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1.	**Authors:** Yogita D. Bhole, N. N. Thune **Paper Title:** Review on Designing of Multi Bit Flip-Flop to Achieve Reduced Area in VLSI Design	1-2

Abstract: In this paper, we have designed Multi-bit Flip-flop (MBFF) and made performance comparison over the Single-bit Flip-flop (SBFF) We can increase Flip flop performance by merging clock pulse. But increase in clock pulse means it will increases the area. So the Multi-bit Flip-flop is designed by single clock pulse and achieves same functionality like two single-bit Flip-flop so it will reduce the area. The basic memory elements of designer considerations are Latch and flip flop. Optimizations in VLSI have been done on three factors: Area, Power and Timing (Speed). Area optimization means reducing the space of logic which occupy on the die. Memory elements play a vital role on Digital World but these elements consumes more area. Thus these elements can be designed using Multi-bit flip flop to reduce area.

Keywords: Flip-flop, Latch, Clock buffer, Clock network, Gate delay, Single bit flip flop, Multi bit flip flop.

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2.	**Authors:** Seepelli Praveen, Samalla Krishna, Katkuri Laxmi Chaitanya **Paper Title:** Single Phase Single-Stage Transformer Less Renewable Energy System for Micro Grid Applications	3-7

Abstract: In low power renewable systems, a single phase grid-connected converter is usually adopted. This paper deals with a single stage transformer less single phase converter for micro grid applications with PV system is proposed. By using this system the maximum power tracing is possible from PV array to the micro grid. The maximum power point tracing is maintained with a logical controller. A proportional controller is used to control the current injected into the grid a single-phase, single-stage current source inverter based photovoltaic system for grid connection. A double-tuned parallel resonant circuit is designed to attenuate harmonics at the inverter dc side. It helps to improve the power quality and system efficiency. A modified carrier based modulation technique for the current source inverter is studied to magnetize the dc-link inductor and to control the switching pattern for the single phase grid-connected CSI. The operation of Single Phase Transformer-less grid connected PV system is verified by the Simulation and experimental results show the effectiveness of the proposed solution.

Keywords: Distributed power Generation, DC- AC power conversion, current source inverter grid- connected converters, Single - phase systems, current source converters, Maximum power point tracing (MPT).

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	Authors: Roberto Carluccio, Alfio Messina **Paper Title:** MarCONI - One-Hand Controller for Unmanned Aerial Vehicle	

3.

Abstract: Here authors present MarCONI (Multi Channel One haNd Interface), a system born to control remotely piloted aircrafts (RPAs), in particular multi-rotors, by means of new generation peripherals. Among those, used in personal computing environment, a generation of 6 degree-of-freedom (DOF) advanced controllers is the SpaceMouse family by 3Dconnexion. MarCONI is a hardware-software system, acting as a bridge between the USB peripheral and the UAV's radio-controller. A shaping block has been added to the system in order to process raw data flow generated by the SpaceMouse. This step allows the user to adapt the controller feedback to the specific vehicle features and response. Shaping parameters are fully customizable by a specific Web GUI, accessible through a Wi-Fi connection, making possible the setup tuning by means of mobile devices, such as smartphones or laptops. A side benefit of this system is the possibility to pilot UAVs using one hand only, with no restriction.

Keywords: 3D USB HID, Arduino, Drone, FPV, Multi-rotor, RPA, SpaceMouse, SpaceNavigator, UAV.

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4.

Authors: **Mohamed Said Albahri**

Paper Title: **ECC Implementation on Wireless Sensor Nodes**

Abstract: This paper is concerned with the implementation and performance evaluation of Elliptic Curve Cryptography in constrained devices such as wireless sensor nodes. Experimental evaluation for Elliptic Curve Digital Signature (ECDSA) on an 8-bit (Arduino mega2560) and a 32-bit (Arduino Due) processor using the Relic-toolkit has been carried out and comparative implementation results are given. It is shown that by adopting appropriate optimizations an ECDSA can be achieved in 83ms.

Keywords: WSN, ECC, Software Implementation, Relic toolkits.

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Authors: **Nan Wang**

Paper Title: **A New Boosting Algorithm Based on Dual Averaging Scheme**

Abstract: The fields of machine learning and mathematical optimization increasingly intertwined. The special topic on supervised learning and convex optimization examines this interplay. The training part of most supervised learning algorithms can usually be reduced to an optimization problem that minimizes a loss between model predictions and training data. While most optimization techniques focus on accuracy and speed of convergence,

5.	the qualities of good optimization algorithm from the machine learning perspective can be quite different since machine learning is more than fitting the data. Better optimization algorithms that minimize the training loss can possibly give very poor generalization performance. In this paper, we examine a particular kind of machine learning algorithm, boosting, whose training process can be viewed as functional coordinate descent on the exponential loss. We study the relation between optimization techniques and machine learning by implementing a new boosting algorithm. DABoost, based on dual-averaging scheme and study its generalization performance. We show that DABoost, although slower in reducing the training error, in general enjoys a better generalization error than AdaBoost. **Keywords:** Machine Learning, Optimization, Boosting, AdaBoost, computational learning theory. **References:** 1. M. Baes and M. Burgisser. Hedge algorithm and dual averaging schemes. arXiv, 1112(1275), 2011. 2. LR Bahl, Peter F Brown, Peter V De Souza, and Robert L Mercer. Maximum mutual information estimation of hidden Markov model parameters for speech recognition. In proc. ICASSP, volume 86, pages 49–52, 1986. 3. Craig Boutilier. A POMDP formulation of preference elicitation problems. In AAAI/IAAI, pages 239–246, 2002. 4. L. Breiman. Prediciton games and acring algorithms. Nueral Computation, 11:1493–1517, 1999. 5. Tianqi Chen, Hang Li, Qiang Yang, and Yong Yu. General functional matrix factorization using gradient boost- ing. In Proceeding of 30th International Conference on Machine Learning (ICML'13), volume 1, pages 436–444, 2013. 6. Y. Freund and R. E. Schapire. A decision-theorectic generalization of on-line learning and an application to boosting. Journal of Computer and System Sciences, 55(1):119–139, 1997. 7. Yoav Freund, Robert Schapire, and N Abe. A short introduction to boosting. Journal-Japanese Society For Artificial Intelligence, 14(771-780):1612, 1999. 8. Yoav Freund and Robert E Schapire. A decision-theoretic generalization of on-line learning and an application to boosting. Journal of computer and system sciences, 55(1): 119–139, 1997. 9. A. Grubb and J. A. Bagnell. Generalized boosting algorithms for convex optimization. In Proceedings of the 28th International Conference on Machine Learning, Bellevue, WA, June 2011. 10. Marti A. Hearst, Susan T Dumais, Edgar Osman, John Platt, and Bernhard Scholkopf. Support vector machines. Intelligent Systems and their Applications, IEEE, 13(4):18–28, 1998. 11. Y. Huang, A. L. Friesen, T. D. Hanks, M. N. Shadlen, and R. P. N. Rao. How prior probability influences decision making: A unifying probabilistic model. Advances in Neural Information Processing Systems (NIPS), 2012. 12. Y. Huang and R. P. N. Rao. Reward optimization in primate brain: A POMDP model of decision making under uncertainty. PLoS One, 8(1), 2013. 13. Yanping Huang and Rajesh P Rao. Neurons as monte carlo samplers: Bayesian inference and learning in spiking networks. In Z. Ghahramani, M. Welling, C. Cortes, N.D. Lawrence, and K.Q. Weinberger, editors, Advances in Neural Information Processing Systems 27, pages 1943–1951. Curran Associates, Inc., 2014. 14. Yanping Huang and Rajesh PN Rao. Predictive coding. Wiley Interdisciplinary Reviews: Cognitive Science, 2(5): 580–593, 2011. 15. M. J. Kearns and L. G. Valiant. Learning boolean formulae or finte automata is as hard as factoring. Technical report, Department of Computer Science, Harvard University, 1988. 16. Esther Levin, Roberto Pieraccini, and Wieland Eckert. Using markov decision process for learning dialogue strategies. In Acoustics, Speech and Signal Processing, 1998. Proceedings of the 1998 IEEE International Conference on, volume 1, pages 201–204. IEEE, 1998. 17. M. Lichman. UCI machine learning repository, 2013. 18. L. Mason, J. Baxter, P. Barlett, and M. Frean. Functional gradient techniques for combining hypotheses. In Advances in large margin classifiers. MIT Press, Cambridge, 1999. 19. Kevin P Murphy. Machine learning: a probabilistic perspective. MIT press, 2012. 20. Y. Nesterov. Primal-dual subgradient methods for convex problems. Mathematical Programming, 120(1): 221– 259, 2009. 21. Lawrence R Rabiner and Biing-Hwang Juang. An introduction to hidden markov models. ASSP Magazine, IEEE, 3(1): 4–16, 1986. 22. Bernhard Scho¨lkopf and Alex Smola. Support vector machines. Encyclopedia of Biostatistics, 1998. 23. Ingo Steinwart and Andreas Christmann. Support vector machines. Springer Science & Business Media, 2008. 24. L. Xiao. Dual averaging methods for regularized stochastic learning and online optimization. The Journal of machine learning research, 11, 2010.	
6.	**Authors:**	**H. El-Didamony, S. Abd El-Aleem Mohamed, H. Gouda**
	Paper Title:	**Durability Performance of Blended Cements Incorporating Egyptian SRC and GBFS in Aggressive Water**
	Abstract: The durability of concrete has been a major concern of civil engineering professionals over the last few decades. Durability is the capacity of concrete to resist deterioration caused by aggressive environments. An experimental investigation was carried out to evaluate the durability properties of blended cements prepared from substitution of SRC with different percentages of GGBFS up to 75 mass, %. The ingredients of each dry mix were homogenized, and then hydrated with the water of standard consistency. The specimens were cured under tap water for 28 days (zero time), then immersed in marine environment up to 12 months. The hydration products were analyzed using DTA, IR and XRD techniques. The durability properties were determined by measuring: free lime, combined water, bulk density, compressive strength, total sulfate and total chloride contents for each mix at different immersing ages. The results revealed that, GGBFS decreases the accessibility of SO42- and Cl- to penetrate into the pore system. Hence the total sulfate and total chloride contents decrease. Therefore, the durability performance of SRC is greatly enhanced by the use of high GGBFS contents. The composite cements containing 45-55 mass, % of GGBFS are comparable to or outperform SRC up to one year of immersion in aggressive water. **Keywords:** Blended Cements; GGBFS; SRC; Durability; Bulk density and Compressive strength. **References:** 1. Neville A.M. and Aitcin P.C., "High performance concrete" an overview, Mater. Struct. , 31; (1998), pp.111–117. 2. Mehta P.K., "Advancements in concrete technology", Concr. Int. 96, (4); (1999), pp. 69 –76. 3. Elahi A., Basheer P.A.M., Nanukuttan S.V. and Khan Q.U.Z, "Mechanical and durability properties of high performance concretes containing supplementary cementitious materials", Construc. Build. Mater. 24; (2010), pp. 292–299. 4. Ahmed Hadjsadok, Said Kenai, Luc Courard, Frédéric Michel, Jamal Khatib "Durability of mortar and concretes containing slag with	

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7.

Authors:	**C. Savitha, S. Chandrakaran, T. M. Madhavan Pillai**
Paper Title:	**Coupled Lateral and Rocking Vibration of Footings with Internal Openings**

Abstract: A study on the vibration of square and circular foundation with concentric internal holes is presented in this paper. The foundations are assumed to be rigid and embedded in, isotropic and linear elastic half-space and are subjected to coupled lateral and rocking excitation. This problem is analysed using an approximate method. The results are presented in frequency domain. Effects of embedment, mass ratio, ratio of inner to outer diameter (circular footing) or inner to outer width of the footing (square footing) and backfill are conducted to assess the behaviour. The accuracy and efficiency of the model are assessed on the basis of comparison studies with published literature. The results show that the embedment substantially affects the response in that it reduces the peak amplitudes and increases the corresponding frequencies.

Keywords: Embedment, Footing, Lateral vibration, Rocking vibration.

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