vis., vol. 36, no. 1, pp. 46–53, 2010.
3. J.. Hui and L. Chaoqiang, "Motion blur identification from image gradients," in Proc. IEEE Conf. Comput. Vis. Pattern Recognit., Jun. 2008, pp. 1–8.
4. B. Kang, J. W. Shin, and P. Park, "Piecewise linear motion blur identification using morphological filtering in frequency domain," in Proc. ICCAS-SICE, 2009, pp. 1928-1930.
5. K. Patanukhom and A. Nishihara, "Identification of piecewise linear uniform motion blur," in Proc. IEEE Region 10 Conf.,Nov. 2007, pp. 1-4.
6. Sungchan Oh, and Gyeonghwan Kim,"Robust Estimation of Motion Blur Kernel Using A Piecewise-Linear Model," IEEE Transactions on

Image Processing, Vol. 23, no. 3, March 2014.
7. KatrinaEllisonn(2014). Simulated Annealing Algorithm[Online}.Available: http://katrinaeg.com/simulated-annealing.html
8. Markus A. Mayer, Anja Borsdorf, Martin Wagner, Joachim Hornegger, Christian Y. Mardin, and Ralf P. Tornow, "Wavelet Denoising Of Multiframe Optical Coherence Tomography Data", Optical Society of America,2012
9. Anish Kumar, Vishwakarma, et al, "Color Image Enhancement Techniques: A Critical Review", Indian Journal of Computer Science and Engineering (IJCSE)
10. L. Xu and J. Jia, "Two-phase kernel estimation for robust motion deblurring," in Proc. Eur. Conf. Comput. Vis., 2010, pp. 150–170.

12.

Authors:	**Archana Sahu, Amit Mishra, Shiv Kumar Sahu**
Paper Title:	**Performance Evaluation of Spam Filtering Using Bayesian Approach**

Abstract: Spam filtering is the technique to find out spams. This field is important aspect of text classification. Spam filtering technique is used with email servers, and population of spam is usually more than genuine emails, this is why spam filtering has become important technique. Most of existing spams filtering techniques are unable to detect spam because spammers know how to make spam to reach the destined email account without being filtered. In such situation, naïve bayes spam filter is proved to be a great technique, because several aspects are there to improve the performance of spam filter. Hence, it is an important research field in detecting spams. In this dissertation, technique for spam detection and filtering has been proposed based on Naïve Bayes classification technique, which is the existing spam filtering technique. Some enhancements are made in making it adaptive to new kind of spams. In existing spam filtering techniques, static filtering technique has been used, but we proposed dynamic and enhanced filtering technique, which helps in fast and accurate spam detection. Regular training of classifier should be done, database of spam should be updated all the time, and also a particular word should not be always behaved as spam word or a genuine word. Experimental results show that proposed enhancements improves accuracy of spam filtering.

Keywords: Spam filtering, detecting, field, accuracy proposed enhancements, classifier Regular, proposed, spam

References:

1. Meena, M.J.; Chandran, K.R.; , "Naïve Bayes text classification with positive features selected by statistical method,", 2009. ICAC 2009. First International Conference on Advanced Computing, vol., no., pp.28-33, 13-15 Dec. 2009
2. Yan Zhou; Mulekar, M.S.; Nerellapalli, P.; "Adaptive spam filtering using dynamic feature space," , 2005. ICTAI 05. 17th IEEE International Conference on Tools with Artificial Intelligence, vol., no., pp.8 pp.-309, 16-16 Nov. 2005
3. Haiyi Zhang; Di Li; , "Naïve Bayes Text Classifier", 2007. GRC 2007. IEEE International Conference on Granular Computing, vol., no., pp.708, 2-4 Nov. 2007
4. Pelletier, L.; Almhana, J.; Choulakian, V.;, "Adaptive filtering of spam," , 2004. Proceedings. Second Annual Conference on Communication Networks and Services Research, vol., no., pp. 218- 224, 19-21 May 2004
5. Saha, D.; , "Web Text Classification Using a Neural Network," , 2011 Second International Conference on Emerging Applications of Information Technology (EAIT), vol., no., pp.57-60, 19-20 Feb. 2011
6. Lijuan Zhou; Linshuang Wang; XuebinGe; Qian Shi; , "A clustering-Based KNN improved algorithm CLKNN for text classification," 2nd International Asia Conference on Informatics in Control, Automation and Robotics (CAR), 2010, vol.3, no., pp.212-215, 6-7 March 2010
7. Amayri, O.; Bouguila, N.; , "Online spam filtering using support vector machines," IEEE Symposium on Computers and Communications, 2009. ISCC 2009., vol., no., pp.337-340, 5-8 July 2009
8. Yin; Zhang Chaoyang; , "An Improved Bayesian Algorithm for Filtering Spam E-Mail," 2nd International Symposium
9. on Intelligence Information Processing and Trusted Computing (IPTC), 2011, vol., no., pp.87-90, 22-23 Oct. 2011
10. Sang-Bum Kim; Kyoung-Soo Han; Hae-Chang Rim; Sung HyonMyaeng; , "Some Effective Techniques for Naive Bayes Text Classification," IEEE Transactions on Knowledge and Data Engineering, vol.18, no.11, pp.1457-1466, Nov. 2006
11. Zhang Yang; Zhang Lijun; Yan Jianfeng; Li Zhanhuai; , "Using association features to enhance the performance of Naive Bayes text classifier," Fifth International Conference on Computational Intelligence and Multimedia Applications, 2003. ICCIMA 2003.Proceedings, vol., no., pp. 336- 341, 27-30 Sept. 2003
12. M. Sahami, S. Dumais, D. Heckerman, and E. Horvitz. "A bayesian approach to filtering junk e-mail". In Learning for Text Categorization: Papers from the 1998 Workshop, Madison, Wisconsin, 1998.
13. Tarek M Mahmoud, alaa Ismail EI Nashar, Tarek Abd - EI - Hafeez ans Marwa Khairy "En Efficient Three Phase Email spam Filtering Technique" British Journal of Managnent & Computer Science 4(9), 1184-1201, 2014

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13.

Authors:	**Divya Velayudhan, Salim Paul**
Paper Title:	**A Review on Compressive Sensed Image Reconstruction using Group-based Sparse Representation**

Abstract: Compressive Sensing (CS) – a novel sensing paradigm asserts that signals can be reconstructed from fewer samples than that recommended by Nyquist sampling theorem, when it can be expressed in a sparse basis. Conventional approaches for compressive sensed image recovery utilized fixed basis (DCT, wavelets) that do not yield higher level of sparsity for the entire signal resulting in poor performance. This paper reviews the performance of Group-based sparse representation (GSR) model for CS recovery which yields high degree of sparsity for natural images in the domain of group. GSR stacks together non-local similar patches in an image to form a group and the sparse representation of each group is achieved using self-adaptive dictionary learning technique. Thus GSR takes advantage of the intrinsic local sparsity and non-local self-similarity of images simultaneously in a unified framework. The GSR driven optimization problem is solved using split-bregman iteration. Experimental results obtained on images for CS recovery reveals the performance achieved by GSR over many current state-of-the-art schemes.

Keywords: Compressive sensing, Sparse representation, self-similarity, split-Bregman.

References:

1. D. L. Donoho, "Compressed sensing," IEEE Trans. Inf. Theory, vol.52, no. 4, pp. 1289–1306, 2006.
2. E. J. Candès and T. Tao, "Near-optimal signal recovery from random projections: Universal encoding strategies," IEEE Trans. Inf. Theory, vol. 52, pp. 5406–5425, 2006.
3. E. Candes and M. Wakin, "An introduction to compressive sampling," IEEE Signal Process. Mag. vol. 25, no. 2, pp.21–30, Mar. 2008
4. M. N. Do and M. Vetterli, "The contourlet transform: An efficient directional multiresolution image representation," IEEE Trans. on Image Processing, vol. 14, no. 12, pp. 2091–2106, Dec. 2005
5. C. Li, W. Yin, and Y. Zhang, "TVAL3: TV Minimization by Augmented Lagrangian and Alternating Direction Algorithm," 2009
6. L. He, H. Chen and L. Carin, "Tree-structured compressive sensing with variational Bayesian analysis," IEEE Signal Processing Letter, vol.

64-67

17, no. 3, pp. 233–236, 2010
7. L. He and L. Carin, “Exploiting structure in wavelet-based Bayesian compressive sensing,” IEEE Trans. Signal Process., vol. 57, no. 9, pp. 3488–3497, 2009
8. C. Chen, E. W. Tramel, and J. E. Fowler, “Compressed-Sensing Recovery of Images and Video Using Multihypo-thesis Predictions,” Proc. of the 45th Asilomar Conference on Signals, Systems, and Computers, Pacific Grove, CA, pp. 1193–1198, Nov. 2011
9. J. Zhang, R. Xiong, S. Ma, and D. Zhao, "High-Quality Image Restoration from Partial Random Samples in Spatial Domain", Proc. of IEEE Visual Communications and Image Processing, pp. 1–4, Tainan, Taiwan, Nov. 2011.
10. J. Zhang, R. Xiong, C. Zhao, S. Ma, D. Zhao. "Exploiting Image Local and Nonlocal Consistency for Mixed Gaussian-Impulse Noise Removal", Prof. of IEEE Int. Conf. on Multimedia & Expo, pp. 592–597, Melbourne, Australia, Jul. 2012.
11. J. Zhang, D. Zhao, C. Zhao, R. Xiong, S. Ma, and W. Gao, "Compressed Sensing Recovery via Collaborative Sparsity", Proc. of IEEE Data Compression Conference, pp. 287–296, Snowbird, Utah, USA, Apr. 2012
12. M. Aharon, M. Elad, and A. Bruckstein, “K-SVD: An Algorithm for Designing Overcomplete Dictionaries for Sparse Representation,” IEEE Trans. on Signal Process., vol. 54, no. 11, pp. 4311–4322, 2006
13. M. Elad and M. Aharon, “Image denoising via sparse and redundant representations over learned dictionaries,” IEEE Trans. Image Process. vol. 15, no. 12, 2006, pp. 3736–3745.
14. W. Dong, L. Zhang, G. Shi, and X. Wu, “Image deblurring and super resolution by adaptive sparse domain selection and adaptive regularization,” IEEE Trans. Image Process., vol. 20, no. 7, Jul. 2011, pp. 1838–1857.
15. Buades, B. Coll, and J. M. Morel, “A non-local algorithm for image denoising,” in Proc. Int. Conf. CVPR, Jun. 2005, pp. 60–65
16. J. Mairal, F. Bach, J. Ponce, G. Sapiro, and A. Zisserman, “Non-local sparse models for image restoration,” in Proc. IEEE 12th Int. Conf. Comput. Vis., Tokyo, Japan, Sep. 2009, pp. 2272–2279
17. J. Zhang, D. Zhao, F. Jiang, and W. Gao, “Structural group sparse representation for image compressive sensing recovery,” in Proc. IEEE DCC, Snowbird, UT, USA, Mar. 2013, pp. 331–340.
18. J. Zhang, C. Zhao, D. Zhao, and W. Gao, “Image compressive sensing recovery using adaptively learned sparsifying basis via L0 minimization,” Signal Process., vol. 103, pp. 114–126, Oct. 2014
19. T. Goldstein and S. Osher, “The split Bregman algorithm for L1 regularized problems,” SIAM J. Imaging Sci, vol. 2, Apr.2009, pp. 323-343
20. C. Li, W. Yin, H. Jiang, and Y. Zhang, “An efficient augmented Lagrangian method with applications to total variation minimization,” Computational Optimization and Applications, Vol. 56, no. 3, pp. 507–530, Dec. 2013
21. C. Chen, E. W. Tramel, and J. E. Fowler, “Compressed-sensing recovery of images and video using multi-hypothesis predictions,” in Proc. 45th Asilomar Conf. Signals, Syst., Comput., Pacific Grove, CA, USA, Nov. 2011, pp. 1193–1198

14.

Authors: **Sulthana Shafi, George M Josep**

Paper Title: **Data Modeling, Estimation and Recovery of Dynamic and Static Sparse Signals-A Review**

Abstract: For sparse signal, compressed sensing is the present dogma, using only fewer measurements for sampling, compression and reconstruction of signals satisfying the Nyquist theorm. Here the outgrowth of compressive sensing using different algorithms for time invariant till time varying sparse signals and its recovery are surveyed. Thus these algorithms are effective in recovering dynamic and static sparse signal vectors. Algorithms exhibiting correlation and optimization approaches are reviewed. Also different mathematical models are reviewed which improves the quality of estimated solutions to best optimal solution.

Keywords: Compressed sensing, Multiple measurement vector, OFDM, Lasso, Homotopy, kalman filter, Expectation Maximization.

References:

1. Haifeng, Li, Li Rui and Li Bei, "Block MMV for the reconstruction of multiband signals",34th Chinese Control Conference (CCC), 2015.
2. Emmanuel j candees, Eclolepolytech,Paris Micheal B Wakin,“An Introduction To Compressive Sampling”,IEEE trans. on signal processing,Vol.25,No.2,march 2008.
3. Chepuri, Sundeep Prabhakar, and Geert Leus,"Compression schemes for time-varying sparse signals", 48th Asilomar Conference on Signals Systems and Computers, 2014.
4. Shamaiah, Manohar, and Haris Vikalo,"Estimating Time-Varying Sparse Signals Under Communication Constraints", IEEE Transactions on Signal Processing,2011.
5. Dsp.rice.edu Internet source.
6. Muhammed Salman Asif,"Dynamic Compressive Sensing: Sparse Recovery Algorithm For Streaming Signals And Video",Georgia Institute Of Technology,2013.
7. users.ece.gatech.edu ,Internet Source.
8. M.S Asif and J Romberg,"Sparse Recovery Of Streaming Signals Using L1 Homotopy",IEEE trans. on signal processing ,Vol. 62,No.16, pp. 4209-4223,2014.
9. " L1-Homotopy:-A Matlab Toolbox for Homotopy Algorithm in L1 Norm Minimization problem."[Online]
10. "EM-GM GAMP:An algorithm for sparse Representation."[Online]
11. Zhang,Zhilin, "Sparse Signal Recovery Exploiting Spatiotemporal Correlation", Series:UC San Diego Electronic Theses and Dissertations,signal and image processing, 2012.
12. Zhilin Zhang, "Sparse Signal Recovery with Temporally Correlated Source Vectors Using Sparse Bayesian Learning.", IEEE Journal of Selected Topics in Signal Processing ,vol. 5, no. 5, pp. 912-926, 2011.
13. Zhilin Zhang, Bhaskar D. Rao," Exploiting Correlation in Sparse Signal Recovery Problems: Multiple Measurement Vectors, Block Sparsity, and Time-Varying Sparsity", ICML 2011 Workshop on Structured Sparsity: Learning and Inference, July, 2011 .
14. Zhilin Zhang ,Bhaskar D. Rao,"Iterative Reweighted Algorithms for Sparse Signal Recovery with Temporally Correlated Source Vectors", ICASSP, 2011.
15. Zhilin Zhang, Bhaskar D. Rao," Sparse Signal Recovery in the Presence of Correlated Multiple Measurement Vectors", ICASSP,2010.
16. Zhilin Zhang, Bhaskar D. Rao," Clarify Some Issues on the Sparse Bayesian Learning for Sparse Signal Recovery", Technical Report, 2011.
17. Zhilin Zhang, Tzyy-Ping Jung, Scott Makeig, Zhouyue Pi, Bhaskar D. Rao, "Spatiotemporal Sparse Bayesian Learning with Applications to Compressed Sensing of Multichannel Physiological Signals", IEEE Trans. On Neural Systems and Rehabilitation Engineering, vol. 22, no. 6, pp. 1186-1197, 2014.
18. Zhilin Zhang, Bhaskar D. Rao, Tzyy-Ping Jung," Compressed Sensing for Energy-Efficient Wireless Telemonitoring: Challenges and Opportunities", Asilomar Conference on Signals, Systems, and Computers (Asilomar 2013), California,2013 .
19. Submitted to University of Hong Kong.
20. Zhang, Z., and B. Rao. "Extension of SBL Algorithms for the Recovery of Block Sparse Signals with Intra- Block Correlation", IEEE Transactions on Signal Processing, 2013.
21. Zhang, Zhilin, and Bhaskar D. Rao. "Recovery of block sparse signals using the framework of block sparse Bayesian learning",IEEE International Conference on Acoustics Speech and Signal Processing (ICASSP),2012.
22. Soussen, Charles, Jerome Idier, David Brie,and Junbo Duan, "From Bernoulli Gaussian Deconvolution to Sparse Signal Restoration",IEEE Transactions on Signal Processing, 2011.
23. F. Gorodnitsky and B. D. Rao, "Sparse signal reconstruction from limited data using FOCUSS: a reweighted minimum norm algorithm,"

IEEE Trans.on Signal Processing,vol.45, no. 3, pp. 600-616, 1997.
24. D. Donoho, "Compressed sensing," Information Theory, IEEE Transactions on,, vol. 52, no. 4, pp. 1289-1306,2006.
25. Applied and Numerical Harmonic Analysis,2013.
26. E. Candes, J. Romberg, and T. Tao, "Stable signal recovery from incomplete and inaccurate measurements,"Communications on pure and applied mathematics, vol.59, no. 8, pp. 1207-1223, 2006.
27. www.dsp.ece.rice.edu ,Internet Source.
28. E. Candes and T. Tao, "Decoding by linear programming,"Information Theory, IEEE Transactions on, vol.51, no. 12, pp. 4203-4215, 2005.
29. Wei, Wang, Jia Min, and Guo Qing. "A compressive sensing recovery algorithm based on sparse Bayesian learning for block sparse signal",International Symposium on Wireless Personal Multimedia Communications (WPMC), 2014.
30. B. Natarajan, "Sparse approximate solutions to linear systems," SIAM journal on computing, vol. 24, no. 2, pp. 227-234, 1995.
31. M. Yuan and Y. Lin, "Model selection and estimation in regression with grouped variables," J. R. Statist. Soc. B, vol. 68, pp. 49-67, 2006.
32. R. G. Baraniuk, V. Cevher, M. F. Duarte, and C. Hegde, "Model-based compressive sensing," IEEE Transactions on Information Theory, vol. 56, no. 4, pp. 1982-2001,2010.
33. Y. C. Eldar, P. Kuppinger, and H. Bolcskei, "Blocksparse signals: uncertainty relations and efficient recovery," IEEE Transactions on Signal Processing, vol. 58, no. 6, pp. 3042-3054, 2010.
34. M. Stojnic, F. Parvaresh, and B. Hassibi, "On the reconstruction of blocksparse signals with an optimal number of measurements," IEEE Transactions on Signal Processing, vol. 57, no. 8, pp. 3075-3085, 2009.
35. E. Elhamifar and R. Vidal, "Block-sparse recovery via convex optimization," Signal Processing, IEEE Transactions on, vol. 60, no. 8, pp. 4094-4107, 2012.
36. Zhang, Z., Tzyy-Ping Jung, S. Makeig, and B.D. Rao. "Compressed Sensing for Energy-Efficient Wireless Telemonitoring of Non-Invasive Fetal ECG via Block Sparse Bayesian Learning",IEEE Transactions on Biomedical Engineering,2012.
37. dsp.ucsd.edu,Internet Source.
38. B. D. Rao and K. Kreutz-Delgado, "Sparse solutions to linear inverse problems with multiple measurement vectors," in Proc. IEEE Digital Signal Processing Workshop, Bryce Canyon, UT, 1998.
39. S. F. Cotter, B. D. Rao, K. Engan, and K. Kreutz- Delgado, "Sparse solutions to linear inverse problems with multiple measurement vectors," IEEE Trans. On Signal Processing, vol. 53, no. 7, pp. 2477-2488, 2005.
40. Y. C. Eldar and M. Mishali, "Robust recovery of signals from a structured union of subspaces," IEEE Trans. On Information Theory, vol. 55, no. 11, pp. 5302-5316, 2009.
41. Y. C. Eldar and H. Rauhut, "Average case analysis of multichannel sparse recovery using convex relaxation," IEEE Trans. on Information Theory, vol. 56, no. 1, pp. 505-519, 2010.
42. Y. Jin and B. Rao, "Support recovery of sparse signals in the presence of multiple measurement vectors," arXiv preprint arXiv:1109.1895, 2011.
43. Rao, Bhaskar D., Zhilin Zhang, and Yuzhe Jin,"Sparse signal recovery in the presence of intra-vector and intervector correlation", International Conference on Signal Processing and Communications (SPCOM), 2012.
44. Choi, Jun, and Byonghyo Shim. "Statistical Recovery of Simultaneously Sparse Time-Varying Signals from Multiple Measurement Vectors", IEEE Transactions on Signal Processing, 2015.
45. N. Vaswani, "Kalman filtered compressed sensing," in Proc. of the15th IEEE International Conference on Image Processing (ICIP 2008), San Diego, USA, 2008, pp. 893-896.
46. D. Zachariah, S. Chatterjee, and M. Jansson, "Dynamic iterative pursuit," Signal Processing, IEEE Transactions on, vol. 60, no. 9, pp. 4967-4972, 2012.
47. D. Sejdinovic, C. Andrieu, and R. Piechocki, "Bayesian sequential compressed sensing in sparse dynamical systems," in Communication, Control, and Computing (Allerton), 2010 48th Annual Allerton Conference on, 2010, pp. 1730-1736.
48. N. Vaswani and W. Lu, "Modiïn˘A¸ed-CS: Modifying compressive sensing for problems with partially known support," Signal Processing, IEEE Transactions on, vol. 58, no. 9, pp. 4595-4607, 2010.
49. J. Ziniel and P. Schniter, "Dynamic compressive sensing of time-varying signals via approximate message passing," arXiv preprint arXiv:1205.4080, 2012.
50. M. Salman Asif and J. Romberg, "Dynamic updating for ‘1 minimization," Selected Topics in Signal Processing, IEEE Journal of, vol. 4, no. 2, pp. 421-434, 2010.
51. Zhang, Zhilin, Bhaskar D. Rao, and Tzyy-Ping Jung, "Compressed sensing for energy-efficient wireless telemonitoring: Challenges and opportunities",Asilomar Conference on Signals Systems and Computers, 2013.
52. Wan, Jing, Zhilin Zhang, Bhaskar D. Rao,Shiaofen Fang, Jingwen Yan, Andrew J.Saykin, and Li Shen. "Identifying the Neuroanatomical Basis of Cognitive Impairment in Alzheimer's Disease by Correlation- and Nonlinearity-Aware Sparse Bayesian Learning",IEEE Transactions on Medical Imaging, 2014.
53. boufounos.com,Internet Source.
54. 3b Jun Won Choi and Byonghyo Shim, "Statistical Recovery Of Simultaneously Sparse Time Varying Signals From MMV", IEEE trans. on signal processing ,Vol. 63, No.22,pp. 6136 - 6148, 2015.
55. 4b M.Shamaiah and H.Vikalo, "Estimation Of Time Varying Sparse Signal In Sensor Networks.", IEEE trans. on signal processing ,Vol. 59,No.6, pp. 2961 - 2964, 2011.
56. Shamaiah, Manohar, and Haris Vikalo,"Estimation of Time-Varying Sparse Signals in Sensor Networks", Signals and Communication Technology, 2014.
57. D. L. Donoho and M. Elad, "Optimally sparse representation in general (nonorthogonal) dictionaries via l1 minimization," PNAS, vol. 100, no. 5, pp. 2197 - 2202, 2003.
58. M. Elad, "Sparse representations are most likely to be the sparsest possible," EUROSIP Journal on Applied Signal Processing, vol. 2006, pp. 1-12, 2006.
59. arxiv.org,Internet Source.
60. R. Tibshirani, "Regression shrinkage and selection via the lasso," Journal of the Royal Statistical Society. Series B (Methodological), vol. 58, no. 1, pp. 267-288, 1996.
61. Y. Cho and L. K. Saul, "Sparse decomposition of mixed audio signals by basis pursuit with autoregressive models," in Proc. of the 34th International Conference on Acoustics, Speech, and Signal Processing (ICASSP 2009), Taipei, pp. 1705-1708.
62. P. Hansen, "Analysis of discrete ill-posed problems by means of the l - curve," SIAM review, vol. 34, no. 4, pp. 561-580, 1992.
63. P. Hansen and D. O Leary, "The use of the l - curve in the regularization of discrete ill-posed problems," SIAM Journal on Scientific Computing, vol. 14, no. 6, pp. 1487 ¸S 1503, 1993.
64. C. Stein, "Estimation of the mean of a multivariate normal distribution," The annals of Statistics, pp. 1135- 1151, 1981.
65. V. Solo, "A sure - fired way to choose smoothing parameters in ill conditioned inverse problems," in Image Processing, 1996. Proceedings., International Conference on, vol. 3, 1996, pp. 89-92.
66. R. Tibshirani, J. Bien, J. Friedman, T. Hastie, N. Simon, J. Taylor, and R. Tibshirani, "Strong rules for discarding predictors in lasso-type problems,"Journal of the Royal
67. Statistical Society: Series B (Statistical Methodology), vol. 74, no. 2, pp. 245-266, 2012.
68. T. Sun and C.-H. Zhang, "Scaled sparse linear regression," Biometrika, vol. 99, no. 4, pp. 879-898, 2012.
69. Jiawei Zhou ,Laming Chen and Yuantao Gu,"Dynamic Zero Point Attracting Projection For Time-Varying Sparse Signal Recovery", National Natural Science Foundation Of China,IEEE,2015.
70. B. D. Rao, K. Engan, S. F. Cotter, J. Palmer, and K. Kreutz-Delgado, "Subset selection in noise based on diversity measure minimization," IEEE Trans. on Signal Processing, vol. 51, no. 3, pp. 760-770, 2003.
71. Gorodnitsky, J. George, and B. Rao, "Neuromagnetic source imaging with focuss: a recursive weighted minimum norm algorithm," Electroencephalography and clinical Neurophysiology, vol. 95, no. 4, pp. 231-251,1995.

72. H. Mohimani, M. Babaie-Zadeh, and C. Jutten, "A fast approach for overcomplete sparse decomposition based on smoothed l0 norm," IEEE Trans. on Signal Processing, vol. 57, no. 1, pp. 289-301, 2009.
73. Seneviratne and V. Solo, "On vector l0 penalized multivariate regression," in Acoustics, Speech and Signal Processing (ICASSP), 2012 IEEE International Conference on. IEEE, 2012, pp. 3613-3616.
74. S. Mallat and Z. Zhang, "Matching pursuits with time frequency dictionaries," Signal Processing, IEEE Transactions on, vol. 41, no. 12, pp. 3397-3415, 1993.
75. D. Needell and J. A. Tropp, "CoSaMP: Iterative signal recovery from incomplete and inaccurate samples," Applied and Computational Harmonic Analysis, vol. 26, no. 3, pp. 301-321, 2009
76. J. Tropp and A. Gilbert, "Signal recovery from random measurements via orthogonal matching pursuit," Information Theory, IEEE Transactions on, vol. 53, no. 12, pp. 4655-4666, 2007.
77. W. Dai and O. Milenkovic, "Subspace pursuit for compressive sensing signal reconstruction," Information Theory, IEEE Transactions on, vol. 55, no. 5, pp. 2230-2249, 2009.
78. W. Dai and O. Milenkovic, "Subspace pursuit for compressive sensing signal reconstruction," Information Theory, IEEE Transactions on, vol. 55, no. 5, pp. 2230-2249, 2009.
79. J. Vila and P. Schniter,"Expectation-maximization Gaussian-mixture approximate message passing," arXiv:1207.3107,2012.
80. .M. Bayati and A. Montanari, "The dynamics of message passing on dense graphs, with applications to compressed sensing," Information Theory, IEEE Transactions on, vol. 57, no. 2, pp. 764-785, 2011.
81. Asif, M. Salman, and Justin Romberg. "Sparse Recovery of Streaming Signals Using ll Homotopy", IEEE Transactions on Signal Processing, 2014.
82. Zhou, Jiawei, Laming Chen, and Yuantao Gu,"Dynamic zero-point attracting projection for time-varying sparse signal recovery",IEEE International Conference on Acoustics Speech and Signal Processing (ICASSP),2015.
83. Hao, Jinping, Filippo Tosato, and Robert J.Piechocki, "Sequential Compressive Sensing in Wireless Sensor Networks", 2012 IEEE 75th Vehicular Technology Conference (VTC Spring), 2012.
84. P. Schniter, L. Potter, and J. Ziniel, "Fast Bayesian matching pursuit," in Information Theory and Applications Workshop, 2008, 2008, pp. 326-333.
85. H. Zayyani, M. Babaie-Zadeh, and C. Jutten, "Bayesian pursuit algorithm for sparse representation," in Acoustics, Speech and Signal Processing, 2009. ICASSP 2009. IEEE International Conference on, 2009, pp. 1549-1552.
86. C. Herzet and A. Dr emeau, "Bayesian Pursuit Algorithms" [Online]. Available: http:// hal.inria.fr / hal- 00673801.
87. M. Tipping, "Sparse Bayesian learning and the relevance vector machine," The Journal of Machine Learning Research, vol. 1, pp. 211-244, 2001.
88. D. Wipf and B. Rao, "Sparse Bayesian learning for basis selection," IEEE Transactions on Signal Processing, vol. 52, no. 8, pp. 2153-2164, 2004.
89. X. Tan and J. Li, "Computationally efficient sparse Bayesian learning via belief propagation", IEEE Transactions on Signal Processing, vol. 58, no. 4, 2010.
90. .K. Qiu and A. Dogandzic, "Variance-component based sparse signal reconstruction and model selection," IEEE Trans. on Signal Processing, vol. 58, no. 6, pp. 2935- 2952, 2010.
91. . S. Ji, Y. Xue, and L. Carin, "Bayesian compressive sensing," IEEE Transactions on Signal Processing, vol. 56, no. 6, pp. 2346-2356, 2008.
92. M.Figueiredo,"Adaptive sparseness for supervised learning," IEEE Transactions on Pattern Analysis and Machine Intelligence,vol.25,no.9,pp.1150-1159,2003.
93. S. Babacan, R. Molina, and A. Katsaggelos, "Bayesian compressive sensing using laplace priors," Image Processing, IEEE Transactions on, vol. 19, no. 1, pp. 53-63, 2010.
94. Bajwa, Waheed U., Marco F. Duarte, and Robert Calderbank. "Conditioning of Random Block Subdictionaries With Applications to Block-Sparse Recovery and Regression",IEEE Transactions on Information Theory,2015.
95. nuit-blanche.blogspot.ca,Internet Source.
96. Guangwu Xu and Zhiqiang Xu,"Compressed Sensing Matrices From Fourier Matrices",IEEE Transactions on Information Theory,vol. 61, no. 1, jan 2015.
97. Z. Zhang, T.-P. Jung, S. Makeig, and B. D. Rao,"Compressed sensing for energy-efficient wireless telemonitoring of non-invasive fetal ECG via block sparse Bayesian learning," IEEE Trans. on Biomedical Engineering, accepted.
98. "Compressed sensing of EEG for wireless telemonitoring with low energy consumption and inexpensive hardware," IEEE Trans. on Biomedical Engineering, accepted.
99. "Spatiotemporal sparse Bayesian learning with applications to compressed sensing of multichannel ECG for wireless telemonitoring," submitted to IEEE Trans. on Biomedical Engineering,2012.
100. Ranjitha prasad,Chandra R.Murthy and Bhaskar D.Rao,"Joint Channel Estimation and Data Detection in MIMO-ofdm Systems: A Sparse Bayesian Learning Approach" ,Signal Processing,IEEE Transactions on, vol.63,no.20,2015.
101. Jing Wang. "Low-complexity Subspace Tracking Based Channel Estimation Method for OFDM Systems In Time-Varying Channels", IEEE International Conference on Communications, 06/2006.
102. Huang, M., X. Chen, L. Xiao, S. Zhou, and J. Wang, "Kalman-filter-based channel estimation for orthogonal frequency-division multiplexing systems in time-varying channels",IET Communications, 2007.
103. Jing Wang, "Low-complexity Subspace Tracking Based Channel Estimation Method for OFDM Systems In Time-Varying Channels",2006 IEEE International Conference on Communications, 06/2006

15.

Authors:	**Pallvi Dehariya**
Paper Title:	**A Result Evolution of An Artificial Immune System for Intrusion Detection System to Improve the Detection Rate**

Abstract: This paper presents an intrusion detection system architecture based on the artificial immune system concept. In this architecture, an innate immune mechanism through unsupervised machine learning methods is proposed to primarily categorize network traffic to "self" and "non-self" as normal and suspicious profiles respectively. Unsupervised machine learning techniques formulate the invisible structure of unlabeled data without any prior knowledge. The novelty of this work is utilization of these methods in order to provide online and real-time training for the adaptive immune system within the artificial immune system. The proposed intrusion detection system will use the concepts of the artificial immune systems (AIS) which is a promising biologically inspired computing model. AIS concepts that can be applied to improve the effectiveness of IDS.

Keywords: Intrusion detection system, Artificial Immune system, clustering

References:

1. Cho, Sung-Bae. 2003. .Artificial Life Technology for Adaptive Information Processing. Chapter 2 in Future Directions for Intelligent Systems and Information Sciences: The Future of Speech and Image Technologies, Brain Computers, WWW, and Bioinformatics, edited by Nikola Kasabov, Volume 45 of Studies in Fuzziness and Soft Computing, 13.33. Heidelberg, Germany: Physica-Verlag. ISBN 3-7908-1276-5.
2. Dasgupta, Dipankar. 1999, October. .Immunity-Based Intrusion Detection System: A General Framework.. Proceedings of the 22nd National Information Systems Security Conference (NISSC). National Institute of Standards and Technology and National Computer

75-77

Security Center, Hyatt Regency.Crystal City, Virginia, United States.
3. Dasgupta, Dipankar, Yuehua Cao, and Congjun Yang. 2003, July 13.17. .An Immunogenetic Approach to Spectra Recognition.. Edited by Wolfgang Banzhaf, Jason Daida, Agoston E. Eiben, Max H. Garzon, Vasant Honavar, Mark Jakiela, and Robert E. Smith, Proceedings of the Genetic and Evolutionary Computation (GECCO) Conference, Volume 1. Orlando, Florida, United States: Morgan Kaufmann, 149.155. ISBN 1-55860-611-4.
4. Dasgupta, Dipankar, and Stephanie Forrest. 1996, June 19.21. .Novelty Detection in TimeSeries Data using Ideas from Immunology.. Proceedings of the 5th International Conference on Intelligent Systems. Reno, Nevada, United States.
5. Nong Ye and Xiangyang Li. A scalable clustering technique for intrusion signature recognition. In Proc. 2nd IEEE SMC Information Assurance Workshop, pages 1-4, 2001.
6. Yu Guan, Ali A. Ghorbani, and Nabil Belacel. Y-means: a clustering method for intrusion detection. In Canadian Conference on Electrical and Computer Engineering, pages 1-4, Montral, Qubec, Canada, May 2003.
7. Teuvo Kohonen. Self-Organizing Map. Springer-Verlag, New York, 1997
8. J. D. Banfield and A. E. Raftery. Model-based Gaussian and non-Gaussian clustering.
9. FAQ: Network Intrusion Detection Systems, Version 0.8.3, March 21, 2000 [Intrusion Detection
10. I.T. Jolliffe. Principal Component Analysis. Springer-Verlag, New York, 1989.
11. Kohonen, T. 1995. Self-Organizing Maps, volume 30 of Springer Series in Information Sciences. Berlin, Heidelberg: Springer. (Second Extended Edition 1997).
12. Leonid Portnoy, "Intrusion Detection with Unlabeled Data using Clustering", Undergraduate Thesis, Columbia University, New York, NY, Dec. 2000.
13. Lane, T., and Brodley, C. E. 1999. Temporal sequence learning and data reduction for anomaly detection. ACM Transactions on Information and System Security 2(3): 295—331.
14. Michael Sobirey's Intrusion Detection Systems http://www.rnks.informatik.tucot.
15. "NIST Special Publication on Intrusion Detection Systems", SP 800-31 Computer Security Resource Center (CSRC), National Institute of Standards and Technology (NIST), Nov. 2001, p.15.
16. P.Lichodzijewski, A. n. Zincir-Heywood and M. I. Heywood, "Host-based intrusion detection using Neural Gas," Proceedings of the 2002 IEEE World Congress on Computational Intelligence, 2002 (in press).
17. Salvatore J. Stolfo, Wei Fan, Wenke Lee, "Cost-based Modeling for Fraud and Intrusion Detection: Results from the JAM Project", Proceedings of the 2000 DARPA Information Survivability Conference and Exposition, 2000.
18. Vesanto J., Alhoniemi E., "Clustering of the Neural Gas Map," IEEE Transactions on Neural Networks, 11(3), pp 586-600, 2000
19. Wenke Lee, Sal Stolfo, and Kui Mok. Mining in a data environment: Experience in network intrusion detection. In Proc. 5thACM SIGKDD Int. Conf. Knowledge Discovery and Data Mining, pages 114{124, San Diego, CA, August 1999.
20. Wenke Lee and Sal Stolfo, "Data Mining Approaches for Intrusion Detection", Proceedings of the Seventh USENIX Security Symposium (SECURITY '98), San Antonio, TX, January 1998.
21. Wei Fan, Wenke Lee, Sal Stolfo, and Matt Miller (2000) ``A Multiple Model CostSensitive Approach for Intrusion Detection", Eleventh European Conference on Machine Learning (ECML '00) 2000.
22. Wei Fan, Matt Miller, Sal Stolfo, Wenke Lee, and Phil Chan, "Using Artificial Anomalies to Detect Unknown and Known Network Intrusions", CA, November 2001

16.

Authors: **Vidhya.V.S.Nair, Subha V**

Paper Title: **Person Recognition from Activity using Bag of Words**

Abstract: In this paper the discriminant pattern hidden in the way of doing an activity for every person is explored. This pattern can be utilized for person recognition purpose in uncontrolled scenarios unlike finger print, iris, retina etc. (based on physical biometrics). This method is based on single video camera based data. From the video of various activities, background subtraction is done to remove insignificant data. From the binary video obtained after background subtraction structural tensor based features are detected and extracted. The extracted features defines the variation from the mean position are then clustered by means of k-means clustering. Histogram of cluster centroids is calculated using Bag Of Words (BOW) and classified by category classifier. Histogram of input video action sequence is compared with each of dataset and predicts the category, which corresponds to the label of person.

Keywords: Activity based identification, Background subtraction, Silhouette, Structural Tensor, Bag Of Words, Category classifier, Structured Support Vector Machine.

References:

1. Jain, A. Ross, S. Prabhakar,"An introduction to biometric recognition", IEEE Trans. Circuits Syst. Video Tech., vol. 14,pp. 420,2004.
2. R.V. Yampolskiy, V. Govindaraju,"Behavioural biometrics: a survey and classification", Int. J. Biom.,pp. 81113, 2008
3. R. Tanawongsuwan, A. Bobick,"Gait recognition from time-normalized jointangle trajectories in the walking plane," IEEE Computer Society Conference on Computer Vision and Pattern Recognition, CVPR,pp. II- 726II-731.,2001.
4. Iosifidis, Anastasios Tefas and Ioannis Pitas, " Person Identification From Actions Based On Dynemes And Discriminant Learning",IEEE vol.978, No.1, pp. 4673- 4989,2013
5. Eftychia Fotiadou and Nikos Nikolaidis , "Activity-based methods for person recognition in motion capture sequences," Pattern Recognition Letters , vol.49 ,pp.4854, 2014
6. Y. Benezeth, P. Jodoin, B. Emile, H. Laurent, and C. Rosenberger, "Review and evaluation of commonly implemented background subtraction algorithms", IEEE International Conference on Pattern Recognition, pp. 14,2008.
7. H. Bay, A. Ess, T. Tuytelaars and L.Van Gool, "SURF: Speeded Up Robust Features.", Computer Vision and Image Understanding,vol.110, no.3, pp.346-359, 2008.
8. J. Wang, M. She, S. Nahavandi, and A. Kouzani,"A review of vision-based gait recognition methods for human identification," International Conference on Digital Image Computing: Techniques and Applications, pp.320327, 2010.
9. D.A.R. Vigo, F.S. Khan, J. van de Weijer, T. Gevers,"The Impact of Color on Bag-of-Words Based Object Recognition,", International Conference on Pattern Recognition (ICPR), pp. 1549 - 1553 ,2010.
10. CJC. Burges,"A tutorial on support vector machines for pattern recognition," Data Mining Knowledge Discovery, vol. 2, no. 2, pp. 121167, 1998.
11. S. Das, R. Wilson, M. Lazarewicz, L. Finkel,"Gait recognition by two-stage principal component analysis," 7th International Conference on Automatic Face and Gesture Recognition, pp. 579584, 2006.
12. D. Gokalp and S. Aksoy," Scene classification using bag-of-regions representations", IEEE Computer Society Conference on Computer Vision and Pattern Recognition (CVPR '07), pp. 18, June 2007.

17.

Authors: **Gayathri S A, Renjith R J**

Paper Title: **Super Resolution of Hyper Spectral Image Based On NABO Spectral Unmixing**

Abstract: Hyperspectral imaging has become an important image analysis technique in remote sensing. Processing and enhancing hyperspectral images are a difficult task. The spectral information contained in the

hyperspectral images are extracted by spectral unmixing techniques. This paper proposes a novel method for enhancing spatial resolution of hyperspectral images based on spectral unmixing. Many applications needs images containing both high spectral resolution and high spatial resolution. In this paper a NABO (Negative Abundance Oriented)spectral unmixing based hyperspectral-multispectral image fusion algorithm is proposed for the purpose of enhancing the spatial resolution of hyperspectral image(HSI). As a result, a high-spatial-resolution HSI is reconstructed based on the high spectral characters of the HSI represented by endmember spectra and the high spatial characters of the multispectral image(MSI) represented by abundance fractions. Experiments were done on Airborne Visible/Infrared Imaging Spectrometer data. NABO unmixing based fusion gives better results than existing Endmember Extraction (EE).

Keywords: Hyperspectral Imaging, Linear Mixing Model, Spectral Unmixing, Multispectral Images, Endmember Extraction Algorithms, Resolution Enhancement

References:

1. J.Bioucas-Dias,A.Plaza,N.Dobigeon,M.Parente,Q.Du,P.Gaderand J.Chanussot, "Hyperspectral unmixing overview: Geometrical, Statistical, and Sparse regression - based approaches", IEEE J.Select.Topics Appl. Earth Observ. Remote Sensing, vol.5,no.2,pp. 354-379, 2012.
2. R. Gomez, A. Jaziri, and M. Kafatos, "Wavelet-based hyperspectral and multispectral image fusion," in Proc. SPIE., vol. 4383, 2001, pp. 3642.
3. R.C.Hardie,M.T.Eismann and G.L.Wilson, "MAP estimation for hyperspectral image resolution enhancement using an auxiliary sensor", IEEE Trans. Image Process., vol.13,no.9,Sep.2004.
4. N. Yokoya, T. Yairi, and A. Iwasaki, "Coupled nonnegative matrix factorization unmixing for hyperspectral and multispectral data fusion", IEEE Trans. Geosci.Remote Sens., vol. 50, no. 2, Feb. 2012, pp. 528-537.
5. Mohamed Amine Bendoumi,Mingyi He, and Shaohui Mei, "Hyperspectral image resolution enhancement using high-resolution multispectral image based on spectral unmixing", IEEE Trans. Geosci.Remote Sens., vol.52, no.10, Oct. 2014.
6. X. Liu, W. Xia, B. Wang and L. Zhang "An approach based on constrained nonnegative matrix factorization to unmix hyperspectral data", IEEE Trans. Geosci. Remote Sens., vol. 49, no. 2, Feb. 2011, pp. 757772.
7. J.Nascimento and J.Bioucas-Dias, "Vertex component analysis: A fast algorithm to unmix hyperspectral data", IEEE Trans. Geosci. Remote Sens., vol. 43, no. 4, Apr. 2005, pp. 898-910.
8. J. Li and J. Bioucas-Dias, "Minimum volume simplex analysis: A fast algorithm to unmix hyperspectral data", IEEE Trans. Geosci. Remote Sens., vol. 3, 2008, pp. 250-253.
9. J. Plaza, E. M. T. Hendrix, I. Garca, G. Martin and A. Plaza, "On endmember identification in hyperspectral images without pure pixels: A comparison of algorithms", J. Math. Imaging Vis, Vol.42, no.2/3, Feb.2012, pp. 163-175.
10. Ruben Marrero, Sebastian Lopez, Gustavo M Callic, Miguel Angel Veganzones, Antonio Plaza, Jocelyn Channusot and Roberto Sarmiento, "A novel negative abundance-oriented hyperspectral unmixing algorithm", IEEE Trans. Geosci. Remote Sens., vol. 53, no.7,July 2015.
11. N. Ohgi, A. Iwasaki, T. Kawashima and H.Inada, "Japanese hyper-multispectral mission", IGARSS, Honolulu, HI, USA, Jul.2010, pp.3756-3759.
12. G. Vane, R. O. Green, T. G. Chrien, H. T. Enmark, E. G. Hansen and W. M. Porter, "The airborne visible/infrared imaging spectrometer(AVIRIS)", Remote Sens. Environ, vol. 44, no. 2/3, May/Jun 1993, pp. 127-143.

18.

Authors: **Agus Wibawa, Admaji, Ide Bagus Hapsara, Totok Ruki Biyanto**

Paper Title: **Failure Analysis of High Pressure Heater in PT. PJB UP Paiton**

Abstract: The aim of this paper is to analyze the cause of harm in high pressure heater in PT. PJB UP Paiton and to prevent it from happening again. In PT. PJB UP Paiton, several problem related to high pressure heater had occurred before. When the high pressure heater harmed, tube plugging usually applied to fix the trouble. Through this process, the high pressure heater was not fully recovered. The efficiency and failure rate of high pressure heater is decreased and increased respectively. Hence, a root cause failure analysis is conducted to accurately determine the cause of the problem. The result shows that the cause of failure in high pressure heater are the increase of feedwater velocity, the increase of extraction steam velocity, change of flow patter and heat transfer inside high pressure heater and radial displacement tube that over limit. Based on this result, redesign of high pressure heater is performed by increasing the capacity of feedwater flow in high pressure heater and decreasing the feedwater velocity.

Keywords: High Pressure Heater, redesign, root cause failure analysis.

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References:

1. Kim, K.H. and Kim, H.J., Design modification of a feedwater heater impingement baffle to mitigate shell wall thinning by flow acceleration corrosion. Nuclear Engineering and Design 262, 2013, pp.409-417.
2. Heo, G. and Lee, S.K., Internal leakage detection for feedwater heaters in power plants using neural networks. Expert Systems with Applications 39(5), 2012, pp.5078-5086.
3. Álvarez-Fernández, M., del Portillo-Valdés, L. and Alonso-Tristán, C., Thermal analysis of closed feedwater heaters in nuclear power plants.Applied Thermal Engineering 68(1), 2014, pp.45-58.
4. Huang, C.C., Hsieh, J.S., Chen, P.C. and Lee, C.H., Flow analysis and flow-induced vibration evaluation for low-pressure feedwater heater of a nuclear power plant. International Journal of Pressure Vessels and Piping 85(9), 2008, pp.616-619.
5. Hwang, K.M., Woo, L., Jin, T.E. and Kim, K.H., A study on the shell wall thinning causes identified through experiment, numerical analysis and ultrasonic test of high-pressure feedwater heater. Nuclear Engineering and Design 238(1), 2008, pp.25-32.

19.

Authors: **Simran Khokha, Ritu Gupta, K. Rahul Reddy**

Paper Title: **Bluetooth Home Automation System Based on AVR Microcontroller**

Abstract: A smart home covers a variety of theoretical and practical approaches that deals with methodology of living today and in the future [1]. Technology has influenced and changed the life of humans in many ways. To design a device that will be serviceable to others is a huge contribution to the society [2]. Today mobile phones (smart phones, android etc.) can preforms almost all the tasks that once only PCs used to handle. With these advanced features and thought of elderly in mind, a device is designed. This device provides a much more advanced and a safer home to us. Bluetooth Home Automation System is a complex technology that uses information technology to control the electrical appliances and monitors the environment. The design and implementation presented in this paper is of a device which will use bluetooth technology for basic home automation and a wireless home network is desirable

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which does not incur any additional cost of wiring. The advantages and disadvantages are also discussed, along with the future scope and application areas.

Keywords: Bluetooth, Microcontroller, Home Appliance, Android, AVR, Atmega 8

References:

1. Dengler, Sebastian; Awad, Abdalkarim; Dressler, Falko, "Sensor/Actuator Networks in Smart Homes for Supporting Elderly and Handicapped People." Advanced Information Networking and Applications Workshops, 2007, AINAW '07. 21st International Conference on, Volume 2, 21-23 May 2007 Page(s):863 – 868.
2. Piyare, R and Tazil, M, "Bluetooth Based Home Automation System Using Cell Phone." IEEE 15th International Symposium on Consumer Electronics (2011).
3. Shepherd, R, "BIuetooth Wireless Technology in the Home." Electronics & Communication Engineering Journal 13 (2001): 195-203. IEEE/IEE Electronic Library. 15 Oct. 2007.
4. T. Tamura, T. Togawa, M. Ogawa, and M. Yoda, "Fully automated health monitoring system in the home," Med. Eng. Physics, 20, pp. 573–579, 1998.
5. Jiang, Li, Da-You Liu, and Bo Yang, "Smart Home Research." Machine Learning and Cybernetics (2004). 15 Oct. 2007.
6. S. K. Das, D. J. Cook, A. Bhattacharya, E. O. Heierman, III, and T.-Y. Lin, "The Role of Prediction Algorithms on the MavHome Smart Home Architectures," IEEE Wireless Communications (Special Issue on Smart Homes), Vol. 9, No. 6, pp. 77–84, Dec. 2002.
7. Yamazaki, T, "Beyond the Smart Home." Hybrid Information Technology, 2006. ICHIT'06. Vol 2. International Conference on, Volume 2, Nov. 2006 Page(s):350 – 355.

20.

Authors: **Asha Jayachandran, Preetha V.H**

Paper Title: **Median Filter Based Adaptive Compensation Method for Depth Map Pre-Processing**

Abstract: Depth Image Based Rendering (DIBR) is 2D to 3D conversion technology using color image and its corresponding depth image that is widely employed in applications like 3D TV, free view television etc. 3-D viewing is the next most happening technology. Since transmission of 3D video demands a lot of bandwidth, a new technology that renders virtual views using a color image and its corresponding depth image was proposed. If the depth map is incomplete, the virtual views generated will contain holes or disocclusions which affect the quality of 3D viewing. Since holes occur when the intensity in depth map changes significantly, smoothening methods were proposed reduce the number of holes. Since smoothening methods affect the edges and destroys the original information in the depth map, Adaptive Compensation method (ADC) which processes the image in different modes was proposed. Improved Adaptive Compensation method does not produce satisfactory results for images with large number of holes. Though an improvement in PSNR and SSIM improvement is observed, the number of holes in the warped image is increased. A median filtering is incorporated in Adaptive Compensation method to reduce the number of holes. The experimental results indicate an improvement in PSNR and SSIM as well as a reduction in number of holes.

Keywords: Depth Image Based Rendering, 3D TV, Inpainting, Adaptive Compensation Method, Disocclusion, Median Filter, Holes, Virtual views.

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References:

1. Redert et al., "Advanced three-dimensional television system technologies",Proc. IEEE Int. Symp. 3D Data Process. Vis. Transmiss.,Jun. 2002, pp 313-319.
2. Chih-Hsien Hsia, "Improved Depth Image-Based Rendering Using an Adaptive Compensation Method on an Autostereoscopic 3-D Display for a Kinect Sensor",IEEE SENSORS JOURNAL., vol. 15,No.2,Feb. 2015
3. Ming-Fu Hung, Shaou-Gang Miaou, and Chih-Yuan Chiang, "Dual Edge-Confined Inpainting of 3D Depth Map Using Color Images Edges and Depth Images Edges," Signal and Information Processing Association Annual Summit and Conference (APSIPA), 2013 Asia-Pacific, Nov. 2015, pp. 1-9.
4. L. Zhang and W. J. Tam, "Stereoscopic image generation based on depth images for 3D TV," IEEE Trans. Broadcast., vol. 51, no. 2, pp. 191-199, Jun. 2005.
5. W. J. Tam, G. Alain, L. Zhang, T. Martin, and R. Renaud, "Smoothing depth maps for improved steroscopic image quality," Proc. SPIE, vol. 5599, pp. 162-172, Oct. 2004.
6. P.-J. Lee and Effendi, "Nongeometric distortion smoothing approach for depth map preprocessing," IEEE Trans. Multimedia, vol. 13, no. 2, pp. 246-254, Apr. 2011.
7. Fehn, K. Hopf, and Q. Quanta, "Key technologies for an advanced 3D TV system,"Proc. SPIE, vol. 5599, pp. 66-80, Oct. 2004.
8. Middlebury Stereo Vision Database. [Online]. Available: http://vision.middlebury.edu/stereo/data/

21.

Authors: **Archana Suryavanshi, A. A. Shinde**

Paper Title: **Implementing Home Automation System Using ZIGBEE IEEE 802.15.4 Standard**

Abstract: Wireless technology evolution has greatly enhanced automation systems.. The major requirement of this field has been low data rate, extended battery life and secure system.Voice controlled home automation system designed using. Zigbee IEEE 802.15.4 protocol. Home automation system recognizes user commands with help of HM 2007 voice recognitio chip. This system assists disable persons and persons with limitations. System facilitates controlling of all household equipment's like light and fan with single or multiple user commands.

Keywords: Home Automation System, Zigbee, Voice recognition, IEEE 802.15.4,

100-102

References:

1. Amrutha S, Aravind S, Ansu Mathew, Swathy Sugathan, Rajasree R, and Priyalakshmi S, "Speech Recognition Based Wireless Automation of Home Loads- E Home" International Journal of Engineering Science and Innovative Technology (IJESIT) Volume 4, Issue 1, January 2015.
2. Amrutha S, Aravind S, Ansu Mathew, Swathy Sugathan, Rajasree R, Priyalakshmi, "Voice Controlled Smart Home , International Journal of Emerging Technology and Advanced Engineering www.ijetae.com (ISSN 2250-2459, ISO 9001:2008 Certified Journal, Volume 5, Issue 1, January 2015.
3. T. Poongothai , S. Navaneethan , G. Divya Priya , K. Madan Mohan , "Home Appliance Based Device Monitoring and Control Inputting Through Capacitive Touch" International Journal of Engineering Trends and Applications (IJETA) – Volume 2 Issue 2, Mar-Apr 2015.
4. M.R.manikandan1, A.Raghuram2, D.Saravanan3, S.Vignesh4, R.Thenmozhi Selvan , "Device Control Using Voice Recognition in Wireless

Smart Home System" International Journal of Innovative Research in Computer and Communication Engineering Vol. 3, Special Issue 2, March 2015.
5. Thoraya obaid, haliemah rashed, ali abu el nour, muhammad rehan, "zigbee based voice controlled wireless smart home system" International Journal of Wireless & Mobile Networks (IJWMN) Vol. 6, No. 1, February 2014.
6. Jaypal J. Baviskar_,Afshan Y. Mullay, Amol J. Baviskarz and Niraj 'Implementation of 802.15.4 for
7. designing of home automation and power monitoring system,' 2014 IEEE Students Conference on Electrical, Electronics and Computer Science.
8. Dhawan S. Thakur and Aditi Sharma, "Voice Recognition Wireless Home Automation System Based On Zigbee" IOSR Journal of Electronics and Communication Engineering (IOSR-JECE) e-ISSN: 2278-2834,p- ISSN: 2278-8735. Volume 6, Issue 1 (May. - Jun. 2013).
9. Faisal Baig, Saira Beg and Muhammad Fahad Khan "Zigbee Based Home Appliances Controlling Through Spoken Commands Using Handheld Devices" International Journal of Smart Home Vol. 7, No. 1, January, 2013.
10. JinsungByun, Insung Hong, Byoungjoo Lee, and Sehyun Park" Intelligent Household LED Lighting System Considering Energy Efficiency and User Satisfaction" , IEEE network,volume59,No.1,Feb 2013.
11. Chee-Hoe Pang, Jer-Vui Lee, Yea-DatChuah, Yong-Chai Tan and N. Debnach" Design of a Microcontroller based Fan Motor Controller for Smart Home Environment" International Journal of Smart Home Vol. 7, No. 4, July, 2013 .
12. Faisal Baig, Saira Beg, Muhammad Fahad Khan, Science and Technology Islamabad, Pakistan, 'Controlling Home Appliances Remotely through Voice Command', International Journal of Computer Applications (0975 – 888) Volume 48– No.17, 2012.

22.

Authors: **Lekshmi Shyam, Kumar G.S**

Paper Title: **Detection of Glaucoma and Diabetic Retinopathy from Fundus Images by Bloodvessel Segmentation**

Abstract: Blood vessel segmentation of fundus images has obtained considerable importance during the past few years since it facilitates the early detection of eye diseases. A method based on high pass filtering and morphological operation is introduced in the proposed method for vessel segmentation. This method can be utilized to detect diseases effecting eyes like glaucoma and diabetic retinopathy. Glaucoma is detected by feature extraction and classification. The local binary pattern of the optic disc is extracted to classify the images on the basis of texture. Sparse representation classifier is utilized to classify the glaucomatous eye. Diabetic retinopathy is a disease caused by the complexity of diabetes. It damages the small blood vessels in the retina resulting in loss of vision. The blood vessel segmentation is an important task in Diabetic Retinopathy detection. Optic disc in the fundus image is detected by Hough transform. After the segmentation the vessels and optic disc are removed from the original image. Diabetic Retinopathy is characterized by the presence of exudates. The exudates are detected by means of imtool operator in the matlab. The simulations are performed on matlab 2011 and the data are collected from DIARETDB1 and HRF databases.

Keywords: Blood vessel segmentation, Diabetic retinopathy, Fundus images, Glaucoma, Hough transform, Sparse representation classifier ,

103-108

References:

1. D.Jeyashree, G. Sharmilaand K. Ramasamy, "Combined Approach on Analysis of Retinal Blood Vessel Segmentation for Diabetic Retinopathy and Glaucoma Diagnosis", International Journal of Scientific & Engineering Research, Volume 5, Issue 5, May-2014.
2. MadhusudhananMishra,"Glaucomadetection based on phase information of fundus images", International Journal of recent trends in engineering and technology, Vol 6,Issue 4,March 2016.
3. R.Priya and P.Aruna, "Diagnosis of diabetic retinopathy using machine learning techniques", ICTACT Journal on Soft Computing, Volume 3, Issue 4, July 2013.
4. AshaGowdaKaregowda, AsfiyaNasiha, M.A.Jayaram and A.S .Manjunath "Exudate detection in retinal images using back propagation neural network", International Journal of Computer Applications, Volume 25– No.3, July 2011.
5. J.Ramya,S.Soundarya,A.Nagoormeeral, Rahmathnish and E.Revathi"Detection of exudates in color fundus images", International Journal of Innovative Research in Science,Engineering and Technology, Vol. 3, Issue 3, March 2014.
6. ShraddhaTripathi, Krishna Kant Singh , B.K.Singh and AkanshaMehrotra, "Detection Automatic Detection of Exudates in Retinal Fundus Images using Differential Morphological Profile", International Journal of Engineering and Technology, Vol 5 No 3 Jun-Jul 2013.
7. Kullayamma and P. MadhaveeLatha, "Retinal Image Analysis for Exudates Detection", International Journal of Engineering Research and Applications, Vol. 3, Issue 1, January -February 2013, pp.1871-187.
8. Nirmala K, Venkateswaran N and Vinoth Kumar C, "Fractal Feature Based Svm Classification OfGlaucomatous Image Using Pca And Gabor Filter", International Journal of Advanced Engineering Technology, Vol. VII, Issue 1, March 2016, pp.156-160.

23.

Authors: **Rekha Raj, Salim Paul**

Paper Title: **A Novel Approach of Image Encryption and Decryption using Coupled Chaotic System**

Abstract: Security is an important problem while transmitting information through an open network. Secure transmission can be done by encrypting the information. There are several methods of encryption. A novel encryption and decryption technique is discussed in this paper. Here the cryptosystem used is a coupled chaotic system in which two one dimensional chaotic maps are combined and used for encryption. A new algorithm is developed for the implementation of the coupled chaotic system. Security analysis and Statistical analysis show that this system can encrypt images effectively and can withstand several attacks like brute force attack, chosen plain-text attack etc

Keywords: Cipher, Coupled chaotic system, Encryption, Decryption, Security key, Symmetric

109-112

References:

1. Yicong Zhou, Long Bao and C.L.Philip Chen"A New 1D Chaotic System for Image Encryption", Signal Process. 97(2014) pp.172-182.
2. Kanso and M. Ghebleh "A Novel Image Encryption Algorithm Based on a 3D Chaotic Map,"Commun Nonlinear SciNumerSimulat17 (2012) pp.2943–2959
3. G.A.Sathishkumar ,Dr.K.Bhoopathy bagan and Dr.N.Sriraam "Image Encryption Based on Diffusion and Multiple Chaotic Maps" ,International Journal of Network Security & Its Applications (IJNSA), Vol.3, No.2, March2011,pp.181-194
4. Shoaib Ansari, Neelesh Gupta and Sudhir Agrawal, "An Image Encryption Approach Using Chaotic Map in Frequency Domain" ,International journal of Emerging Technology and Advanced Engineering-Volume 2, Issue 8,
5. Gururaj Hanchinamani and Linganagouda Kulakarni, "Image Encryption Based on 2-DZaslavskii Chaotic Map and Pseudo Hadmard Transform", International Journal of Hybrid Information Technology Vol.7, No.4 (2014),pp.185-200.
6. Xiaoling Huang,Guodong Ye, and Kwok-Wo Wong, "Chaotic Image Encryption Algorithm Based on Circulant Operation", Abstract and Applied Analysis,Volume2013

7. Xianhan Zhang and Yang Cao, "A Novel Chaotic Map and an Improved Chaos-Based Image Encryption Scheme", The Scientific World Journal Volume 2014(2014).A. E. Rohlem S, Elagooz, and H. Dahshan, "A novel approach for
8. designing the s-box of advanced encryption standard algorithm (AES) using chaotic map", IEEE Conference Publications 2005,pp.455-464
9. Fu C1, Chen JJ, Zou H, Meng WH, Zhan YF and Yu YW, "A chaos based digital image encryption scheme with an improved diffusion strategy", Opt Express 2012, 20(3),pp.2363-78
10. Dr. Prerna Mahajan and Abhishek Sachdeva, "A Study of Encryption Algorithms Aes, Des and Rsa for Security", Global Journal of Computer Science and Technology Network, Web and Security 2013,Volume.13, Issue15, pp.15-22

24.	**Authors:**	**Lekshmi T, Smitha P S**
	Paper Title:	**Decorrelation By Principal Component Analysis For Multi Channel Acoustic Echo Cancellation System**

Abstract: In multi-channel acoustic echo cancellation (MAEC) system, thenon-uniqueness problem and misalignment problem occurs due to the correlation between the reference signals. It could affect convergence performance of the adaptive filtering. So many methods are proposed to get minimum error rate. In this paper, fuzzy logic is used to get minimum error function. The decorrelation is applied through the PCA method. The adaptive fuzzy fusion algorithm improvises, update and check operators obtain optimal solution for defined objective function. To obtain better solution the control parameters are adjusted. It achieves a superior performance in the echo reduction gain and offers the possibility of frequency selective decorrelation to further preserve the sound quality of the system. Simulationresult for the proposed algorithm has shown a significant improvement in convergence rate compared with existing system.

Keywords: Multi channel AEC, non-uniqueness problem, Misalignment problem, Principal component analysis.

References:

1. J. Herre, H. Buchner, W. Kellermann,"Acoustic echo cancellation for surround sound using perceptually motivated convergence enhancement,"IEEE ICASSP.,2007,pp.17-20. .
2. J. Benesty, D. R. Morgan, and M. M. Sondhi, 'A Better Understanding and an Improved Solution to the Specific Problems of Stereophonic Acoustic Echo Cancellation ," inIEEETranc.speech audio process,vol.6,no.2,pp 156-165,Mar.1998.
3. W. H. Khong, J.Benesty,andP.A. Naylor,"Stereophonic Acoustic Echo Cancellation: Analysis of the Misalignment in the Frequency Domain," IEEE Signal process.Lett., vol. 13,no. 1, pp 33-36. Jan.2006.
4. T. S.Wada and B.-H. Juang, "Multi-channel acoustic echo cancellation based on residual echo enhancement with effective channel decorrelation via resampling ,"inProc.IWAENC,2010.
5. D. R.Morgan, J. L. Hall, and J. Benesty, "Investigation of several types of nonlinearities for use in stereo acoustic echo cancellation, IEEE Trans. Speech Audio Process ,"Proc.IEEETranc.speech audio process., vol. 9, no. 6, pp. 686696, Sep. 2001.
6. J.Wung,T.S.Wada,and B.H.Juang,"Inter-Channel Decorrelation By SubBand Resampling In Frequency Domain," inProc.IEEE ICASSP , 2012, pp.29-32.
7. J.Wung,T.S.Wada, and B.H.Juang,"Inter channel decorrelation by sub band resampling for multi channel acoustic echo cancellation," IEEE Tranc. on signal processing ,vol. 62,no. 8,April 15,2014.
8. A.M.Geethu,K.S.Smitha, and D.Chengzhi,"A Fuzzy Logic Based Acoustic Echo Cancellation System,"International Journal of Engineering and Advanced Technology ,vol. 4, no. 6,August 2015, ISSN.2249-8958.
9. M.M.Sondhi, D.R. Morgan,andJ.L.Hall,"Stereo phonic acoustic echo cancellation -An overview of the fundamental problem, "IEEE Signal processing. Lett,vol. 2,no. 8,pp.148-151,Aug.1995.

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25.	**Authors:**	**S Viswanatha Rao, Sakuntala S Pillai**
	Paper Title:	**Increasing Throughput by Duty Cycle Adaptation in Wireless Sensor Networks with Energy Harvesting**

Abstract: Limited lifetime of batteries is a major constraint in Wireless Sensor Networks (WSNs). Reduction in duty cycle to conserve energy resulted in reduced throughput. With the advances in energy harvesting technologies there is considerable research interest in enhancing the performance of WSNs by incorporating the energy harvesting scenario in wireless nodes. To ensure proper operation of the sensor nodes in WSNs with energy harvesting, the design of MAC protocols need special consideration. This paper evaluates the performance of an energy harvesting WSN node, based on IEEE 802.15.4 MAC. The study establishes the fact that by suitably adapting the duty cycle, throughput of the node can be increased in addition to extending its lifetime considerably.

Keywords: duty cycle adaptation, energy harvesting, MAC, IEEE 802.15.4, Wireless Sensor Network.

References:

1. David Culler, Deborah Estrin, Mani Srivastava, "Overview of Sensor Networks", Computer, August 2004
2. F. Akyildiz, W. Su, Y. Sankarasubramaniam, and E. Cayirci, "A survey on sensor networks," IEEE Communications Magazine, Vol. 40, No. 8, pp. 102-114, August 2002
3. Demirkol, C. Ersoy, and F. Alagoz, "Energy efficient medium access control protocols for wireless sensor networks and its state-of-art," in IEEE International Symposium on Industrial Electronics, Vol. 1, pp. 669-674, May 2004.
4. W. Seah, Z. Eu, and H. Tan, "Wireless sensor networks powered by ambient energy harvesting (WSN-HEAP) - survey and challenges," in Wireless VITAE 2009, pp. 1–5, May 2009.
5. IEEE Std. 802.15.4-2006: Wireless Medium Access Control (MAC) and Physical Layer (PHY) Specifications for Low-Rate Wireless Personal Area Networks (WPANs), IEEE Std., September 2006.
6. Mirza, M. Owrang, and C. Schurgers, "Energy-efficient wakeup scheduling for maximizing lifetime of IEEE 802.15.4 networks," in Proceedings of First IEEE International Conference on Wireless Internet (WICON), pp. 130-137, 2005.
7. H. Yoo, M. Shim, and D. Kim, "Dynamic duty-cycle scheduling schemes for energy-harvesting wireless sensor networks," in IEEE Communications Letters, Vol. 16, No. 2, pp. 202-204, February 2012.
8. T. N. Le, A. Pegatoquet, O. Sentieys, O. Berder, and C. Belleudy, "Duty-cycle power manager for thermal-powered wireless sensor networks," in IEEE 24th International Symposium on Personal Indoor and Mobile Communications (PIMRC), pp. 1645-1649, 2013.
9. Castagnetti, A. Pegatoquet, T. N. Le, and M. Auguin, "A joint duty-cycle and transmission power management for energy harvesting WSN," in IEEE Transactions on Industrial Informatics, Vol. 10, No. 2, pp. 928-936, May 2014.
10. V. Raghunathan, A. Kansal, J. Hsu, J. Friedman, and M. B. Srivastava, "Design considerations for solar energy harvesting wireless embedded systems," in IEEE Information Processing in Sensor Networks (IPSN), pp. 457-462, 2005.
11. "The Network Simulator – NS-2," http://www.isi.edu/nsnam/ns/

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26.	**Authors:**	**Girish L, Gowreesh S S, Kousik S**

	Paper Title:	**Computational Analysis of a Multi-Cylinder Four Stroke SI Engine Exhaust Manifold System**	
	Abstract: In an internal combustion engines exhaust system plays a vital role in the enhancement of the combustion efficiency. A well designed exhaust manifold increases the performance of an IC engines. The designing of exhaust manifold is a complex procedure and is dependent on many parameters. The present work is fundamentally based. on the investigation of modelling of exhaust manifold of a multi-cylinder four stroke SI engine using computational analysis. The work is majorly focused on reducing .the backpressure at the outlet and also by increasing the velocity of the exhaust gases at the outlet of exhaust manifold system, which is leading to increase the performance of the engine. Commercially available CFD software tool is used for carrying out the present analysis. Flow through the exhaust manifold is analyzed using pressure and mass flow boundary conditions. **Keywords:** internal combustion, IC engines, CFD software, fundamentally **References:** 1. Mohd Sajid Ahmed, Kailash B A, Gowreesh, " Design and analysis of a multi-cylinder four stroke SI engine exhaust manifold using CFD technique", volume:02 Issue:09 Dec-2015 2. Vivekanand Navadagi, Siddaveer Sangamad. "CFD analysis of exhaust manifold of multi-cylinder petrol engine for optimal geometry to reduce back pressure", volume: 3 Issue :3 March-2014 3. Rajesh Bisane, Dhanajay katpatal, "Experimental investigation and CFD analysis of single cylinder four stroke CI engine exhaust system", volume:03 Issue:06 Jun-2014 4. KS Umesh, VK Pravin, K Rajagopal, " CFD analysis and experimental verification of effect of manifold geometry on volumetric efficiency and back pressure for multi-cylinder SI engine", volume:3, Issue:7 July-2013 5. KS Umesh, VK Pravin, K Rajagopal, "CFD analysis of exhaust manifold of multi-cylinder SI engine to determine optimal geometry for reducing emission", volume:3 Issue:4 Oct- 2013 6. PL.S. Muthaiah, Dr.M. Senthil kumar, Dr. S. Sendilvelan, "CFD analysis of catalytic converter to reduce particulate matter and achieve limited back pressure in Diesel engine", volume:10 Issue:5 Oct-2010 7. P. Seenikannan, V. M. Periasamy and P. Nagaraj, " A design strategy for volumetric efficiency improvement in a multi-cylinder stationary diesel engine its validty under transient operation",volume:5 issue:3, 2008 8. Yasar Deger, Bukhard simperl, Luis P. Jimenez, "Coupled CFD-FE-Analysis for the exhaust manifold of a diesel engine 2004	**121-126**
27.	**Authors:**	**Sunil S, Gowreesh S S, Veeresh B R**	
	Paper Title:	**Heat Transfer Enhancement and Thermal Performance of Extended Fins**	
	Abstract: A fin is an extended surface1which is used to increase the rate of heat transfer by connecting to the heating surface. The heat transfer rate can be increased by convection process and also by increasing surface area by means of extended surfaces. In the present analysis effect of increase in total surface area to improve the rate of heat transfer is studied. Thermal Analysis is performed for various perforated fin extensions with varied diameter. The analysis is carried out using commercially available finite element analysis software. Analysis called steady state thermal has been used to find out the temperature variations and heat flux of the fins. **Keywords:** extended surface, increase, process variations, temperature, be increased **References:** 1. Nitish Kumar Jha, Kailash B A, 'Heat Transfer Enhancement and Thermal Performance of Extended Surfaces with Cavity'. International journal of innovative research in science,engineering and technology, volume 4, issue 10, October 2015. 2. V. Karthikeyan, R. Suresh Babu, G. Vignesh Kumar. 'Design and Analysis of Natural Convective Heat Transfer Coefficient Comparison between Rectangular Fin Arrays with Perforated and Fin Arrays with Extension'. International journal of science, engineering and technology research (IJSETR), Volume 4, Issue 2, February 2015. 3. Shital B. Salunkhe, Dr. Rachayya R.Arakerimath. 'CFD and Experimental Analysis of Various Extended Surfaces for Heat transfer Enhancement'. International journal of engineering technology, management and applied sciences, volume 3, issue 1, January 2015. 4. Pardeep singh, Harvinder lal, Baljith singh ubhi, 'Design and Analysis for Heat Transfer through Fin with Extensions'. International journal of innovative research in science, volume 3, issue 5, may 2015. 5. Mukesh Didwania, Gopal Krishnan, Ravikant, 'Study and Analysis of Heat Transfer through Two Different Shape Fins using CFD Tool'. International journal of IT, engineering and applied sciences research, volume 2, issue 4, April 2013.	**127-131**
28.	**Authors:**	**Alpyspayeva Gal'ya Aitpaevna, Sayakhimova Sholpan Nazarbekovna**	
	Paper Title:	**Ecological Culture of the City Environment of Astana**	
	Abstract: The article «Ecological Culture of the City Environment Of Astana» deals with the urban environment of ecology in the historical retrospection of Astana - the capital of the modern Republic of Kazakhstan. The solution of urban environment problems, the authors analyze in the context of social and cultural development of the city. On the basis of archival materials the natural character of the environmental problems of pre-revolutionary city Akmola is justified. Using archival sources shows the inadequacy and utopian ideas of purposeful formation of ecologically safe urban districts in the Soviet city of Tselinograd. The features of the solution of environmental problems of the city through the use of new technologies in the project for the construction of Astana are shown. **Keywords:** city, urban environment, the ecological environment of the city, urbanization, Akmola - the city of the XIX century, Tselinograd - Soviet city, Astana - the capital of Kazakhstan. **References:** 1. The first General population census of Russian empire. 1897. Publishing center of the statistics committee M.I.A.Under edition by. N.A.Trojnitsky. 2. LXXXI. Akmolinsk area. SP., 1904.-136p. 3. The state archive of Astana. F.286. I.1. D.38. P.53. 4. The state archive of Astana. F.32. I.10. D.1165. P.91. 5. The state archive of Astana. F.32. I.3.D.8. P.51. 6. The state archive of Astana. F.32. I.5. D.245. P.3.	**132-134**

7. The state archive of Astana. F.32. I.10. D.8. P.1.
8. The state archive of Astana. F.32. I.5. D. 245. P.15.

29.	**Authors:**	**Nikita Runijha, Abhishek Shrivastava**
	Paper Title:	**A Novel Algorithm for Finger Knuckle Print Recognition**

Abstract: Biometrics is the technique of authentication of a person on the basis of biometrics traits. Due to its reliability and accuracy it has been explored extensively. Fingerprint, iris, hand geometry, palm, face etc are some of the common biometrics traits that can be used successfully for authentication of a person. The accuracy and reliability of the biometrics based authentication system depends on the various important features and feature extraction techniques. Extracted features from the biometrics must be having uniqueness for making biometrics system reliable. This paper present a finger knuckle print based biometric system for person authentication. Radon transform is used for extracting the features of the inner knuckle print image. Simulation results reveals that the proposed system perform very well in recognizing the person with good accuracy.

Keywords: knuckle print, Biometrics, finger features, recognition system.

References:

1. A.K. Jain, P. Flynn, A. Ross, Handbook of Biometrics, Springer, 2007.
2. D. Maltoni, D. Maio, A.K. Jain, S. Prabhakar, Handbook of Fingerprint Recognition, Springer, 2003.
3. N. Ratha, R. Bolle, Automatic Fingerprint Recognition Systems, Springer, 2004.
4. K. Delac, M. Grgic, Face Recognition, I-Tech Education and Publishing, 2007.
5. H. Wechsler, Reliable Face Recognition Methods - System Design, Implementation and Evaluation, Springer, 2006.
6. J. Daugman, High confidence visual recognition of persons by a test of statistical independence, IEEE Trans. Pattern Analysis and Machine Intelligence 15 (11) (1993) 1148-1161.
7. J. Daugman, How iris recognition works, IEEE Trans. Circuits and Systems for Video Technology 14 (1) (2004) 21-30.
8. R. B. Hill, Retinal identification, in Biometrics: Personal Identification in Networked Society, A. Jain, R. Bolle, and S. Pankati, Eds., Kluwer Academic, 1999.
9. H. Borgen, P. Bours, S.D. Wolthusen, Visible-Spectrum Biometric Retina Recognition, in: Proceedings of the International Conference on Intelligent Information Hiding and Multimedia Signal Processing, 2008, pp.1056-1062.
10. Z.H. Guo, D. Zhang, L. Zhang, W.M. Zuo, Palmprint verification using binary orientation co-occurrence vector, Pattern Recognition Letters 30 (13) (2009) 1219-1227.
11. D. Zhang, W. K. Kong, J. You, M. Wong, Online palmprint identification, IEEE Trans. Pattern Analysis and Machine Intelligence 25 (9) (2003) 1041-1050.
12. W. K. Kong, D. Zhang, Competitive coding scheme for palmprint verification, in: Proceedings of the ICPR'04, 2004, pp. 520-523.
13. Kong, D. Zhang, M. Kamel, Palmprint identification using feature-level fusion, Pattern Recognition 39 (3) (2006) 478-487.
14. Z.N. Sun, T.N. Tan, Y.H. Wang, S.Z. Li, Ordinal palmprint representation for personal identification, in: Proceedings of CVPR'05, 2005, pp. 279-284.
15. D.S. Huang, W. Jia, D. Zhang, Palmprint verification based on principal lines, Pattern Recognition 41 (4) (2008) 1316-1328.
16. W. Jia, D.S. Huang, D. Zhang, Palmprint verification based on robust line orientation code, Pattern Recognition 41 (5) (2008) 1504-1513.
17. A.K. Jain, A. Ross, S. Pankanti, A prototype hand geometry-based verification system, in: Proceedings of the 2nd International Conference on Audio- and Video-based Biometric Person Authentication, 1999, pp. 166–171.
18. R. Sanchez-Reillo, C. Sanchez-Avila, A. Gonzalez-Marcos, Biometric identification through hand geometry measurements, IEEE Trans. Pattern Analysis and Machine Intelligence 22 (10) (2000) 1168-1171.
19. A.K. Jain, N. Duta, Deformable matching of hand shapes for verification, in: Proceedings of ICIP'99, 1999, pp. 857–861.
20. J.G. Wang, W.Y. Yau, A. Suwandy, E. Sung, Personal recognition by fusing palmprint and palm vein images based on "Lapacianpalm" representation, Pattern Recognition 41 (5) (2008) 1531-1544.
21. Kumar, K.V. Prathyusha, Personal authentication using hand vein triangulation, in: Proceedings of SPIE Biometric Technology for Human Identification, vol. 6944, 2008, pp. 69440E-69440E-13.
22. D.L. Woodard, P.J. Flynn, Finger surface as a biometric identifier, Computer Vision and Image Understanding 100 (3) (2005) 357–384.
23. D.L. Woodard, P.J. Flynn, Personal identification utilizing finger surface features, in: Proceedings of CVPR'05, vol. 2, 2005, pp. 1030-1036.
24. Ravikanth, A. Kumar, Biometric authentication using finger-back surface, in: Proceedings of CVPR'07, 2007, pp. 1-6.
25. Kumar, C. Ravikanth, Personal authentication using finger knuckle surface, IEEE Trans. Information Forensics and Security 4 (1) (2009) 98-109.
26. Kumar, Y. Zhou, Human identification using knucklecodes, in: Proceedings of BTAS'09, 2009.
27. Kumar, Y. Zhou, Personal identification using finger knuckle orientation features, Electronic Letters 45 (20) (2009) 1023-1025.
28. H. Hollien, Forensic voice identification, Academic Press, 2002.
29. M. Burge, W. Burger, Ear biometrics, in: Biometrics:Personal Identification in Networked Society, A.K. Jain, R.Bolle, S. Pankanti, Eds., pp. 273-286, Kluwer Academic, 1999.
30. M.S. Nixon, T.N. Tan, R. Chellappa, Human Identification Based on Gait, Springer, 2006.
31. R. Plamondona and G. Loretteb, Automatic signature verification and writer identification — the state of the art, Pattern Recognition 22 (2) (1989) 107-131.
32. M.S. Nixon, T.N. Tan, R. Chellappa, Human Identification Based on Gait, Springer, 2006.
33. R. Plamondona and G. Loretteb, Automatic signature verification and writer identification — the state of the art, Pattern Recognition 22 (2) (1989) 107-131.

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30.	**Authors:**	**Arpit Varshnry, Smrati Singh, Deepti Gupta**
	Paper Title:	**Simulation of Standalone Wind Energy Conversion System using PMSG**

Abstract: In this paper a wind energy conversion system (WECS) is designed to supply power to a standalone system consisting of permanent magnet synchronous generator (PMSG), a rectifier system, and inverter system to get the desired constant ac voltage respectable of variable wind speed to extract power from the fluctuating wind, controlling of the wind turbine is done by controlling the pitch angle of turbine. This power is transferred to dc link capacitor through controlled rectifier. This constant dc link voltage is converted into ac of desired amplitude and frequency. Based on extensive simulation results using MATLAB/SIMULINK, it has been established that the performance of the controllers both in transient as well as in steady state is quite satisfactory and it can also maintain maximum power point tracking

Keywords: PMSG, WECS, Inverter, Rectifier, Pitch controller, Variable speed wind turbine

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References:

1. S. Müller, M. Deicke, and W. De DonckerRik, "Doubly fed induction generator system for wind turbines," IEEE Ind. Appl. Mag., vol. 8, no.3, pp. 26–33, May/Jun. 2002.
2. H. Polinder, F. F. A. van der Pijl, G. J. de Vilder, and P. J. Tavner, "Comparison of direct-drive and geared generator concepts for wind turbines," IEEE Trans. Energy Convers., vol. 21, no. 3, pp. 725–733, Sep. 2006 H. Poor, An Introduction to Signal Detection and Estimation. New York: Springer-Verlag, 1985, ch. 4.
3. T. F. Chan and L. L. Lai, "Permanent-magnet machines for distributed generation: A review," in Proc. 2007 IEEE Power Engineering Annual Meeting, pp. 1–6.
4. Chinchilla, M.; Arnaltes, S.; Burgos, J.C. Control of permanent-magnet generator applied to variable-speed wind-energy system connected to the grid. IEEE Trans. Energy Convers. 2006, 21, 130–135.
5. Thongam, J.S.; Bouchard, P.; Ezzaidi, H.; Ouhrouche, M. Wind Speed Sensorless Maximum Power Point Tracking Control of Variable Speed Wind Energy Conversion Systems. In Proceeding of the IEEE International Conference on Electric Machines and Drives, Miami, FL, USA, 3–6 May 2009; pp. 1832–1837.
6. Tan, K.; Islam, S. Optimum control strategies in energy conversion of PMSG wind turbine system without mechanical sensors. IEEE Trans. Energy Convers. 2004, 19, 392–399.
7. Rolan, A.; Luna, A.; Vazquez, G.; Aquilar, D.; Azevedo, G. Modeling of a Variable Speed Wind Turbine with Permanent Magnet Synchronous Generator. In Proceeding of the IEEE International Symposium on Industrial Electronics, Seoul, Korea, 5–8 July 2009; pp. 734–739.
8. Janardan gupta, Ashwani kumar "Fixed pitch wind turbine based permanent magnet synchronous machine model for wind energy conversion" www.onlinejet,net
9. Alejandro Rolan', Alvaro Luna, Gerardo Vazquez,Daniel Aguilar, Gustavo Azevedo "Modeling of a Variable Speed Wind Turbine with a Permanent Magnet Synchronous Generator" IEEE International Symposium on Industrial Electronics (ISlE 2009) Seoul Olypic Parktel, Seoul, Korea July 5-8, 2009
10. Jianzhong Zhang, Ming Cheng, Zhe Chen, Xiaofan Fu" Pitch Angle Control for Variable Speed Wind Turbines" DRPT2008 6-9 April 2008 Nanjing China
11. C. N. Bhende, S. Mishra, Senior Member, IEEE, and Siva Ganesh Malla "Permanent Magnet Synchronous Generator-Based Standalone Wind Energy Supply System" IEEE Transactions on Sustainable Energy, VOL. 2, NO. 4, October 2011 361

31.

Authors: **Aayesha Ali, Ritesh Bohra**

Paper Title: **Design and Development of Mine Monitoring System using Embedded System**

Abstract: Coal mine is the area which is very sensitive and prone to accident. Toppling of the roof in coal mine tunnel, hazardous gases, flooding are the main reason of accidents in the coal mines. The life of the mine workers are always in danger due to theses threats. It is very important to assess the situation inside the coal mine in term of safety and security of the mine workers. This paper present the monitoring system design for the coal miner which can detect the hazardous gas, humidity and temperature and with the built in wireless module can send these information to the receiver section.

Keywords: Robot, coal-mines, SAR, sensors, Wireless.

References:

1. Bharathi, B. Suchitha Samuel, "Design and Construction of Rescue Robot and Pipeline Inspection Using Zigbee",International Journal of Scientific Engineering and Research ISSN (Online): 2347-3878 Volume 1 Issue 1, September 2013.
2. Bruno Siciliano, Oussama Khatib, Springer handbooks of robotics: Part 50. Search and Rescue Robotics, 2008.
3. Dip N. Ray, R. Dalui, A. Maity, S. Majumder, "Sub-terranean Robot: A Challenge for the Indian Coal Mines", The Online Journal on Electronics and Electrical Engineering (OJEEE), Vol. (2) – No. (2), pp. 217-222.
4. Jeremy Green, "Mine Rescue Robots Requirements - Outcomes from an industry workshop", Proceedings of 6th Robotics and Mechatronics Conference (RobMech) Durban, South Africa, October 30-31, 2013, pp. 111-116.
5. Robert H. King , "Preliminary Specifications For Robotic Applications in Mines", A Presentation for the Second Conference on Robotics in Construction June 24- 26, 1985 at Carnegie-Mellon University, pp. 104-110.
6. Erkmen, Ismet, et al. "Snake robots to the rescue!." Robotics & Automation Magazine, IEEE 9.3 (2002): 17-25.
7. Casper, Jennifer, and Robin Roberson Murphy. "Human-robot interactions during the robot-assisted urban search and rescue response at the World Trade Center." Systems, Man, and Cybernetics, Part B: Cybernetics, IEEE Transactions on 33.3 (2003): 367-385.
8. Matsuno, Fumitoshi, and Satoshi Tadokoro. "Rescue robots and systems in Japan." Robotics and Biomimetics, 2004. ROBIO 2004. IEEE International Conference on. IEEE, 2004.
9. Wang Tingjun, Sun Jin and Chen Yankang, "Design of a mobile machinism for missing miner search robots in underground mines", Journal of China University of Mining and Technology (Egnish edition), vol.16 no.2 Jun. 2006
10. Zeng Weixin, "Exploration for Human Factors in the Design of Coal- mine Safety and Rescue Devices", IEEE International Conference on Robotics , July 5, 2006.
11. Gabriely, Y.; Rimon, E.; " CBUG: A Quadratically Competitive Mobile Robot Navigation Algorithm". Robotics, IEEE Transactions on Volume 24, Issue 6, Dec. 2008 Page(s):1451 - 1457.
12. GAO junyao, GAO xueshan, ZHU jianguo, ZHU wei, WEI boyu, WANG shilin ,"Coal Mine Detect and Rescue Robot Technique Research" , IEEE International Conference on Information and Automation,June 22 - 25, 2009.
13. Murphy, Robin R., et al. "Mobile robots in mine rescue and recovery." Robotics & Automation Magazine, IEEE 16.2 (2009): 91-103.
14. J. Baca, M. Ferre, R. Aracil and A. Campos. 2010. "A Modular Robot Systems Design and Control Motion Modes for Locomotion and Manipulation Tasks", International Conference on Intelligent Robots and Systems.
15. Zhigang, Niu, and Wang Lu. "Hazardous Gas Detecting Method Applied in Coal Mine Detection Robot." Measuring Technology and Mechatronics Automation (ICMTMA), 2011 Third International Conference on. Vol. 2. IEEE, 2011.
16. Heng, Iem, Andy S. Zhang, and Ali Harb. "Using solar robotic technology to detect lethal and toxic chemicals." Global Humanitarian Technology Conference (GHTC), 2011 IEEE. IEEE, 2011.
17. Kuntze, H., et al. "SENEKA-sensor network with mobile robots for disaster management." Homeland Security (HST), 2012 IEEE Conference on Technologies for. IEEE, 2012.
18. P.K. Mishra et al., "RFID Technology for Tracking and Tracing the Explosives and Detonators in Mining Services Applications,"J. Applied Geophysics, vol. 76, Jan. 2012, pp. 33–43.
19. R.Aswini, Jyothi.K.G and Neethu Johny , International Journal of Emerging Trends in Electrical and Electronics (IJETEE) Vol. 1, Issue. 3, March-2013.
20. B. Bharathi, B. Suchitha Samuel, "Design and Construction of Rescue Robot and Pipeline Inspection Using Zigbee", International Journal of Scientific Engineering and Research ISSN (Online): 2347-3878 Volume 1 Issue 1, September 2013.

32.

Authors: **M. Amr Mokhtar**

Paper Title: **Physical Layer Comparison Between LTE, OFDM and WIMAX**

	Abstract: this paper presents simulation results along with underlying assumptions. In the first part, LTE uplink and performed link level simulations of Single Carrier Frequency Domain Equalization (SC-FDE) and SC-FDMA in comparison with OFDM, has been investigated. Two types of multipath channels, i.e. ITU Pedestrian A and ITU Vehicular A channels, have been used. In addition an Additive White Gaussian Noise (AWGN) channel is also used. Furthermore, the simulation of PAPR is performed for SC-FDMA and OFDMA systems. In the second part of this paper, the capacity of the MIMO system and performed a comparison with SISO, has been analyzed, and two significant 4G evolved technologies like LTE and WIMAX. They played an important role in the high speed communication systems with higher data rates, higher system capacity and robustness against bad channel conditions, thanks also to the two advanced technologies like MIMO (multi input multi output) and multicarrier aggregation for updating the LTE and WIMAX with higher bandwidth, higher data rates and better coverage. **Keywords:** OFDM, SC-FDE, SC-FDMA, AWGN, PAPR, MIMO, SISO, LTE, WiMax **References:** 1. Sassan Ahmadi, Mobile WIMAX. A systems approach to understanding IEEE 802.16m radio access technology, Academic press Elsevier, and 2011. 2. Eric Dahlman, Stefan Parkvall and Johan Skold, 4G LTE-Advanced for Mobile Broadband, Academic press Elsevier, 2011. 3. Zakhia Abichar and J.Morris Chang, WIMAX VS. LTE: who will lead the broadband mobile internet?, IEEE computer society, 2010. 4. Jeffrey G. Andrews, Arunabha Ghosh and Rias Muhamed, Fundamentals of WIMAX Understanding Broadband Wireless Networking, prentice hall series, February 2007. 5. Eric Dahlam, Stefan Parkvall, Johan Skold, 3G Evolution - HSPA and LTE for Mobile Broadband. Elsevier Ltd.2008.2ndEd. 6. Berge Ayvazian, WIMAX advanced to harmonized with TD-LTE, white paper, Heavy reading website, November 2013	**151-157**
33.	**Authors:** **Garima Govil, Amardeep Dixit** **Paper Title:** **Effect of Compression Level on the Performance of Image Transmission & Compression System under AWGN Channel**	
	Abstract: Data compression is "process of reducing the amount of data required to represent a given quantity of information". Therefore, data and information are not having the same meaning as is often mentioned. Instead, Data is to convey information in their vehicle. Because the same information can be carried across the channel by varying the amount of data, This unnecessary data, which do not have actual information, is commonly referred to as redundant. Data redundancy is the core concept of image compression. Image compression encodes the actual data in few bits. Here we are analyzing the effect of compression level on different performance assets like PSNR (Peak Signal to noise ratio), MSE (Mean Squared Error), BER (Bit Error Rate) in the image transmission and compression system under AWGN Channel. We are using DCT (Discrete Cosine Transform) coding for the image compression. DCT is similar to DFT (Discrete Fourier Transform) rather deals only with the real values, So the computation complexity of the system decreases. **Keywords:** AWGN, BER, DCT, PSNR, MSE, Transform Coding, QPSK. **References:** 1. Nikita Bansal, Sanjay Kumar Dubey , "Image Compression using Hybrid Transform Technique" , Journal of Global Research in Computer Science, Vol. 4 No.1 Jan 2013. 2. A.K. Katharotiya, S. Patel and M. Goyani, "Comparative Analysis between DCT & DWT Techniques of Image Compression", Journal of Information Engineering and Applications, Vol 1, No.2, 2011. 3. Oussama Ghorbel , Walid Ayedi , Mohamed Wasim Jmal and Mohamed Abid , "DCT & DWT Images Compression Algorithms in Wireless Sensors Networks: Comparative Study and Performance analysis" International Journal of Wireless & Mobile Networks (IJWMN) Vol. 4, No. 6, December 2012 4. A.M.Raid, W.M.Khedr, M. A. El-dosuky and Wesam Ahmed, "Jpeg Image Compression Using Discrete Cosine Transform - A Survey" , International Journal of Computer Science & Engineering Survey (IJCSES) Vol.5, No.2, April 2014, DOI : 10.5121/ijcses.2014.5204 5. Priyanka Dixit, Mayanka Dixit, "Study of JPEG Image Compression Technique Using Discrete Cosine Transformation", International Journal of Interdisciplinary Research and Innovations (IJIRI), Vol. 1, Issue 1, pp: (32-35), Month: October-December 2013. 6. S. Anitha, "Image Compression Using Discrete Cosine Transform & Discrete Wavelet Transform", International Journal of Scientific & Engineering Research, Vol. 2, No. 8, 2011.	**158-162**
34.	**Authors:** **Ammu Archa.P, Lekshmy.D. Kumar** **Paper Title:** **Entity Resolution Methods–A Survey**	
	Abstract: In the real world, entities have two or more references in databases. Such multiple representations do not share anything in common and thus make duplicate detection a difficult task. Entity resolution or record linkage or deduplication is the process of identifying the records that refer to the same entity. Entity resolution is a challenging task particularly for entities that are highly heterogeneous and of low data quality. Due to the high importance and difficulty of the entity resolution problem, there are numerous approaches that have been proposed to solve ER problems. As there are different entity resolution approaches there is a strong need for comparative evaluations of different schemes. In this paper, different frameworks for entity resolution are studied**.** **Keywords:** ER Diagram. **References:** 1. Peter Christen, "A Survey of Indexing Techniques for Scalable Record Linkage and Deduplication", ieee transactions on knowledge and data engineering, vol. 24, no. 9, september 2012 1537 2. Lingli Li, Jianzhong Li, and Hong Gao, "Rule-Based Method for Entity Resolution", IEEE trans on knowledge and data engineering, vol. 27, no. 1, January 2015. 3. Ahmed K. Elmagarmid, Panagiotis G. Ipeirotis, and Vassilios S. Verykios, "Duplicate Record Detection", IEEE January 2007. 4. Chatterjee and A. Segev, "Data Manipulation in Heterogeneous Databases", ACM SIGMOD Record, vol. 20, no. 4, pp. 64-68, Dec. 1991. 5. IEEE Data Eng. Bull., S. Sarawagi, ed., "special issue ondata cleaning", vol. 23, no. 4, Dec. 2000.	**163-165**

6. T. Churches, P. Christen, K. Lim, and J. X. Zhu, "Preparation of name and address data for record linkage using hidden Markov models", Biomed Central Medical Informatics and Decision Making, 2(9), 2002.
7. L. Breiman, J.H. Friedman, R.A. Olshen, , and C.J Stone. "Classification and Regression Trees". Wadsworth, Belmont", Ca, 1983.
8. H.B. Newcombe, J.M. Kennedy, S. Axford, and A. James, "Automatic Linkage of Vital Records", vol 130, Science, no. 3381, pp. 954-959, Oct. 1959.
9. Breiman, L., Friedman, J.H., Olshen, R., and Stone, C.J., 1984,"Classification and Regression Tree Wadsworth & Brooks/Cole Advanced Books & Software", Pacific California.
10. S. Sarawagi and A. Bhamidipaty, "Interactive Deduplication Using Active Learning," Proc. Eighth ACM SIGKDD Int'l Conf. Knowledge Discovery and Data Mining (KDD '02), pp. 269-278, 2002.
11. Mikhail Bilenko and Raymond J. Mooney, "Adaptive Duplicate Detection Using Learnable String Similarity Measures", Proceedings of the Ninth ACM SIGKDD International Conference on Knowledge Discovery and Data Mining(KDD-2003), Washington DC, pp.39-48, August, 2003
12. A. K. McCallum, K. Nigam, and L. Ungar, "Efficient clustering of high-dimensional data sets with application to reference matching"., Boston, MA, Aug. 2000.

35.

Authors: **Sabin S Sabu, Sandhya L, Subha Varier G**

Paper Title: **Robust Video Compression System for Onboard Space Application**

Abstract: To efficiently transmit the huge volume of data captured during the stage separation of a spacecraft system, it is very necessary and important to find out efficient and advanced video compression techniques. In space missions, the available bandwidth for video transmission and power are critical parameters under consideration. Commercially available video compression techniques generally fail to meet the constrained power and bandwidth requirement of the space missions. This anticipates the need for better compression tools which suits the demands of onboard systems in terms of higher compression efficiency and lesser computational time. In this paper, we propose to develop an entropy based video compression approach based on H.264 standard which tends to exploit the pertinent temporal and spatial redundancy in video frames. The most time consuming part of H.264 encoder is the inter prediction stage. Here we compared four types of search algorithm for inter prediction in terms of PSNR time and chooses the best search algorithm for our proposed system.

Keywords: H.264, compression efficiency, inter prediction, PSNR, temporal redundancy

References:

1. F. O. Devaux, J. Meessen, C. Parisot, J. F. Delaigle, B. Macq and C. De Vleeschouwer, "Remote Interactive Browsing of Video Surveillance Content Based on JPEG 2000," in IEEE Transactions on Circuits and Systems for Video Technology, vol. 19, no. 8, pp. 1143-1157, Aug. 2009.
2. Neelamani, R. de Queiroz, Zhigang Fan, S. Dash and R. G. Baraniuk, "JPEG compression history estimation for color images," in IEEE Transactions on Image Processing, vol. 15, no. 6, pp. 1365-1378, June 2006.
3. Choi, J. Lee and B. Jeon, "Fast Coding Mode Selection With Rate-Distortion Optimization for MPEG-4 Part-10 AVC/H.264," in IEEE Transactions on Circuits and Systems for Video Technology, vol. 16, no. 12, pp. 1557-1561, Dec. 2006.
4. j. Chen, Z. x. Zhang and X. Luo, "Efficient Block-Matching Motion Estimation Algorithm Based on Temporal and Spatial Correlation for H.264," Intelligent Information Hiding and Multimedia Signal Processing, 2008. IIHMSP '08 International Conference on, Harbin, pp. 446-449, 2008.
5. C. Shenolikar and S. P. Narote, "Different approaches for motion estimation," Control, Automation, Communication and Energy Conservation, 2009. INCACEC 2009. 2009 International Conference on, Perundurai, Tamilnadu, pp. 1-4, 2009.
6. Nisar and T. S. Choi, "An advanced center biased three step search algorithm for motion estimation," Multimedia and Expo, 2000. ICME 2000. 2000 IEEE International Conference on, New York, NY, pp. vol.1, 95-98, 2000.
7. Lai-Man Po and Wing-Chung Ma, "A novel four-step search algorithm for fast block motion estimation," in IEEE Transactions on Circuits and Systems for Video Technology, vol. 6, no. 3, pp. 313-317, Jun 1996..
8. Jo Yew Tham, S. Ranganath, M. Ranganath and A. A. Kassim, "A novel unrestricted center-biased diamond search algorithm for block motion estimation," in IEEE Transactions on Circuits and Systems for Video Technology, vol. 8, no. 4, pp. 369-377, Aug 1998.

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36.

Authors: **Kamlesh Patel, Abhishek Thoke**

Paper Title: **An Improved Detection and Prevention method for Defending Packet drop and DOS Attacks in Mobile Ad hoc Networks**

Abstract: In recent year with the widespread use of mobile device, Mobile Ad hoc networks (MANETs) technology has been attracted attention day by day. Specially, MANETs suit for military operations and the emergent disasters rescue that need to overcome terrain and special purpose in urgent. The fact that mobile ad-hoc networks lack fixed infrastructure and use wireless link for communication makes them very susceptible to an adversary's malicious attacks. Black hole attack is one of the severe security threats in ad-hoc networks which can be easily employed by exploiting vulnerability of on-demand routing protocols such as AOMDV. Furthermore, DOS attack is a fairly new type of attack to cripple the availability of Internet services and resources. A DOS attack can originate from anywhere in the network and typically overwhelms the victim server by sending a huge number of packets. In this paper, we have proposed a solution based on malicious detection and prevention method to defend black hole and DOS attacks imposed by both single and multiple nodes. Result of a simulation study proves the particular solution maximizes network performance by minimizing generation of control (routing) packets. The effectiveness of our mechanism is illustrated by simulations conducted using network simulator ns-2.

Keywords: AOMDV, Routing Protocol, Black-hole, DOS, Communication, Network Simulator

References:

1. Pradip M. Jawandhiya and Mangesh M. Ghonge, "A Survey of Mobile Ad Hoc Network Attacks", / International Journal of Engineering Science and Technology, Vol. 2(9), PP. 4063-4071, 2010.
2. G.S. Mamatha and S.C. Sharma, "A Robust Approach to Detect and Prevent Network Layer Attacks in MANETS", International Journal of Computer Science and Security, vol. 4, issue 3, Aug 2010, pp. 275-284.
3. Mohammad Al-Shurman, and Seungjin Park, "Black Hole Attack in Mobile Ad Hoc Networks", ACMSE, April 2004, pp.96-97.
4. Anu Bala, Munish Bansal and Jagpreet Singh, "Performance Analysis of MANET under Black-hole Attack", First International Conference on Networks & Communications, 2009, pp. 141-145.

170-176

5. Gao Xiaopeng and Chen Wei,"A Novel Gray Hole Attack Detection Scheme for Mobile Ad-Hoc Networks", 2007 IFIP International Conference on Network and Parallel Computing – Workshops, 2007, pp. 209-214
6. Piyush Agrawal, R and Sajal K. Das, "Cooperative Black and Gray Hole Attacks in Mobile Ad Hoc Networks", 2nd international conference on Ubiquitous information management and communication, 2008, pp.310-314.
7. Chen Wei, and Gao Xiaopeng,"A New Solution for Resisting Gray Hole Attack in Mobile Ad-Hoc Networks", Second International Conference on Communications and Networking in China, August 2007, pp. 366-370.
8. Sukla Banerjee, "Detection/Removal of Cooperative Black and Gray Hole Attack in Mobile Ad-Hoc Networks", World Congress on Engineering and Computer Science, October 2008, pp. 337-342.
9. Adnan Nadeem and Michael Howarth, "Adaptive Intrusion Detection & Prevention of Denial of Service attacks in MANETs", Proceedings of the 2009 International Conference on Wireless Communications and Mobile Computing: Connecting the World Wirelessly Pages 926-930
10. Priyadharshini and Dr. K. Kuppusamy, "Prevention of DDOS Attacks using New Cracking Algorithm", International Journal of Engineering Research and Applications, Vol. 2, Issue 3, May-Jun 2012, pp.2263-2267
11. Analysis on Impact of Black Hole Attack on AODV and AOMDV", CHAPTER 2, available online: http://shodhganga.inflibnet.ac.in/bitstream/10603/24748/7/07_chapter2.pdf.
12. Juan-Carlos Ruiz, JesúsFriginal, David de-Andrés, Pedro Gil, "Black Hole Attack Injection in Ad hoc Networks".
13. Fan-Hsun Tseng1, and Han-Chieh Chao, "A survey of black hole attacks in wireless mobile ad hoc networks", Tseng et al. Human-centric Computing and Information Sciences 2011
14. Neetika Bhardwaj, Rajdeep Singh, "Detection and Avoidance of Black-hole Attack in AOMDV Protocol in MANETs", International Journal of Application or Innovation in Engineering & Management (IJAIEM), PP. 376 – 383, Volume 3, Issue 5, May 2014.
15. Bounpadith Kannhavong, Hidehisa Nakayama, Yoshiaki Nemoto, and Nei Kato, Abbas Jamalipour, "A survey of routing attacks in mobile ad hoc networks"
16. The Network Simulator. NS-2 [Online] http://www.isi.edu/nsnam/ns/

37.

Authors: **Amina K, Lekshmy P L**

Paper Title: **A Survey on Data Mining Classifiers for Face Verification**

Abstract: Nowadays the human face plays an important role inour social interaction, conveying peoples identity. Face recognition is a rapidly growing field today for many uses in the fields of biometric authentication, security and many other areas. An automatic face recognition system will find many applications such as human computer interface; model based video coding and security control systems. Face Recognition System is a computer application for automatically identifying or verifying a person from a digital image or a single frame from a video source. This can be done by comparing selected facial characteristics of the likeness and a facial database. The difficulties of face recognition arising from face characteristics, geometry, image quality and image content. In this paper there are different data mining classifiers are used for face verification. Also we shall see their advantages, disadvantages and solutions to overcome the problems.

Keywords: Face recognition system, support vector machine (SVM), Discriminative Multi-Projection Vectors (DMPV), Gaussian mixture model (GMM).

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References:

1. Xiaoguang lu, Image analysis for face recognition, department of computer science and engineering. Michigan state university, east lansing, MI, 48824.
2. Neva cherniavsky, ivan laptev, Josef sivic, Andrew zisserman, Semi supervised learning of facial attributes in video, laboratoire d'informatique de l'ecole normale superieuer, ENS/INRIA/CNRS UMR 8548, dept. Of engineering science, university of oxford.
3. David maship gata Lapedriza, and Jordi Vitri Boosted Online Learning for Face Recognition , IEEE transactions on systems, Vol 39, no.2, april 2009.
4. Marcos del Pozo-Baos, Carlos M. Travieso, Jess B. Alonso, Miguel A. Ferrer Discriminative Multi-Projection Vectors: Modifying the Discriminative Common Vectors Approach for Face Verification,Departament of Sealesy Comunicaciones University of Las Palmas de Gran Canaria.
5. Haoxiang Li,Zhe Lin,Jonathan Brandt, Probabilistic Elastic Matching for Pose Variant Face Verification,2013 IEEE Conference on Computer Vision and Pattern Recognition.
6. Meina Kan, Dong Xu,Shiguang Shan,Wen Li,Xilin Chen, Learning Prototype Hyperplanes for Face Verification in the Wild, IEEE transactions on image processing vol.22, no.8, august 2013.
7. Sina Mohseni1, Niloofar Zarei, Saba Ramazani, Facial Expression Recognition using Anatomy Based Facial Graph, 2014 IEEE International Conference on Systems, Man, and Cybernetics October 5-8, 2014, San Diego, CA, USA.

38.

Authors: **Arya Krishnan G, Nishy Reshmi S**

Paper Title: **A Survey On The Techniques for Traffic Sign Detection And Workzone Identification**

Abstract: Road Sign Recognition is a field of computer vision.Fast real-time and robust automatic traffic sign detection can significantly increase driving safety and comfort.Automatic detection and recognition of traffic sign is also important for an automated intelligent driving vehicle or for driver assistance systems.This paper provides a comprehensive survey on traffic sign detection and recognition techniques based on image and video data on automated driving vehicles and a comparative study between different methods used by various researchers.This also contains a new challenge faced by an autonomous vehicle that how they respond to an unexpected road conditions,such as highway workzones,because such unusual events can alter previously known traffic rules and road geometry.

Keywords: Computer Vision, Highway worzone recognition,Traffic sign recognition

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References:

1. S. Ali, Ameer Ali and Colin Cole ,"Smart Driving: A New Approach to Meeting Driver Needs",International Conference on Industrial Engineering,2010
2. Tang Jin; L Xiong;Xie Bin; C Fangyan; Liu Bo," A method for traffic signs detection and recognition", (ICCSE),2010.
3. Jesmin F.K,Sharif Bhuiyan,and Reza R A," Image Segmentation and Analysis for Road-Sign Detection",IEEE Transactions on Intelligent Transportation Systems,March 2011.
4. Y.Aoyagi,T.Asakura. "A study on traffic sign recognition in scene image using genetic algorithms and neural networks" International conference on Industrial Electronics Control and Instrumentation 1996.
5. Robert E.U ,"Introduction to Artificial Neural Networks", Proceedings of the 1995 IEEE IECON International Conference,1995.

6. M Seetha, Muralikrishna, B.L. B.L.Malleswari, Nagaratna, P.Hegde, "Artificial Neural Networks and methods for Image Classification",Journal of Theoretical and Applied Information Technology,2008.
7. Grigorescu C.and Petkov N., "Distance sets for shape filters and shape recognition", IEEE Transactions on image Processing.
8. Mrs. C. Mythili and Dr. V. Kavitha, "Efficient Technique for Color Image Noise Reduction", The Research Bulletin ACM,Vol.II (III), 2011.
9. Y W Seo and Jongho, "Recognition of Highway Workzones for Reliable Autonomous Driving", IEEE Transactions on Transportation Systems,April 2015.

39.

Authors: **Leila Farahzadi, Rosa Urbano Gutierrezi, Alireza Riyahi Bakhtiari, Hamid Reza Azemati, Seyed Bagher Hosseini**

Paper Title: **Assessment of Alternative Building Materials in the Exterior Walls for Reduction of Operational Energy and CO_2 Emissions**

Abstract: The increase in energy demand which leads to global warming is one of the main environmental issues that drive to detrimental ecological, social and economic impacts. Recently, these impacts are being exposed faster than expected. Since buildings and their materials are one of the major sources of energy consumption and carbon dioxide emissions, environmental assessment of building materials and replacing them with the more environmentally friendly alternatives are increasingly needed to address environmental performance issues. In this study, the operational energy consumption (thermal energy) and carbon dioxide production in a typical building in Tehran is calculated by applying computer simulation –Design Builder software - in two cases of using conventional building materials and alternative ones. The results show a considerable reduction in the operational energy consumption and carbon dioxide emissions in case of applying the alternative- environmentally friendly- building materials

Keywords: Alternative Building Materials, Assessment, CO2, Energy.

References:

1. M. Foroughi, "Recyclable Building Materials in Architecture", 1st Conference on Sustainable architecture, Sama Technical & Vocational Institute, Hamedan; 21 Feb. 2010, Available: http://www.civilica.com/Paper-NCSUSTAINARCH01-NCSUSTAINARCH01_027.html [In Persian]
2. IEA: International Energy Agency. "World Energy Outlook 2007", 2008: 73, ISBN 978-92-64-06130-9; Available: http://www.worldenergyoutlook.org/publications/weo-2007/
3. D. Behboudi, E. Barghi Gol'ozari, "Environmental Impact of Energy Consumption and Economic growth in Iran", Quarterly Journal of Quantitative Economics; 2009, 5(4): pp.35-53 [In Persian]
4. IEA: International Energy Agency. "World Energy Outlook 2009", 2010: 73, ISBN 978-92-64-06130-9; Available: http://www.worldenergyoutlook.org/publications/weo-2009/
5. R. Ghasemieh, Sh. Rostami, R. Mohammadirad, H. Boor, "Examining ways to reduce Burning Waste Gases in Iran", 8th National Conference on Energy, Tehrjuan; 24-25 May, 2011; Available: http://www.civilica.com/Paper-NEC08-NEC08_042.html [In Persian]
6. Energy balance in 1391, Electricity and Energy Affairs Deputy, Office of Electricity and Energy macro planning, Tehran, Ministry of Energy; 2014, pp. 84 & 251
7. M. Buyle, J. Braet, A. Audenaert, "Life cycle assessment in the construction sector: A review", Journal of Renewable and Sustainable Energy Reviews, 2013, Vol. 26: 379-388
8. G. Treloar, R. Fay, B. Ilzor, P. Love, "Building Materials Selection: Greenhouse Strategies for Built Facilities", Journal of Facilities. 2004, 19 (3/4): 139-149
9. C. T. Griffin, B. Reed, S. Hsu, "Comparing the embodied energy of structural systems in buildings", Journal of Structures and Architecture, CRC Press, Print ISBN: 978-0-415-49249-2, Proceedings of the 1st International Conference on Structures & Architecture, 2010, pp.1333-1339
10. F. Pacheco-Torgal, J. Faria, S. Jalali, "Embodied Energy versus Operational Energy: Showing the Shortcomings Of The Energy Performance Building Directive (EPBD)", Journal of Materials Science Forum, 2013,730-732: 587-591
11. Saynajoki, J. Heinonen, S. Junnila, "Carbon Footprint Assessment of a Residential Development Project", International Journal of Environmental Science and Development, 2011, 2(2): 116-123
12. Ogunkah, J. Yang, "Investigating Factors Affecting Material Selection: The Impacts on Green Vernacular Building Materials in the Design-Decision Making Process", Journal of Buildings, 2012; 2: 1-32
13. Yang, I. C. B. Ogunkah, "A Multi-Criteria Decision Support System for the Selection of Low-Cost Green Building Materials and Components", Journal of Building construction as Planning Research, 2013,1: 89-130
14. Henriksson, "Environmental assessment of residential buildings: What does it take to build Green?", Chalmers University of Technology (M.SC Thesis), Department of Energy and Environment, Göteborg: Sweden, 2010, pp. I
15. Radivojević, M. Nedić, "Environmental Evaluation of Building Materials-Example of Two Residential Building in Belgrade", Journal of Architecture and Civil Engineering, 2008, 6(1): 97 – 111
16. Y. U. G. Abeysundra, S. Babel, Sh. Gheewala, "Integration of Environmental Economic and Social Assessments for Selecting Sustainable Materials for Buildings in Sri Lanka: A Life Cycle Perspective", International Conference on Green and Sustainable Innovation (ICGSI), Chiangmai Thailand, Nov 29th-Dec 1st, 2006
17. S. Seo, S. Tucker, M. Ambrose, "Selection of Sustainable Building Material using LCADesign Tool", Sustainable Ecosystems (CSIRO), Victoria, Australia, Proceedings of the International Conference on Sustainable Building Asia, Korea, Seoul 27-29 June 2007, pp. 87-94
18. M. Asif, A. Davidson, T. Muneer, "Life Cycle of Window Materials - A Comparative Assessment", Napier University, Edinburgh: UK, 2002, pp.1
19. H. Ghorbani, V. Rahimi, S. A. Nosrati, "Concrete and the Environment", 3rd Conference on Environmental Engineering, University of Tehran, Tehran, 7-8 October, 2009 Available: http://www.civilica.com/Paper-CEE03-CEE03_281.html [In Persian]
20. F. Ahmadi, "Evaluating the Performance of Concrete Structures for Environmental Sustainability", Journal of Cement Technology, 2013,60: 21-26 [In Persian]
21. G. A. Weisenberger, "Framing system's environmental impact depends on more than just the choice of materials", Journal of Modern Steel Construction, 2010
22. O. F. Kofoworola, H. G. Shabbit, "Life Cycle Energy Assessment of a Typical Office Building in Thailand", Journal of Energy and Buildings, 2010, 41(10):1076-1083
23. Farahzadi, "Designing a Condominium in Tehran with Ecological Perspective by Using Eco-Friendly Materials", M.A. Thesis, Engineering Faculty, Science & Research Branch of Islamic Azad University, Iran, 2014 [In Persian]
24. J. Denison, C. Halligan, "Building Materials and the Environment", Stephen George & Partners LLP, 2010; Version 1.1
25. "National building Regulations-Section 5: Building Materials and Products", Office of the National Building Regulations, Department of Housing and Construction, Ministry of Roads and Urban Development, Tehran: Iran, 2010
26. D. Danesian, "Building Materials", Faculty of Engineering, Architecture and Urbanism, Technical University of Payam Noor, Tehran, Iran, 2010
27. Nasrollahzade, "Building Materials", Ketabhaye Darsi Publication: Tehran, Iran, 2008
28. Z. Lei, S. Jingying "Computer Simulation of Building Energy Consumption and Building Energy Efficiency", 2nd International Conference on Computer Application and System Modeling (ICCASM), Taiyuan, Shanxi, China, 27-29 July, 2012
29. H.Z. Cui, F. C. Sham, T.Y. Lo, H. T. Lum, "Appraisal of Alternative Building Materials for Reduction of CO2 Emissions by Case

Modeling", Int. J. Environ. Res., 2011,5(1):93-100
30. J. Gonza´lez, J.G. Navarro, "Assessment of the decrease of CO2 emissions in the construction field through the selection of materials: Practical case study of three houses of low environmental impact", Journal of Building and Environment, 2006, 41:902–909
31. B. V. V. Reddy, K. S. Jagadish, "Embodied energy of common and alternative building materials and technologies", Journal of Energy and Buildings, 2005,35(2):129-127

40.

Authors: **Omer Hamid**

Paper Title: **Intraocular Pressure Model Predictive Control: A Simulation of Circadian and Mean Intraocular Pressure Control**

Abstract: Pharmacokinetics/Pharmacodynamics (PK/PD) models of four ophthalmic drugs taken from the literature, employed in building model predictive control (MPC) systems. The drugs are: Latanoprost, Bunazosin, Timolol, and PF-04475270. MPC successfully controlled the mean intraocular pressure (MIOP) to a set point without overshoot or noticeable steady state error. The drug model representation order is vital in the suppression of circadian intraocular pressure variation, while the mean intraocular pressure is controllable irrespective of the model order.

Keywords: glaucoma, intraocular pressure, Circadian pattern, model predictive control, pharmacokinetics/ pharmacodynamics.

References:

1. Gramar E. Tausch M: The risk profile of the glaucomatous patient. Curr Opin Ophthalmol 1995, 6:78-88.
2. Anita Kumari, Pramod K. Sharma, Vipin K. Grag, and Garima Grag. Ocular inserts-Advancement in therapy of eye diseases. J Adv Pharm Technol Res. 2010 Jul-Sep 1(3): 291-296.
3. Deepika Jain, Richa Raturi, Vikas Jain, Praveen Pansal, and Ranjit Singh. Recent Technologies in pulsatile drug delivery systems. Biomatter 2011. Jul1:1(1), 57-65.
4. S. S. Chrai and J. R. Robinson. Corneal permeation of topical pilocarpine nitrate in the rabbit. Am. J. Ophthalmol. 77:735-739 (1974).
5. C. Molteno. (1969). New implant for drainage in glaucoma. Br. J. Ophthalmol. 53. 606–615.
6. Anne L Coleman, MD., Richard Hill, MD., M. Roy Wilson, MD., Neil Choplin, MD., Ronit Kota S-Neumann, MD., Mae Tam, MD., Jason Bacharach, MD., AND William C. PANEK, MD. (1995) Initial Clinical Experience With the Ahmed Glaucoma Valve Implant. Am. J Ophthalmol. 120(1). 23-31
7. Gedde SJ, Schhiffman JC Feur WJ, Hemdon LW, Brandt JD, Budenz DL. Tube versus Trabeculectomy Study group. Am. J. Ophthalmol 2012 May. 153(5:789-803) e2Epup 2012 Jan15.
8. Patent US20140194834-Auto-Regulation System for Intraocular Pressure – Google Patents. http://wwwhttp://www.google.com/patents/US20140194834. 5/1/2016.
9. Omer Hamid "Intraocular Pressure Model Predictive Control" American Journal of Biomedical Engineering 2016, 6 (1), pp 1-11
10. Daniel Piso, Patricia Veiga-Crespo and Elena Vecino. (2012) Modern monitoring intraocular pressure sensing devices on application specific integrated circuits. Journal of Biomaterial and Nanobiotechnology, 3,301-309.
11. Kaweh Mansouri, M.D., M.P.H., Felipe A. Medeiros, M.D., Ph.D., Ali Tafreshi, B.S., and Robert N. Weinreb, M.D. (2012). Continuous 24-hour Intraocular Pressure Monitoring With a Contact Lens Sensor: Safety, Tolerability, and Reproducibility in Glaucoma Patients. Arch Ophthalmol. 130(12):doi:10.1001/archophthalmol.2012.2280.
12. Raeesa M. Moosa, Yahya E. Choonara, Lisa C. du Toit, Pradeep Kumar, Trevor Carmichael, Lomas Kumar Tomar, Charu Tyagi and Viness Pillay. (2013). A review of topically administered mini-tablets for drug delivery to the anterior segment of the eye. Royal Pharmaceutical Society. Journal of Pharmacy and Pharmacology. 66. 490–506.
13. Zimmer A, Mutschler E, Lambrecht G, Mayer D, and Kreuter J. Pharmacokinetic and pharmacodynamic aspects of an ophthalmic pilocarpine nanoparticle-delivery-system. Pharmaceutical Research, Vol. 11. No. 1994.
14. Mohammadi S, Jones L, Gorbet M (2014) Extended Latanoprost release from commercial contact lenses: In Vitro studies using corneal models. PloS ONE 9(9) e106653. Doi10.1371/journal.pone.0106653.
15. Gause S, et al, Mechanistic modeling of ophthalmic drug delivery to anterior chamber by eye drops and contact lenses. Adv Colloid Interface (2015), http://dx..doi.org/10.1016/j.cis.201508.002
16. Murdan S. Electro-responsive drug delivery from hydrogels. Journal of controlled release 92 (2003) 1-17.
17. Singh G. 2014. Hydrogel as a novel drug delivery system: a review. J. Fundam. Pharm. Res., 2(1):35-48
18. Luo R, Cao Y, Shi P, Chen Ch. Near-Infrared light responsive multi-compartmental hydrogel particles synthesized through droplets assembly induced by superhydrophopic surface. Small. 2014 Dec 10; 10(23):4886-94.
19. Sakanaka K, Kawazu K, Tomonari M, Kitahara T, Nakashima M, Kawakami S, Nishida K, Nakamura J, and Sasaki H (2004). Ocular pharmacokinetic/pharmacodynamic modeling for bunazosin after instillation into rabbits. Pharm Res. 21. No 5. 770–776.
20. Sakanaka K, Kawazu K, Tomonari M, Kitahara T, Nakashima M, Kawakami S, Nishida K, Nakamura J, Sasaki H and HIGUCHI S (2008). Ocular Pharmacokinetic/Pharmacodynamic Modeling for Timolol in Rabbits Using Telemetry System. Biol. Pharm Bull 31(5) 970-975.
21. Kenneth T. Luu, Eric Y. Zhang, Ganesh Prasanna, Cathie Xiang, Scott Anderson, Jay Fortner, and Paolo Vicini. (2009). Pharmacokinetic-Pharmacodynamic and Response Sensiti-zation Modeling of the Intraocular Pressure-Lowering Effect of the EP4 Agonist 5-{3-[(2S)-2-{(3R)-3-hydroxy-4-[3-(trifluoromethyl)phenyl]butyl}-5-oxopyrrolidin-1-yl]propyl}thiophene-2-carboxylate (PF-04475270). The J Pharmacol Exp Ther 331(2). 627–635.
22. Luu, K. T., Raber, S. R., Nickens, D. J. and Vicini, P. (2010), A Model-Based Meta-Analysis of the Effect of Latanoprost Chronotherapy on the Circadian Intraocular Pressure of Patients With Glaucoma or Ocular Hypertension. Clinical Pharmacology & Therapeutics, 87: 421–425. doi: 10.1038/clpt.2009.306
23. Durairaj C1, Shen J, Cherukury M. Mechanism - based translational pharmacokinetic - pharmacodynamic model to predict intraocular pressure lowering effect of drugs in patients with glaucoma or ocular hypertension. Pharm Res. 2014 Aug;31(8):2095-106. doi: 10.1007/s11095-014-1311-9. Epub 2014 Feb 19.
24. Fogagnolo P., Orzalesi N., Ferreras A., and Rossetti L. The circadian curve of intraocular pressure: Can we estimate its characteristics during office hours. Investigative Ophthalmology & Visual Science, May 2009, Vol 50, No. 5. 2209-2215.
25. Agnifili L, Mastropasqua R, Frezzotti P, Frezzotti P, Fasanella V, Motolese H, Pedrotti E, Di Iorio A, Mattei P, Motolese E, and Mastropasqua L. (2015): Circadian intraocular pressure patterns in healthy subjects, primary open angle and normal tension glaucoma patients with a contact lens sensor. Acta Ophthalmol 93: e14–e21.

41.

Authors: **Muhammad Muneeb Khan, Muhammad Aamir Shafi, Nasrullah Khan**

Paper Title: **Development of Prototype of Grid Tie Inverter (Grid Synchronization and Load Sharing)**

Abstract: Design the prototype model of grid tie inverter which includes synchronization, load sharing and reverse metering technique. Main part of the system that control everything is the SPWM based inverter which take the information from grid and independent source of energy and then synchronize the both signals. According to the demand of the load Microcontroller (MCU) makes decision that either the grid feed the load or independent source of energy or both share the load. By sharing the common load with the grid, design an algorithm by which the sharing power with respect to the main grid using droop control technique. This technique minimizes the contribution of the

main grid towards the load. Sine Pulse Width Modulation (SPWM) Grid Tie inverter is the most commonly used technique because it is less complicated, more efficient the power loss is minimum and the output sine wave is very close to true sine wave. While in multi-level inverter there is more power loss due to number of components and due to the limitations the output wave is not much like true sine wave. Load sharing by designing buck-boost converter and an adaptive algorithm load sharing can be done automatically according to the demand of load. So, this is more better and efficient then Push buttons.

Keywords: Angle Drop Control, Distributed Generation, Grid Synchronization, Grid Tie Inverter, Load Sharing, Microcontroller.

References:

1. H. Hinz, P. Mutschler, and M. Calais, "Control of a single phase three level voltage source inverter for grid connected photovoltaic systems,'' M.S. Thesis, Department of Power Electronics and Drives, University of Curtin, Australia, 1997.
2. F. B. Salim, K. M. Venus, "Experiment with a locally developed single phase grid tie inverter," IEEE Informatics, Electronics & Vision (ICIEV), vol. 21, pp. 916-924, 2012.
3. Durra, A. Reznik, and S. M. Muyeen, "Performance analysis of a Grid tied Inverter for Renewable energy applications," IEEE Transections on Power System, USA, Vol. 2, pp, 5-10, 2014.
4. Y. Beck, D. Medini, "Connecting an Alternative Energy Source to the Power Grid by a DSP Controlled DC/AC Inverter," M.S. Thesis, Department of Interdisciplinary Engineering, Tel Aviv University, Israel, pp. 14-20, 2005.
5. Y. Liu, D. Y. Y. Liu, "Potential of Grid connected solar PV without storage," IEEE Transections on Renewable energy, pp 1-4, 2010.
6. T. K. Kwang, S. S. feuding, "Single phase Grid tie inverter for photovoltaic application," IEEE Transection on Renewable energy, pp 2-6, 2010.
7. J. Hossain, R. Hasan, M. Hossain and M. R. Islam, "Design and implementation of a Grid connected single phase inverter for photovoltaic system," M.S Thesis, Department of Electrical and Electronic Engineering, Khulna University of Engineering & Technology, Bangladesh, 2015.
8. F. B. Zia, K. M. Salim, and N. B. Yousuf, "Design and implementation of a single phase Grid tie photo voltaic inverter," M.S. Thesis, School of Engineering and Computer Science, Independent University Dhaka, Bangladesh, 2015.
9. S.M. Ali "Performance evaluation of a Grid connected photovoltaic system based on solar cell modelling," International Conference on Circuit, Power and Computing Technologies(ICCPCT), India, pp. 3-20, 25-28 May,2015.
10. Jain, B. Singh "Single phase single stage multifunctional Grid interfaced solar photo voltaic system under abnormal Grid conditions IET generation, transmission & distribution special issue on Power Electronic converter systems for integration of Renewable Energy sources," M.S. Thesis, Department of Electrical Engineering, Indian Institute of Technology Delhi, India, 2014.
11. M. Joshi, G. A. Vaidya, "Modeling and simulation of single phase Grid connected solar photovoltaic system," Annual IEEE India Conference (INDICON), Pune, India, pp. 14-20, 2014.
12. Datta, "A DSPIC based efficient single-stage Grid connected photovoltaic system," M.S. Thesis, Department of Electrical & Electronics Engineering, National Institute of Technology, Meghalaya, vol. 3, pp. 1-9, 2015.
13. Sarwar, M. S. J. Asghar, "Simulation and analysis of a multilevel converter topology for solar PV based Grid connected inverter," IEEE Transection on Smart Grid and Renewable Energy, vol. 2, pp. 56- 62, 2011.
14. R. Hider, R. Alam, and N. B. Yousef, "Design and construction of Single Phase pure sine wave inverter for photovoltaic application," IEEE International Conference on Informatics Electronics & Vision (ICIEV), pp. 190-194, 2012.
15. T. Esram, P. L. Chapman, "Comparison of photovoltaic array maximum power point tracking techniques," IEEE Transection on Energy Converters, vol. 22, no. 2, pp. 439–449, Jun. 2007.
16. R. Gonzalez, J. Lopez, P. Sanchez, and L. Marrowy, "Transformer less Inverter for single phase photovoltaic systems," IEEE Transection on Power Electronics, vol. 22, no.2, pp. 693-697, 2007.
17. N. Kasa, T. Iida and H. Iwamoto, "Maximum power point tracking with capacitor identifier for photovoltaic power system" IEEE Transection on Instrumentational Electronics Applications, vol. 147, no. 6, pp. 497–502, November,2000.
18. M. T. Ho and H. S. H. Chung, "An integrated inverter with maximum power tracking for grid-connected PV systems," IEEE Transection on Power Electronics, vol. 20, no. 4, pp. 953–962, Jul. 2005.
19. S. Bahram, V. W. Singh, j. Jatskevich, "Flow for AC-DC networks smart Grid," IEEE International Optimal power Communicational Conference (IIOPCC), vol. 2, pp. 49-54, 3-6 November,2014.
20. H. Nikkhajoei, R. Iravani, "Dynamic model AC–DC–AC voltage sourced converted system for distributed resources," IEEE Transaction on Power Delivery and Control or System, vol. 22, pp.1169-1178, April, 2007.