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Impulse

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SSN

EDITORIAL BOARD

HIGHLIGHTS

CELLULAR AUTOMATA THEORY

DR.K.J.JEGADISH KUMAR

Cellular automata (CA) are discrete dynamic systems governed by local and usually deterministic state transition rules. These systems are computational in that their macroscopic behavior computes some n-dimensional spatial function over time. The entropy or information of such systems is a passive result of their global behavior. The processes however involved is generally termed information processing. An important aspect of these processes is the modulation of system dynamics by some function of the information content of the state vector. This article presents entry level concepts of CA which are capable of information processing based on their dynamic nature governed by both local transitional rules and global information variables.

Applications of Cellular Automata

In computer science, cellular automata has major role in the following applications

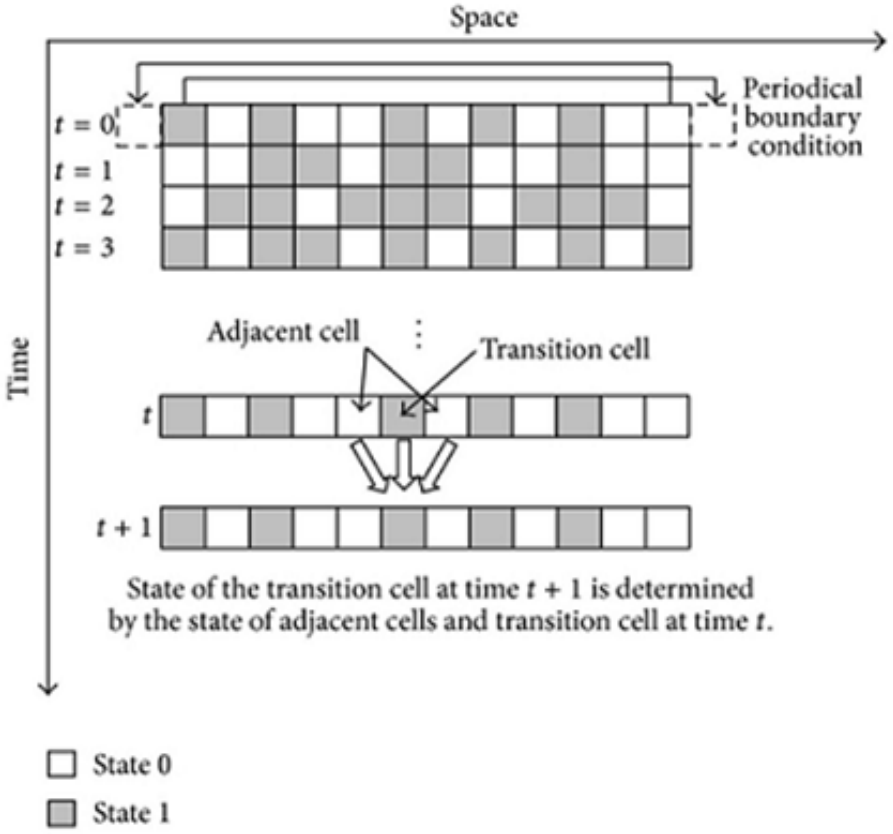
- CA based Cipher systems
- CA based Image processing
- CA based Compression techniques
- CA based Generation of pseudo-Random sequences
- CA based Parallel computing Machine.
- CA based Error detection and Correction
- CA based Pattern recognition

Definition: - Cellular Automatonis defined as “a regular spatial grid of cells, each of which can have a limited set of states. The cell states are updated in discrete time steps and defined by its original state and the state of the cells surrounding it”. Two types of CA are defined, they are One-Dimensional (1-D) CA and Two-Dimensional (2-D) CA [1].

One-Dimensional CA

One-Dimensional CA is the most basic structure with a group of two state elementary automata called “cell” array in a single row of length N and its state changes when locally interacted at discrete time step t. For each ith cell called as principal cell, a neighborhood of radius r is defined as n= 2r + 1 cells, including the ith cell. The state of the ithcell at time (t+1) depends on the states of (i-1)th, ith, (i+1)thcells at time t.

Mathematically a cell is defined by C =({0,1}, f) where f is a mapping f :{0,1}n >{0,1}, where f is a local transition function and N is the number of cells. CA updates the given data bit stream with specific to local transition f on each iteration [1-2].Figure 1 clearly describes one-dimensional CA state transition with neighborhood radius r = 1.

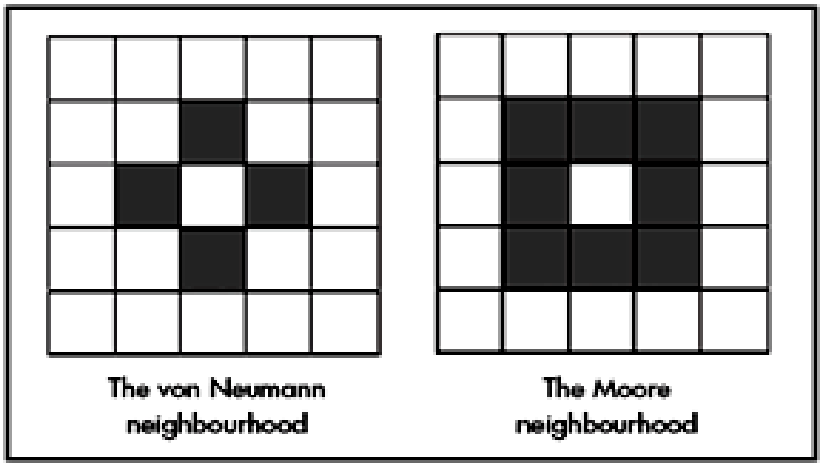


Two-Dimensional CA

Two-Dimensional (2-D) CA is a two state elementary array of cells with m rows and n columns. Each cell state is updated relative to a local updating rule at discrete time steps. The most popular and widely used 2-D CA in various applications is [3]:

(1) Von Neumann
(2) Moore Neighborhood
(3) Margolus Neighborhood

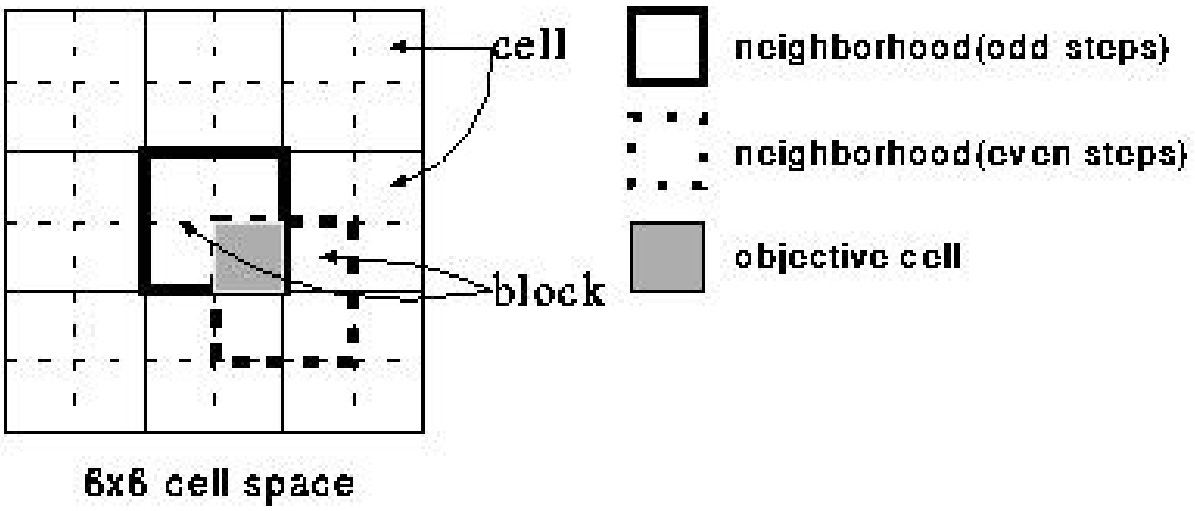
The following Figure2 shows the above two types of 2-D CA for radius r =1



In Von Neumann neighborhood, the neighborhoods of a single cell is the cells at right, left and top, bottom of the central cell. On the other hand, the central cell of Moore neighborhood includes the diagonal cells as its neighbor, in addition to cells at right, left top and bottom. Margolus neighborhood is another type of 2D-CA generally applied in cryptography because of its reversibility nature.

Margolus Neighborhood

It is a 2-D Reversible Cellular Automata with an approach called Partitioned Cellular Automata (PCA)[4]. A familiar partitioning technique called Margolus neighborhood, is selected for its inherent invertible property is shown in figure 3. It utilizes two cells of a block as inputs and gives out all the two cells of the same block as output. This process guarantees preservation of information.



References

1. PalashSarkar, “A Brief History of Cellular automata”, Journal of ACM Computing Surveys (CSUR), Volume 32 Issue 1, March 2000.

2. Blackburn. S, Murphy. S. and Paterson. K, “Comments on theory and application of cellular automata in cryptography,” IEEE Transactions on Computers, Vol. 46, No. 5, pp. 637-638, 1997.

3. Norman. H. Packard and Stephen wolfram, “Two-Dimensional cellular Automata,” Journal of Statistical physics, Vol: 38, 5/6, 1985, pp 901-942.

4. “Cellular Automata rules Lexicon Margolous Neighborhood”, free software of mirekwojtowicz. http://www.mirekw.com/ca/rullex_marg.html/.

VISITS AND INTERACTIONS

1. Dr. S. Sakthivel Murugan, Asso. Prof. had a discussion with Dr. V. Rajendran, Head, Department of ECE, Vels University on the funded project proposal submission on 7th Jan. 2016.

2. Dr. S. Sakthivel Murugan, Asso. Prof. had discussion with Dr. Murali Krishna, Scientist G, Naval Physical and Oceanographic Laboratory (NPOL), Cochin on the suggestions recommended by SSB at NRB meeting on 14th Jan. 2016.

3. Dr. S. Sakthivel Murugan, Asso. Prof. had discussion with Dr. Hareesh Kumar, Scientist G, Naval Physical and Oceanographic Laboratory (NPOL), Cochin regarding the visit to their lab at Cochin.

4. Dr. S. Salivahanan, Principal, Dr. S. Radha, Prof. & Head, Dr. R. Kishore, Asso. Prof., Dr. B. S. Sreeja, Asso. Prof. and Ms. S. Aasha Nandhini, JRF had a meeting with the Director, IGCAR on 18th Feb. 2016.

5. On 25th Feb. 2016, Dr. S. Sakthivel Murugan, Asso. Prof. had discussion with Dr. K. G. Radhakrishnan, Scientist & Head - Acoustic Modeling Division, Naval Physical and Oceanography Laboratory (NPOL), Cochin regarding underwater acoustic ambient noise channel modeling.

6. Team from Tata Elxsi visited the Department of ECE on 26th Feb. 2016. Dr. S. Radha, Prof. & Head, gave the presentation about the department and had discussion on internship, student projects and sponsoring for events. Dr. K. T. Selvan, Prof. facilitated and convened the meeting.

The Team of Tata Elxsi at the Department of ECE

EXPERT LECTURES

TALKS AT THE DEPARTMENT

1. Mr. Jayachandran Narayan, Manager, Learning and Development, Tata Elxsi, Bangalore delivered a guest lecture on "Soft Skills Training for Students" to all third year UG and first year ME students on 31st Mar. 2016.

2. Mr. Ram Mirwani, Director, Global Strategic Accounts for AWR, USA "Using Measurements to Optimize your RF Design Flow with NI and AWR tools" on 8th Apr. 2016 open to all students, research scholars and faculty members.

3. Mr. Sabapathy Rajarethinam, Head of IOT Forum, Sr. Manager System Design, T- Mobile, USA, delivered guest lecture on "4G and Beyond" on 29th Apr. 2016.

Mr. Ram Mirwani about AWR tools

FACULTY TALKS ELSEWHERE

1. Dr. K. T. Selvan, Prof. delivered a tutorial titled "Uncertainty estimation in antenna measurements" and an invited talk titled "Perspectives on electromagnetic education in India" at the IEEE Applied Electromagnetics Conference 2015 held at IIT Guwahati during Dec. 18-21, 2015. He also Co-chaired a technical session on MIMO antennas in the conference.

2. Dr. N. Venkateswaran, Prof. delivered a talk on "Optimization in Image Fusion" in the two day National workshop on "Research Prospects in Image Fusion and Registration" organized by Department of IT, SSNCE during 1st and 2nd Feb. 2016.

3. Dr. K. T. Selvan, Prof. delivered a talk entitled "Electromagnetics demystified" to the students and faculty at ACCET, Karaikudi on 27th Feb. 2016.

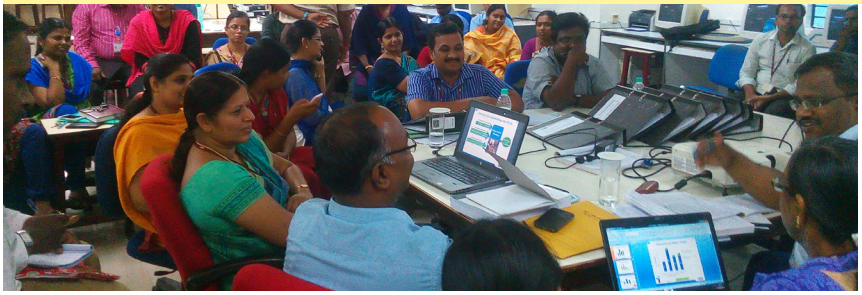
EVENTS ORGANIZED

1. Three day workshop on "Key Electromagnetic Concepts"
Date: 20th -22nd Jan. 2016
Convener: Dr. S. Radha, Prof.& Head.
Coordinators: Dr. K. T. Selvan, Prof., Dr. S. Joseph Gladwin, Asso. Prof. & Mr. S. Karthie, Asst. Prof.
Sponsors: IEEE APS Society
Resource Person: Dr. K. T. Selvan, SSN; Dr. S. V. Kulkarni, IIT-B; Dr. Udhay Khankhoje, IIT-D; Dr. Debatosh Guha, IIT-KGP; Dr. K. J. Vinoy, IISc-Banglore, Dr. Harishankar Ramachnadran, IIT-M
Participants:50 external and 10 internal participants

2. The second Program Advisory Committee meeting
Date: 16th Feb. 2016
Convener: Dr. S. Radha, Prof.& Head.
External Members: Mr. V. Venkatesan, Head, EMC Division, SAMEER-Centre for Electromagnetics, Dr. M. Meenakshi, Professor, CEG, Anna University and Mr. D. Karunadurai, Senior Embedded Software Engineer, Visteon & Alumnus.
Participants: Several department faculty members & JRFs

3. On 26th Feb. 2016, Mock NBA visit for M.E. (AE) and M.E. (CS) programmes of ECE department was conducted by Dr. Thiruvenkadam, Prof., Department of ECE, Thiyagarajar College of Engineering.

Dr. Thiruvenkadam and Department Faculty members during Mock NBA

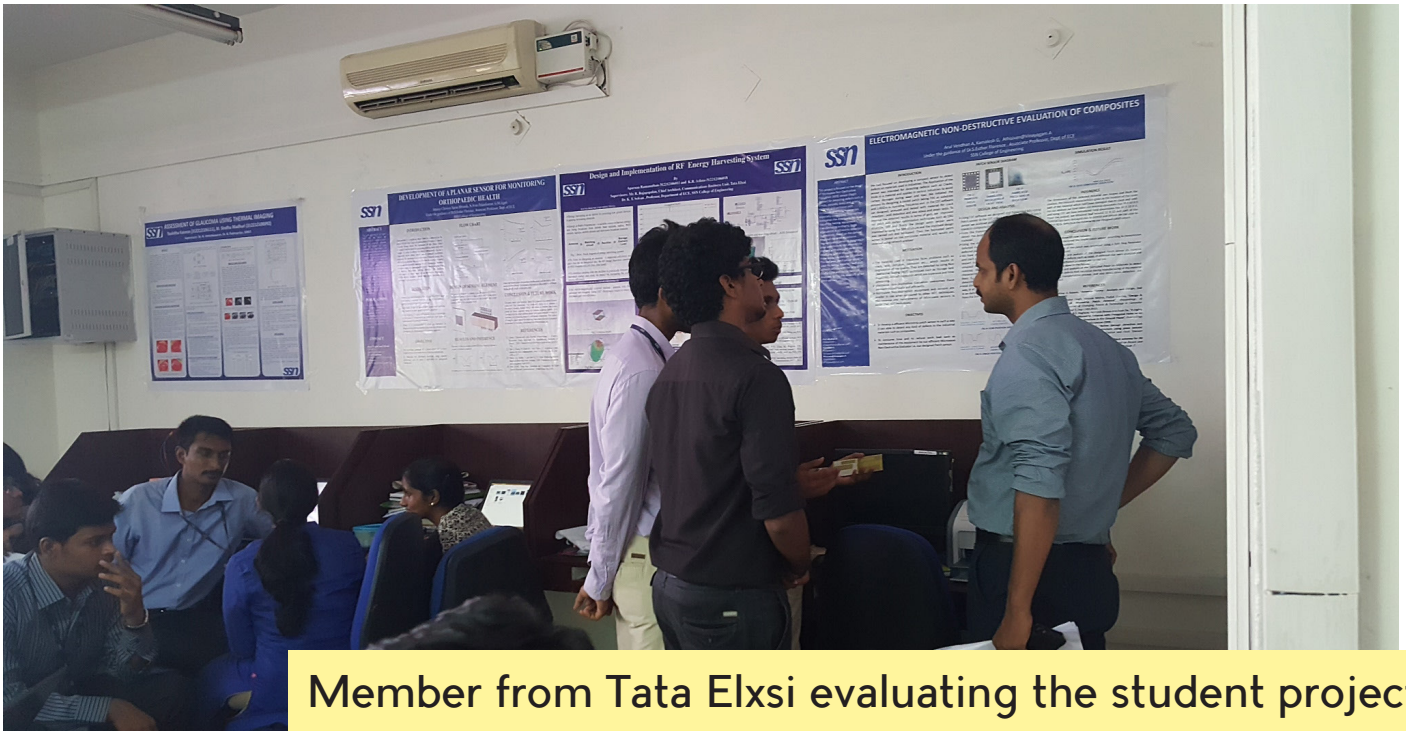


4. IEEE international conference on Wireless Communications, Signal processing and Networking (WiSPNET 2016)
Date: 23rd -25th Mar. 2016
Conference Chair: Dr. S. Radha, Prof.& Head.
Organizing chairs: Dr. R. Kishore, Asso. Prof. & Mr. N. Prabagarane, Asst. Prof.
Keynote speakers: Dr. Ian F. Akyildiz, Dr. Soon Xin Ng and Dr. Jianfei Cai.
Tutorial speakers: : Dr. Ian F. Akyildiz, Dr. Swarna Ravindra Babu, Dr. Ravikumar Balakrishnan, Mr. Vijay Anand, Dr. R. N. Patel, Mr. Atul Dwivedi, Dr. Hrishikesh Venkataraman, and Mr. Vibhav Khatre.

5. Dr. S. Joseph Gladwin, Asso. Prof. and Chair IEEE AP-S Madras Chapter organized a One day Workshop on "Recent Trends in Antenna Design" at VIT University, Vellore.

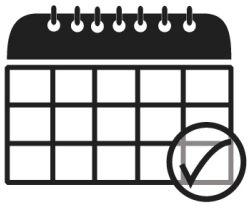
6. On 2nd Apr. 2016, the Department of ECE organized UG project presentation and the experts from TATA ELXSI are invited to evaluate the same. The experts recommended 13 projects out of the total 50 projects for commendation based on nine different criterions such as
1) Presentation of idea in cogent fashion in poster
2) Explanation / Articulation of Project summary to panel
3) Application to real world problems / Emerging Technology
4) Element of Social Impact
5) Extent of completion of project
6) Demo readiness / realization in H/W
7) Explanation of problems / Challenges and the resolution
8) Ideas about possible extensions / offshoots
9) Team Work.
The following are the projects that received high commendation.
1. "LPG Leakage detection with automatic closing of Valve and Alerting the user through GSM" by Gokul Balaji S., Gokul Sreeram S., Naresh Kumar S under the supervision of Dr. R .Kalidoss, Asso. Prof.
2. "Non-invasive measurement of blood glucose level using wireless sensor networks" by Sushmitha R., Syed Aamir Ahmed under the supervision of Dr.S.Radha, Prof. & Head.
3. "Point sum average peak detection for LTE random access preamble and its performance evaluation" by Karthik M.S., Ruthiran B., Yasasvini P. under the supervision of Dr.R.Kishore, Asso. Prof.

4. "Performance enhancement of CDMA and cognitive radio based systems" by Anjana Krishan under the supervision of Dr.R.Kalidoss, Asso. Prof.
5. "Tensor based machine learning algorithms for multiway classification of hyper spectral images" by Prithvi Shankar S. Varsha S. Yogesh Kanna R. under the supervision of Dr.N.Venkateswaran, Prof.
6. "Design and implementation of state-of-the-art Bluetooth based security system" by Anandha Sudhan R., Bala Gurunathan M.P., Joseph Suganthan D., Keerthi Vasan T. under the supervision of Mr.S.Ramprabhu, Asst. Prof.
7. "Indoor Navigation Assistance for deaf-blind people" by Arun Kumar C., Gowtham P., Kavya S. under the supervision of Mr. S.Karthie, Asst. Prof.
8. "Matrix valued regression analysis for image super-resolution" by Sandeep Ramachandran, Srinath N. under the supervision of Mr. W.Jino Hans, Asst. Prof.
9. "Wearable monitoring system for Parkinson's disease" by Kiyasul Arif A., Karthigeyan S., Ramakrishnan G. under the supervision of Dr.S.Sundaravadivelu, Prof.
10. "Design and implementation of RF energy harvesting system" by Aparnaa Ramanathan, Ashna K.R. under the supervision of Dr.K.T.Selvan, Prof.
11. "Automated demand response in a residential home with smart meter in the loop" by Shoban Narayan R., Varshini T.N. under the supervision of Dr.Premanand V.Chandramani, Prof.
12. "Alcohol detection system using breathalyzer" Arun kumar A., Deepak V., Dinesh Kumar by Choudhary P. under the supervision of Dr.R.Kalidoss, Asso. Prof.
13. "Automatic wheelchair model in a known environment" by Srividhya N., Sruti K., Soniya V. under the supervision of Dr.M.Anbuselvi, Asso. Prof.



Member from Tata Elxsi evaluating the student project

EVENTS ATTENDED



1. Mr. S. Karthie, Asst. Prof., "International Microwave and RF Conference (IMaRC 2015)," organized by IEEE MTT-S, Hyderabad between 10th 12th Dec. 2015.

2. Dr. S. Joseph Gladwin, Asso. Prof. & Mr. W. Jino Hans, Asst. Prof. "One day Workshop on Image and Speech Processing (WISP 2015)," IIIT Hyderabad on 12th Dec. 2015.

3. Dr. S. Radha, Prof. & Head attended the WPMC-GWS 2015 Conference organized by IEEE & IETE, Hyderabad, and presented a paper titled "Adaptive Cooperative Spectrum Sensing and Access in Cognitive Radio Networks" between 13th to 16th Dec. 2015.

4. Dr. S. Sakthivel Murugan, Asso. Prof., "Prototype implementation of an automatic energy harvesting system for low power devices," 12th IEEE Indian International Conference (INDICON 2015), Jamia Millia Islamia University, New Delhi. The paper also won the Best paper award.

5. Ms. B. Ramani, Asst. Prof. attended the Winter School on Speech and Audio Processing (WiSSAP) during 8th 11th Jan. 2016 held at SSN College of Engineering.

6. Dr. S. Esther Florence, Asso. Prof., Dr. M. Gulam Nabi Alsath, Asso. Prof. & Mr. S. Ramprabhu, Asst. Prof., "Key Electromagnetic Concepts," between 20th 22nd Jan. 2016 at Department of ECE, SSN.

7. Dr. K. J. Jegadish Kumar, Asso. Prof., Mr. M. Lingamanikandan Santhosh (II Year M.E CS) and Mr. R. Balasubramanian (II Year M.E CS), Faculty Development Program on "Embedded Systems design using ARM-CORTEX M4 TM4C123G Starter kit", between 20th 22nd Jan. 2016, at Department of ECE and EEE at St. Joseph's Institute of Technology, Chennai.

8. Ms. P. Kaythry, Asst. Prof. & Mr. W. Jino Hans, Asst. Prof. "Professors Conclave" Vivekananda Youth Forum at AM Jain College, Chennai on 27th Jan. 2016.

9. Mr. W. Jino Hans, Asst. Prof. participated as an invited speaker and presented a paper entitled "Sparse Representation based Higher-order Regression Model for Single Image Super-resolution Algorithm," 5th International conference on Mathematics and Information sciences ICMIS 2016 at Zewail City of science and Technology, Cairo Egypt between 11th and 13th Feb. 2016.

10. Dr. S. Radha, Prof. & Head, "Shiv

Nadar Foundation Leadership Conclave" at HCL Technology Hub, Noida.

11. Ms. P. Kaythry, Asst. Prof. "One day Orientation Programme for NSS Programme Officers," at Anna University, Chennai on 23rd Feb. 2016.

12. Ms. P. Kaythry, Asst. Prof. "One day University workshop on Digital India," NeGD at Anna University on 25th Feb. 2016.

13. Dr. S. Radha, Prof. & Head attended IEEE MINI POCO (Panel of Conference Organizer) conference at Deccan Plaza, Chennai on 28th Feb. 2016.

14. Ms. P. Kaythry, Asst. Prof. attended one day International Workshop on "Innovation and Social Entrepreneurship" at VIT University, Chennai on 16th Mar. 2016.

15. Dr. S. Radha, Prof. & Head, Dr. R. Hemalatha, Asso. Prof. and Ms. S. Aasha Nandhini, JRF attended the mentorship session of Business incubation held at MBA department and presented their proposals submitted to SSN BEST on 11th Apr. 2016.

16. Dr. S. Radha, Prof & Head, Dr. R. Hemalatha, Asso. Prof. and Ms. S. Aasha Nandhini, JRF attended the Business Plan session Business incubation on 27th Apr. 2016.

17. Ms. S. Kirubaveni, Asst. Prof. "Three days workshop on Research Scopes in Micro Engineering" at NIT, Trichy from 28th to 30th Apr. 2016.

18. Mr. S. Ramprabhu, Asst. Prof. attended a meeting with Prof. V.G. Idichandy to discuss about the activities of SSN Innovation centre at SSN Innovation Centre, SSN College of Engineering on 23rd May 2016.

19. Dr. N. Venkateswaran, Prof. attended a "Two-day National workshop on Multi-Sensor data fusion and its applications" organized by Department of CE School of Electronics Engineering (SENSE), VIT University held during April 2-3, 2016.

20. Mr. S. Ramprabhu, Asst. Prof. attended a faculty development program on 'Design Thinking' conducted by CTS on 21.05.2015 at CTS, Siruseri, Chennai.

PROFESSIONAL ROLES AND RECOGNITIONS

1. On 5th Dec. 2015, Dr. S. Sakthivel Murugan, Asso. Prof. was invited as an expert committee member for the board of studies meeting to finalize the curriculum and syllabus for VII and VIII semesters of 2013 regulation of UG degree and I to IV semesters of 2015 regulations of UG and PG Degree program at Mahendra Engineering college, Salem.

2. Dr. A. Jawahar, Prof. is nominated as Academic Council Member of VELS University for a period of two years and attended IX Academic Council meeting on 30th Dec. 2015.

3. Dr. M. Gulam Nabi Alsath, Asso. Prof. reviewed manuscripts submitted to IEEE Antennas and Wireless Propagation Letters, IET Microwaves, Antennas and Propagation.

4. Mr. S. Ramprabhu, Asst. Prof. reviewed a paper titled "A Wide Bandgap Slot Fractal UC-EBG Based on Moore Space-Filling Geometry for Microwave Application" for IEEE-Antennas and Wireless Propagation Letters.

5. Dr. S. Esther Florence, Asso. Prof. reviewed a paper for ACES Journal and the conference ICWITS-ACES 2016, Hawaii.

6. On 31st Jan. 2016, Dr. S. Radha, Prof. & Head has been elected as an executive member of IEEE Madras Section for the year 2016.

7. Dr. S. Joseph Gladwin, Asso. Prof. has been nominated as Chair of IEEE AP-S for the year 2016.

8. Dr. S. Radha, Prof. & Head reviewed research articles for the Journal of Communication and Networks & KSII Transactions on Internet and Information Systems.

9. Dr. A. Jawahar, Prof. conducted Ph.D viva voce examination for his full-time research scholar Mr. M. Bhupeshwaran.

10. Dr. L. Nandita, Asso. Prof. reviewed a paper titled "Performance of 'Modified Switch and Examine' Diversity Combiner over Generalized Gamma Fading Channels" for National Conference on Communication (NCC) 2016.

11. Dr. S. Radha, Prof. & Head attended the IEEE excom meeting on 20th Feb. 2016 and she has been appointed as a Chair for Web Committee and WIE committee by IEEE Madras Section for the year 2016.

12. Dr. S. Sakthivel Murugan, Asso. Prof. conducted the Doctoral Committee meeting for his Full Time research scholars Ms. G. Annalakshmi and Ms. S. Swathi & Part-time research scholar Mr. K. Balaji at Department of ECE, SSNCE on 20th Feb. 2016.

13. Dr. K. Muthumeenakshi, Asso. Prof. conducted the first Doctoral Committee meeting for her Full Time research scholar Ms. I .Divya at ECE Department, SSNCE on 20th Feb. 2016.

14. Dr. P. Vijayalakshmi, Prof. conducted the synopsis meeting for her research scholar Ms. B. Ramani, Asst. Prof. at CEG, Anna University on 23rd Feb. 2016.

15. Mr. C. Vinothkumar, Asst. Prof. reviewed papers titled "Image Descriptors in Radiology Images: A Systematic Review" and "DC-QIM Based Image Watermarking Method via the Contourlet Transform" for the Artificial Intelligence Review Journal (Springer) and Journal of Computational Methods in Sciences and Engineering (JCMSE) respectively.

16. Dr. R. Hemalatha, Asso. Prof. reviewed a paper titled "Hybrid Intelligence-based Data Classification and Forwarding Scheme for WSN" submitted to IEEE Sensors journal.

17. Mr. S. Ramprabhu, Asst. Prof. attended a meeting to discuss the activities of the SSN Innovation at Centre Crystal Growth Centre on 3rd and 18th Mar. 2016.

18. Dr. S. Radha, Prof. & Head was invited to conduct MOCK NBA at Anand Institute of Higher Technology, Chennai on 3rd Mar. 2016.

19. Dr. S. Radha, Prof. & Head chaired a session in the IEEE International Conference at Pondicherry Engineering College, Pondicherry on 17th Mar. 2016.

20. Dr. S. Radha, Prof. & Head attended the IEEE Excom meeting on 19th Mar. 2016.

21. Dr. K. T. Selvan, Prof., Dr. N. Venkateswaran, Prof., Dr. L. Nandita, Asso. Prof., Dr. S. Sakthivel Murugan, Asso. Prof., Dr. M. Gulam Nabi Alsath, Asso. Prof., Dr S. Esther Florence, Asso. Prof., Dr. K. J. Jegadish Kumar, Asso. Prof., chaired a session at the IEEE International Conference on Wireless Communications, Signal Processing and Networking (WiSPNET 2016) held between 23rd to 25th Mar. 2016.

22. Dr. S. Sakthivel Murugan, Asso. Prof. acted as a Session Chair for International Conference on Emerging Technology, Networks and Computational Intelligence (ICETNCI-16) held at Blue Lotus Technologies, Chennai on 28th Mar. 2016.

23. Dr. K. T. Selvan, Prof. reviewed 5 IEEE AP-S Eugene F. Knott Memorial doctoral research grant applications.

24. Dr. K. T. Selvan, Prof. reviewed 3 papers for IEEE Asia Pacific Conference on Antennas and Propagation to be held at Taiwan during July 26-29, 2016.

25. Mr. C. Annadurai, Asst.Prof. acted as a session chair for the International Conference on Communication and Signal Processing (ICCSP) 2016 held at Adhi Parasakthi Engineering College, Melmaruvathur

26. Dr. S. Radha, Prof. & Head. and Dr. S. Joseph Gladwin, Asso. Prof. attended the Executive Committee meeting of IEEE Madras Section on 16th Apr. 2016 and 21st May 2016.

27. Dr. R. Jayaparvathy, Prof. reviewed a manuscript submitted to the British Journal of Mathematics and Computer Science and International Journal of Communication Systems.

28. Dr. R. Jayaparvathy, Prof., acted as Technical Session Chair at the International Conference on Emerging trends in Engineering and Technology at Chennai, on 20th March, 2016.

29. Dr. K T. Selvan, Prof. reviewed a paper for the journal Progress in Electromagnetics Research.

30. Dr. S. Radha, Prof. & Head, Dr. S. Joseph Gladwin & Dr. K. K. Nagarajan, Asso. Profs. have been elevated to "Senior Member" position in IEEE and received Certificate of Appreciation.

31. Dr. S. Joseph Gladwin, Asso. Prof. has been nominated as member of "Technical Program Committee" in "Indian Antenna Week", an Annual IEEE AP-S Conference to be held at Thiagarajar College of Engineering, Madurai.

32. Dr. S. Radha, Prof. & Head conducted the synopsis meeting for her research scholar Ms. Aasha Nandhi, JRF on 11th May 2016.

33. Dr. M. Gulam Nabi Alsath, Asso. Prof. reviewed research articles submitted to IEEE Transactions on Industrial Electronics, IEEE Antennas and Wireless Propagation Letters and IET Electronic Letters.

34. Dr. S. Radha, Prof. & Head reviewed the research article titled “Segment-based Nonparametric Multicycle Spectrum Sensing Method for Cognitive Radios” for Springer plus journal.

35. Dr. N. Edna Elizabeth, Prof. reviewed a paper titled “On Internet based Wireless Sensor Services through Internet Service Provider” for the KSII Transactions on Internet and Information Systems.

36. Dr.N.Venkateswaran, Prof. elected as IETE executive committee member, Chennai section for the period 2016-2018.

Dr. S. Sakthivel Murugan during ICETNCI, 2016

RESEARCH NEWS

PROPOSALS & DISCUSSIONS

1. Dr. S. Sakthivel Murugan, Asso. Prof. presented his proposal to Sonar and Signal Board (SSB) research panel of Naval Research Board at DRDO guest house, Army Head Quarters, New Delhi on 12th Jan. 2016.

2. Dr. S. Sakthivel Murugan, Asso. Prof. and Dr. P. Venugopal, Asso. Prof./Maths visited Naval Physical and Oceanography Laboratory (NPOL) at Cochin and gave a presentation on a funded project to the Geo acoustic inversion team members headed by Dr. Hareesh Kumar, Scientist G & Associate Director, Naval Physical and Oceanography Laboratory (NPOL), Cochin on 3rd Feb. 2016.

3. Dr. B. S. Sreeja, Asso. Prof. and Dr. S. Radha, Prof. & Head attended the pre proposal meeting convened by DST - TSDP committee at Amirta University, Coimbatore on 29th Feb. 2016.

4. Dr. S. Radha, Prof. & Head., Dr. P. Ramasamy, Dean (Research), Dr. K. Muthumeenakshi, Asso. Prof. and Ms. S. Kirubaveni, Asst. Prof. revised the proposal

on "Prototype development of Integrated RF and Vibration Hybrid Energy Harvester for Wireless Sensor Network (WSN) Applications" and submitted it to IGCAR on 25th Apr. 2016.

5. Dr. B. S. Sreeja, Asso. Prof., Dr. S. Radha, Prof. & Head and Ms. C. Joshitha, JRF revised the proposal on "Omni-directional to Directional Antenna for Wireless Applications" and submitted it to IGCAR on 25th Apr. 2016.

6. Dr. K. T. Selvan, Prof. based on the comments from ISRO, revised and submitted the proposal entitled "Bandwidth enhancement of reflectarray antennas" on 26th Apr. 2016.

7. Dr. R. Rajavel, Asso. Prof. and Dr. A. Jawahar, Prof. submitted a proposal to DST-CSRI on the title "Design and DSP Implementation of Reconfigurable Digital Hearing Aid Using Variable Bandwidth Filters" on 31st May 2016.

BOOK & BOOK CHAPTER

1. Book: Dr. M. A. Bhagyaveni, Prof./CEG, Dr. R. Kalidoss, Asso. Prof. and Dr. K. S. Vishvaksenan, Asso. Prof., "Introduction to Analog and Digital Communication," River Publishers, Netherlands, 2016, ISBN: 978-87-93379-33-6 (Hard book), 978-87-93379-32-9 (Ebook).

2. Book Chapter: Dr. S. Radha, Prof. & Head, Dr. R. Hemalatha, Asso. Prof. and Ms. S. Aasha Nandhi, JRF/Full-time Research Scholar, "Efficient Anomaly Detection System for Video Surveillance Application in WVSN with Particle Swarm Optimization," in "Computational Intelligence in Wireless Sensor Networks: Recent Advances and Future Challenges"

JOURNAL ARTICLES

1. Ms. V. Angayarkanni, JRF/Full-time Research Scholar & Dr. S. Radha, Prof. & Head, "Design of Bandwidth Efficient Compressed Sensing based Prediction Measurement Encoder for Video Transmission in Wireless sensor Networks," Wireless personal communications, Springer, pp.1-21, 2016.

2. Mr. Bhupeshwaran Mani (Research Scholar), Dr. A. Jawahar, Prof., Dr. K. Chitra, Prof./VIT University, Chennai & Dr. A. Sivasubramanian, Prof./VIT University, "Role of positive and negative third order dispersion (TOD) on soliton interaction in 160Gbps telecommunication system," Journal of Nonlinear Optical Physics & Materials, vol. 24, no. 4, 2015.

3. Chithradevi Rajagopal (Research Scholar), Nafiza Noorullakhan (PG Scholar), Dr. Sreeja B.S, Asso. Prof. and

Dr. S. Radha, Prof. & Head, "Compact modified circular patch quad-band MIMO antenna with high isolation and low correlation", International Journal of Microwave and Wireless Technologies, pp. 1-10, 2016.

4. Dr. K. J. Jegadish Kumar, Asso. Prof. and Mr. R. Balasubramanian (PG Scholar) "Lightweight Mixcolumn Architecture for Advanced Encryption Standard," International Journal of Computer Applications, vol. 136 no. 11, pp.31-36, Feb 2016.

5. Ms. K. Anusudha (PG Scholar), Dr. N. Venkateswaran, Prof. and Ms. J. Valarmathi, "Secured Medical Image Watermarking with DNA Codec," Multimedia Tools and Applications, Springer, pp1-22, 2016.

6. Ms. K. Anusudha (PG Scholar), Dr. N. Venkateswaran, Prof. and Ms. J. Valarmathi published a paper titled "Swarm Optimization based dual transform algorithm for secure transaction of medical images," Advances in Intelligent Systems and Computing, Springer, pp 483-491, 2016.

7. Dr. K. J. Jegadish Kumar, Asso. Prof. and Ms. P. Kaythry, Asst. Prof., "Image Encryption for wireless Multimedia Networks Using L2DCASKE," International Journal of Advanced Engineering Technology, vol. 7, no. 1, pp 340-345, 2016.

8. Mr. R. Venkatesan (PG Scholar), Dr. K. J. Jegadish Kumar, Asso. Prof., "Harmonic Rejection in 2.4 GHz Gilbert Cell Mixer for Terrestrial Microwave Communication Systems," International Journal of Computer applications, vol. 138, no. 6, pp 28-35, 2016.

9. Ms. Nirmala K, Asst. Prof./BME, Dr. N. Venkateswaran, Prof. and Mr. C. Vinoth Kumar, Asst. Prof., "Fractal Feature Based SVM Classification of Glaucomatous Image Using PCA and Gabor Filter," International Journal of Advanced Engineering Technology, vol. 7, no. 1, pp. 156-159, 2016.

10. Mr. W. Jino Hans, Asst.Prof., Dr. N. Venkateswaran, Prof., Mr. N. Srinath N and Mr. Sandeep Ramachandran, Final year ECE, "An Example-Based Super-Resolution Algorithm for Selfie Images" in The Scientific World Journal, Article ID 8306342, 12 pages, 2016.

11. Mr. W. Jino Hans, Asst.Prof., Dr. N. Venkateswaran, Prof., "Single Image Super-resolution Algorithm Using Efficient Self-Example Learning Strategy," International Journal of Advanced Engineering Technology, vol. 7, no. 1, pp. 8-14, 2016.

12. Mr. Markandan, Research Scholar and Dr. N. Venkateswaran, Prof., "A Lattice reduction aided information precoder for multi user communication system," International Journal of Advanced Engineering Technology.

13. Mr. S. Ramprabhu, Asst. Prof., Mr. M. Lingeshwaran (PG Scholar), Dr. K. Malathi, Asso. Prof., CEG, Dr. S. Esther Florence, Asso. Prof. and Dr. M. Gulam Nabi Alsath, Asso. Prof., "A Low-Profile Paper Substrate-Based Dual-Band FSS for GSM Shielding" IEEE Transactions on Electromagnetic Compatibility, vol. 58, no. 2, pp. 611-614, 2016.

14. Dr. K. J. Jegadish Kumar, Asso. Prof., Dr. S. Joseph Gladwin, Asso. Prof. and Mr. V. Kamaraj, "KAMAR: A Lightweight Feistel Block Cipher Using Cellular Automata" Journal Circuits and Systems, vol. 7, pp. 222-230, 2016.

15. Mr. A. Mani Muthu Raja (PG Scholar), Mr. C. Annadurai, Asst. Prof., "Investigation On Power Optimization In Cooperative Wireless Network Localization," International Journal of Advanced Engineering Technology, vol. 7, no. 2, pp.285-289, 2016.

16. Mr. K. Senthil Kumar, Research scholar and Dr. R. Amutha, Prof., "Energy efficient cooperative communication using QOSTBC in wireless sensor networks," International Journal of Advanced Engineering Technology, vol. 7, no. 1, pp.244-251, 2016.

17. Ms. M. Ani Melfa Roji, PG Scholar, Ms. S. Kirubaveni, Asst. Prof., Dr. S. Radha, Prof., Dr. B. S. Sreeja, Asso. Prof., "Design of Triangular Shaped Piezoelectric Vibration Energy Harvester for MEMS Applications", Australian Journal of Basic and Applied Sciences, vol. 10, no. 5, pp. 29-40, 2016

18. Dr. N. Edna Elizabeth, Prof., S.Nivetha, T. Prasanya Padmasha, I.Gohulalakshmi, UG Students, "Design And Analysis Of Secure Payment Solutions For Transit System Using Smart Cards", International Journal of Advanced Engineering Technology, vol.7, no. 1, pp.113-116, 2016.

18. Dr. L. Nandita, Asso. Prof. and Dr. N. Venkateswaran, Prof., "Finite-SNR DMT of MIMO System with ZF Receiver," International Journal of Advanced Engineering Technology, vol.7, no. 1, pp.136-141, 2016.

19. Dr. N. Edna Elizabeth, Prof., Suresha Barani, PG Scholar, "Registration and Verification of Vehicles Using Secured Algorithm in VANETS", International Journal of Advanced Engineering Technology, vol. 7, no. 1, pp. 231-235, 2016.

20. S.A. Anapagamini and Dr. R. Rajavel, Asso. Prof. "Hardware implementation of ECG denoising system using TMS320C6713 DSP processor," International Journal of Biomedical Engineering and Technology, vol. 21, no. 1, 2016.

CONFERENCE PRESENTATIONS

1. Mr. S. Rajkumar, JRF/Research Scholar, Dr. K. T. Selvan, Prof. and P. H. Rao, Scientist, SAMEER, "Compact two-element UWB fractal monopole MIMO antenna using T-shaped reflecting stub for high isolation," International Microwave and RF Conference 2015, Hyderabad, India between 10th 12th Dec. 2015.

2. Ms. M. P. Actlin Jeeva, JRF/Research Scholar, Dr. P. Vijayalakshmi, Prof. and Dr. T. Nagarajan, Prof. & Head/IT, "Temporal domain filtering approach for multiband speech enhancement," International conference on Microwave, Optical and Communication Engineering, IIT Bhubaneswar between 18th 20th Dec. 2015.

3. Mr. S. Rajkumar, JRF/Research Scholar, Dr. K. T. Selvan, Prof. and P. H. Rao, Scientist, SAMEER "Compact 2-port fractal monopole MIMO antenna with polarization diversity and high isolation," IEEE Applied Electromagnetics Conference 2015, IIT Guwahati, Guwahati, India between 18th 21st Dec. 2015.

4. Ms. S. Mrinalini, Final year UG student, Mr. C. Vinothkumar, Asst.Prof. & Ms. N. S. Abinayalakshmi, Final year UG student, "Wavelet feature based SVM and NAIVE BAYES classification of Glaucomatous Images using PCA and Gabor Filter," 10th International Conference on Intelligent Systems and Control (ISCO' 16), vol. 2, pp. 722-726, Karpagam College of Engineering, Coimbatore on 7th and 8th Jan. 2016.

5. Ms. C. Joshitha, Research Scholar, Ms. S. Divya, PG Student and Dr. B. S. Sreeja, Asso. Prof., "Finite Element Models of Different Types of Electro-Thermal Actuators," International Conference Soft Computing Systems - ICSCS-2016, Noorul Islam University, Thuckalay on 19th Feb. 2016.

6. Ms. Actlin Jeeva M. P, Full-time research scholar, Dr. Nagarajan T, Prof & Head/IT, Dr. Vijayalakshmi P, Prof., "Formant-filters based multi-band speech enhancement algorithm for intelligibility improvement," National Conference on Communications (NCC-2016) at IIT Guwahati between 4th and 6th Mar. 2016.

7. Ms. R. Indhu, Full-time research scholar and Dr. S. Radha, Prof. & Head, "An Optimized Design of Low Frequency Bi-layered Piezo-Strip based Vibration Micro-Generator" IEEE Sponsored 3rd International Conference on innovations in Information Embedded and Communication Systems, Karpagam College of Engineering, Coimbatore on 17th and 18th Mar. 2016.

8. Mr. G. M. Jagan, Mr. N. Arun Palanikumar, Mr. Antony Christen Varun Miranda, Final year ECE 'A' students and Dr. S. Esther Florence, Asso. Prof. "Development of a Planar Sensor for Monitoring Orthopaedic Health," National Conference on Science, Engineering and Management (NCSEM) and also won the Best paper award.

9. Mr. W. Jino Hans, Asst. Prof., Dr. N. Venkateswaran, Prof., Mr. Srinath Narayanan and Mr. Sandeep Ramachandran, Final year ECE, "Fast Single Image Super-resolution algorithm using feature based regression analysis," IEEE International Conference on Wireless Communications, Signal Processing and Networking (WiSPNET 2016) organized by the Department of ECE, SSN College of Engineering, Chennai.

10. Ms. S. Aasha Nandhini, Full-time research scholar and Dr. S. Radha, Prof. & Head., "Compressed Sensing based object detection and tracking system using Measurement Selection Process for Wireless Visual Sensor Networks," IEEE International Conference on Wireless Communications, Signal Processing and Networking (WiSPNET 2016) organized by the Department of ECE, SSN College of Engineering, Chennai.

11. Ms. P. Nirmala, Full-time research scholar and Dr. R. Kishore, Asso. Prof., "A Simple and Efficient Image Fusion algorithm based on Standard Deviation in Wavelet Domain" IEEE International Conference on Wireless Communications, Signal Processing and Networking (WiSPNET 2016) organized by the Department of ECE, SSN College of Engineering, Chennai.

12. Ms. V. Angayarkanni, Full-time research scholar, Ms. V. Akshaya, Dr. S. Radha, Prof. & Head., "Distributed Compressive Video Coding using Enhanced Side Information for WSN" IEEE International Conference on Wireless Communications, Signal Processing and Networking (WiSPNET 2016) organized by the Department of ECE, SSN College of Engineering, Chennai.

13. Ms. J. Florence Gnana Poovathy, Full-time research scholar and Dr. S. Radha, Prof. & Head, "Reconstruction of Compressively Sensed Color Images using Modified Reduced Runtime Recovery Algorithm (MR3A)" IEEE International Conference on Wireless Communications, Signal Processing and Networking (WiSPNET 2016) organized by the Department of ECE, SSN College of Engineering, Chennai.

14. Mr. V. Suganesh, PG Scholar, Ms. J. Florence Gnana Poovathy, Full-time research scholar and Dr. S. Radha, Prof. & Head, "Filtering of Gaussian filter based Embedded Enhancement Technique for Compressively Sensed Images" IEEE International Conference on Wireless Communications, Signal Processing and Networking (WiSPNET 2016) organized by the Department of ECE, SSN College of Engineering, Chennai.

15. Ms. G. Pradeepa, PG Scholar Dr. L. Nandita, Asso. Prof., "Network Lifetime Improvement Using Routing Algorithm With Sleep Mode In Wireless Sensor Network" IEEE International Conference on Wireless Communications, Signal Processing and Networking (WiSPNET 2016) organized by the Department of ECE, SSN College of Engineering, Chennai.

16. Dr. L. Nandita, Asso. Prof., "Improving Detection of Primary User in a Cognitive Radio Network with Malicious Users," IEEE International Conference on Wireless Communications, Signal Processing and Networking (WiSPNET 2016) organized by the Department of ECE, SSN College of Engineering, Chennai.

17. Mr. C. Ashok, PG Scholar and Dr. N. Venkateswaran, Prof. "Support Vector Regression Based DOA Estimation in Heavy Tailed Noise Environment" IEEE International Conference on Wireless Communications, Signal Processing and Networking (WiSPNET 2016) organized by the Department of ECE, SSN College of Engineering, Chennai.

18. Mr. S. SaranRaj, Research Assistant, Ms. V. Padmapriya, Mr. S. Sudharsan, Ms. D. Piruthiha and Dr. N. Venkateswaran, Prof., "Palm Print Biometric Recognition based on Scattering Wavelet Transform" IEEE International Conference on Wireless Communications, Signal Processing and Networking (WiSPNET 2016) organized by the Department of ECE, SSN College of Engineering, Chennai.

19. Mr. G. Harshvardhan, III ECE, Dr. N. Padmapriya, Asst. Prof./Maths and Dr. N. Venkateswaran, Prof., "Assessment of Glaucoma with ocular thermal images using GLCM techniques and Logistic Regression" IEEE International Conference on Wireless Communications, Signal Processing and Networking (WiSPNET 2016) organized by the Department of ECE, SSN College of Engineering, Chennai.

20. Ms. R. Saranya, Mr. K. Senthil Kumar and Dr. R. Amutha, Prof., "Energy efficient hybrid cooperative relaying scheme" International Conference on Engineering Digital Green Era, pp. 80, 2016.

21. Ms. R. Ponuma, Full-time research scholar, Ms. V. Aarthi, PG Scholar and Dr. R. Amutha, Prof., "Cosine Number Transform Based Hybrid Image Compression-Encryption" in Proc. Wireless Communications, Signal Processing and Networking, March 2016.

22. Ms. N. Aishwarya, Full-time research scholar, Ms. S. Abirami, PG Scholar and Dr. R. Amutha, Prof., "Multifocus Image Fusion Using Discrete Wavelet Transform And Sparse Representation", in Proc. Wireless Communications, Signal Processing and Networking, March 2016.

23. Ms. R. Jayalakshmi and Dr. R. Amutha, Prof.,"Quantum Dot Cellular Automata A Review on the new Paradigm in Computation", in Proc. Advances in Electrical and Electronics, Information, Communication and Bio Informatics, February 2016.

24. Mr. K. Senthil Kumar and Dr. R. Amutha, Prof., "Delay efficiency analysis of turbo coded cooperative communication in wireless sensor networks", in Proc. Emerging Trends in VLSI and Communication Engineering, pp. 1-6, February 2016.

25. Ms. M. Aarthi, PG Scholar, Dr. P. Vijayalakshmi, Prof., "Sign Language to Speech Conversion" 5th International Conference on Recent Trends in Information Technology (ICRTIT 2016) held at MIT Campus, Annu University, Chennai.

26. Ms. G. Sangavi, PG Scholar, Ms. K. Mrinalini, Research Scholar, Dr. P. Vijayalakshmi, Prof., "Analysis on Bilingual Machine Translation Systems for English and Tamil" IEEE International Conference on Computation of Power, Energy, Information and Communication (ICCPEIC 2016), Adhiparasakthi Engineering College, Melmaruvathur.

27. Mr. C. Annadurai, Asst. Prof., Dr. V. Nagarajan, "Efficient Optimized Cooperative Mobile Ad-hoc Network," International Conference on Communication and Signal Processing (ICCSP 2016), Adhiparasakthi Engineering College, Melmaruvathur.

28. Ms. M. Ani Melfa Roji, PG Scholar, Ms. S. Kirubaveni, Asst. Prof., Dr. S. Radha, Prof., Dr. B. S. Sreeja, Asso. Prof., "Design of Triangular Shaped Piezoelectric Vibration Energy Harvester for MEMS Applications", Springer International conference on soft computing systems, 2016

29. Ms. N. Priyanka Vasan, PG Scholar, Ms. S. Kirubaveni, Asst. Prof., Dr. B. S. Sreeja, Asso. Prof., Dr. S. Radha, Prof., "Vibration Energy Harvesting for Low power Devices," IEEE International Conference on Innovations in Information Embedded and Communication Systems (ICIIECS - 2016), Karpagam College of Engineering, Coimbatore, volume no.7 page no 905-908.

30. Ms. S. Kirubaveni, Asst. Prof., Dr. S. Radha, Prof., Ms. Indhu, Research Scholar, Dr. B. S. Sreeja, Asso. Prof., "An Optimized Design of Low Frequency Bi-layered Piezo-

Strip based Vibration Micro generator," IEEE International Conference on Innovations in Information Embedded and Communication Systems (ICIIECS - 2016), Karpagam College of Engineering, Coimbatore, vol. 9, pp. 958-963, 2016

31. Ms. Sudha, PG Scholar, Ms. S. Kirubaveni, Asst. Prof., Dr. R. Hemalatha, Asso. Prof., Dr. S. Radha, Prof., "Design of Modified Power Conditioning Circuit for Piezoelectric Vibration Energy Harvester" IEEE International Conference on Wireless Communications, Signal Processing and Networking (WiSPNET 2016) organized by the Department of ECE, SSN College of Engineering, Chennai.

32. Ms. K. Anusudha, PG Scholar, Dr. N. Venkateswaran, Prof. and Ms. J. Valarmathi, "Selective Plane Replacement Watermarking and Cryptography algorithm" Joint International Conference ICPCIT 2016 and ICAIECES 2016, SRM University, Chennai, May 2016.

33. S.Nivetha, UG student, Dr. N. Edna Elizabeth, Prof., T.Prasanya Padmasha, I.Gohulalakshmi, UG Students, "Secure Authentication Process In Smart Cards", 10th International Conference on Intelligent Systems and Control (ISCO 2016), Karpagam College of Engineering, pp 15-19, 2016.

34. Hansini V, UG Student, Dr. N. Edna Elizabeth, Prof., Hemapriya R, Kavitha S, UG Students, "Secured Backscatter Communication Between Smart Cars in a Vehicular Ad-Hoc Network" 10th International Conference on Intelligent Systems and Control (ISCO 2016), Karpagam College of Engineering, pp 784-787, 2016.

35. S. Shahidh Aqeel. PG Scholar, Dr. N. Edna Elizabeth, Prof., "An Optimized Time Bounded Routing On Solar Based Vehicular Ad-Hoc Networks Using Particle Swarm Optimization", 10th International Conference on Intelligent Systems and Control (ISCO 2016), Karpagam College of Engineering, pp 485-489, 2016.

36. N. Anuradha, PG Scholar and Dr. R. Rajavel, Asso. Prof. "Monaural Speech Separation Based on Computational Auditory Scene Analysis", National Conference on Recent Innovation in Signal Processing and Communication (NCRISC'16), Velammal Institute of Technology, Chennai on 13th Apr. 2016.

37. R. Narayane, PG Scholar and Dr. R. Rajavel, Asso. Prof., "Model Based Computational Auditory Scene Analysis for Improving Speech Intelligibility", National Conference on Recent Innovation in Signal Processing and Communication (NCRISC'16), Velammal Institute of Technology, Chennai on 13th Apr. 2016. The paper also won the 'Best Paper Award'

CONSULTANCY SERVICES

1. Dr. S. Radha, HoD., Dr. M. Gulam Nabi Alsath, Asso. Prof., Dr. S. Esther Florence, Asso. Prof. and Mr. S. Ramprabhu, Asst. Prof. extended RF measurement consultancy services to Thanthai Periyar Government Institute of Technology, Vellore, IIIT D&M Kanchipuram, Lab Tech Instruments and Prathyusha Institute of Technology and Management. The total revenue generated during this period is Rs. 24,313/-

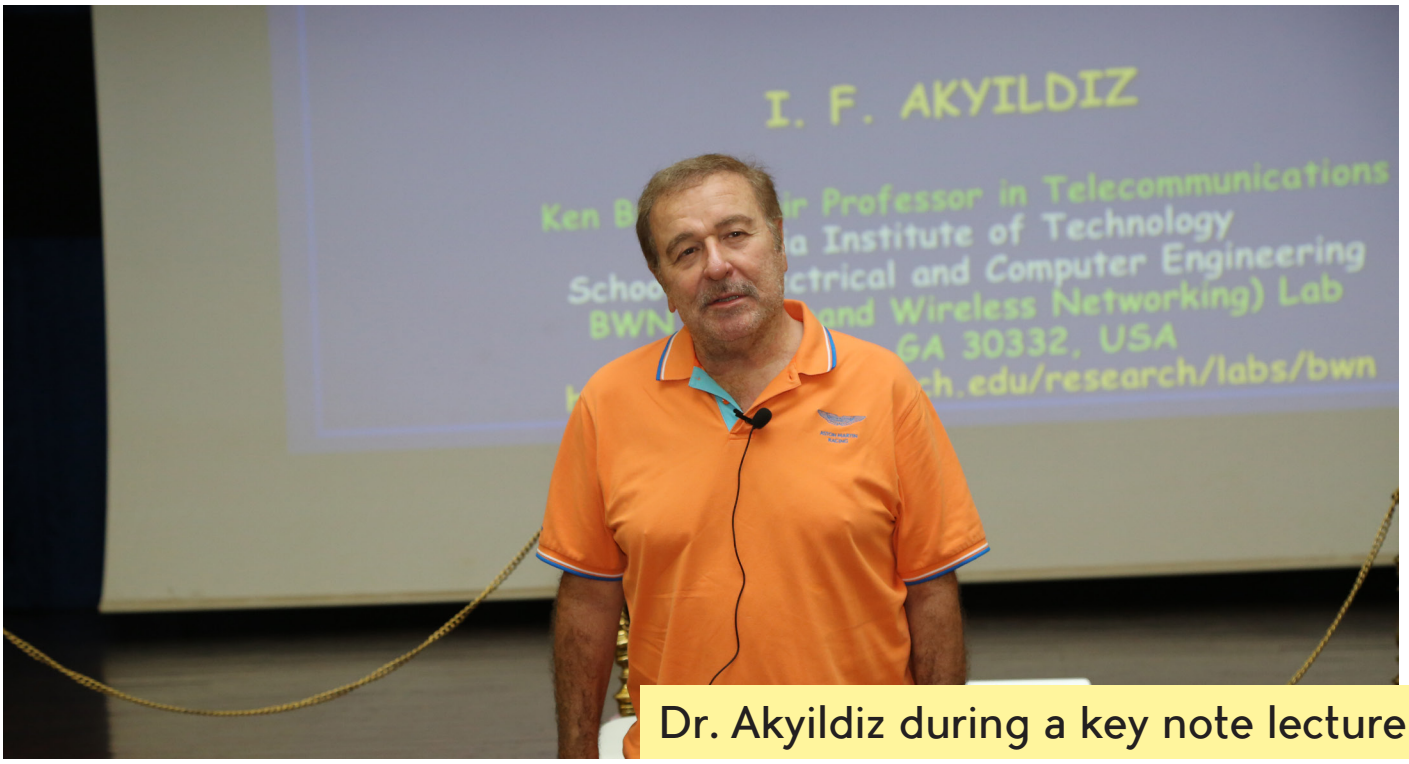
A NOTE ON 'WISPNET 2016'

DR. R. KISHORE

The Department of ECE hosted the IEEE international conference on Wireless Communications, Signal processing and Networking (WiSPNET 2016) during 23-25 March, 2016, under the theme "Advancement in Information Communication towards the creation of smart world". Dr. S. Radha, Prof. & Head, was the conference chair and Dr. R. Kishore, Asso. Prof, Mr. N. Prabagarane, AP were the organizing chairs for the event. WiSPNET, provided a new forum for the world-class researchers to gather and share their research achievements, ideas and progress that is required to solve the future challenges that the Information Communication field face. Overall, the conference received 1300 submissions. After initial screening and two rounds of blind reviews, 528 papers were accepted which yields an acceptance ratio of 40%. Accepted papers were presented in 63 technical sessions conducted in four parallel tracks in three days. Dr. S. A. V. Satya Murty, Distinguished Scientist & Director, IGCAR was the chief guest, Dr. Ian F. Akyildiz, Ken Byers Chair Professor in Telecommunications & Director of the Broadband Wireless Networking Laboratory, School of Electrical & Computer Engineering, Georgia Institute of Technology and Dr. Soon Xin Ng(Michael), Associate Professor in Telecommunications, University of Southampton were the Guest of Honours of the Inaugural function.

The conference proceedings hosted 3 keynote talks by Ian F. Akyildiz, Georgia Institute of Technology, Soon Xin Ng (Michael), University of Southampton and Jianfei Cai, Associate Professor, NTU, Singapore. Further, nine tutorial talks were delivered by Ravikumar Balakrishnan, Research Scientist, Intel Labs, USA, Swarna Ravindra Babu, Founder & CEO of Coovum Smart Systems and Services Private Limited, Chennai, India, S.Vijay Anand, Director - Engineering(Software BU), Aricent Technologies Limited, Chennai, India, R.N. Patel, Professor., Dept. of EEE, FET/SSGI, SSTC Bhilai, India, Atul Dwivedi, Senior Research Fellow, Dept. of Electrical Engineering, National Institute of Technology, Raipur, India, Hrishikesh Venkataraman, Assistant Professor,

Indian Institute of Information Technology(IIIT), Chittoor, India and Vibhav Katre, National Instruments Bangalore. Furthermore, we had an exciting panel discussion on '5G and beyond' with the moderator being M.D. Selvaraj, Assistant Professor, IIITDM, Chennai with panel members Ian F. Akyildiz, Ravikumar Balakrishnan, Ravi Kishore, General Manager at HCL Technologies Ltd., Chennai and Arun Subramanian, Head of Technology and Operations, mGage, India. IEEE WiSPNET 2016 was technically sponsored by IEEE MAS Section and financially sponsored by DRDO, ISRO, CTS, mGage, APCER, Elmack Engg Services and SSN.



Dr. Akyildiz during a key note lecture

Release of WiSPNET Proceedings during Inauguration

A REPORT ON THE NBA VISIT

(MAY 13-15, 2016)

The Department of Electronics and Communication Engineering has applied for Re-accreditation for M.E., Applied Electronics and Communication Systems Programme by National Board of Accreditation during June 2014.

The NBA Committee visited the College and Department during May 13, 14 and 15, 2016. Dr. S. Radha, Professor and Head of the Department gave a presentation about the Department Overview and about the M.E., AE Programme and Dr. R. Amutha, Professor presented for M.E., Communication Systems Program. The Programme Evaluators visited all the PG laboratories, department library, class rooms and seminar halls. The programme evaluators interacted with faculty & staff, students and alumni.

During Exit Meeting, the committee highlighted the Lush green large campus with residential accommodation to faculty and staff; Wide spread departments with very good laboratory space and equipment; Dedicated faculty and committed students; Excellent faculty retention; Good Wi-Fi facility as Institution Strengths. Impressive lab facilities with functional equipment; Qualified faculty; Good success index and academic performance index; Good utilization of alumni resource are highlighted as our department strength by the programme evaluators. The evaluators also highlighted that the journal publications and publication incentives given by management are commendable.

The Department of CSE and EEE also had NBA Committee visit along with the Department of ECE for M.E., Computer Science and Engineering and Power Electronics and Drives respectively.

FACULTY UPDATES

1. Ms. R. Hemalatha, AP. under the guidance of Dr. S. Radha, Prof. & HoD defended her thesis titled "Compressed Sensing based Image Transmission in WMSN with Energy Harvester" on 18th Dec. 2015.

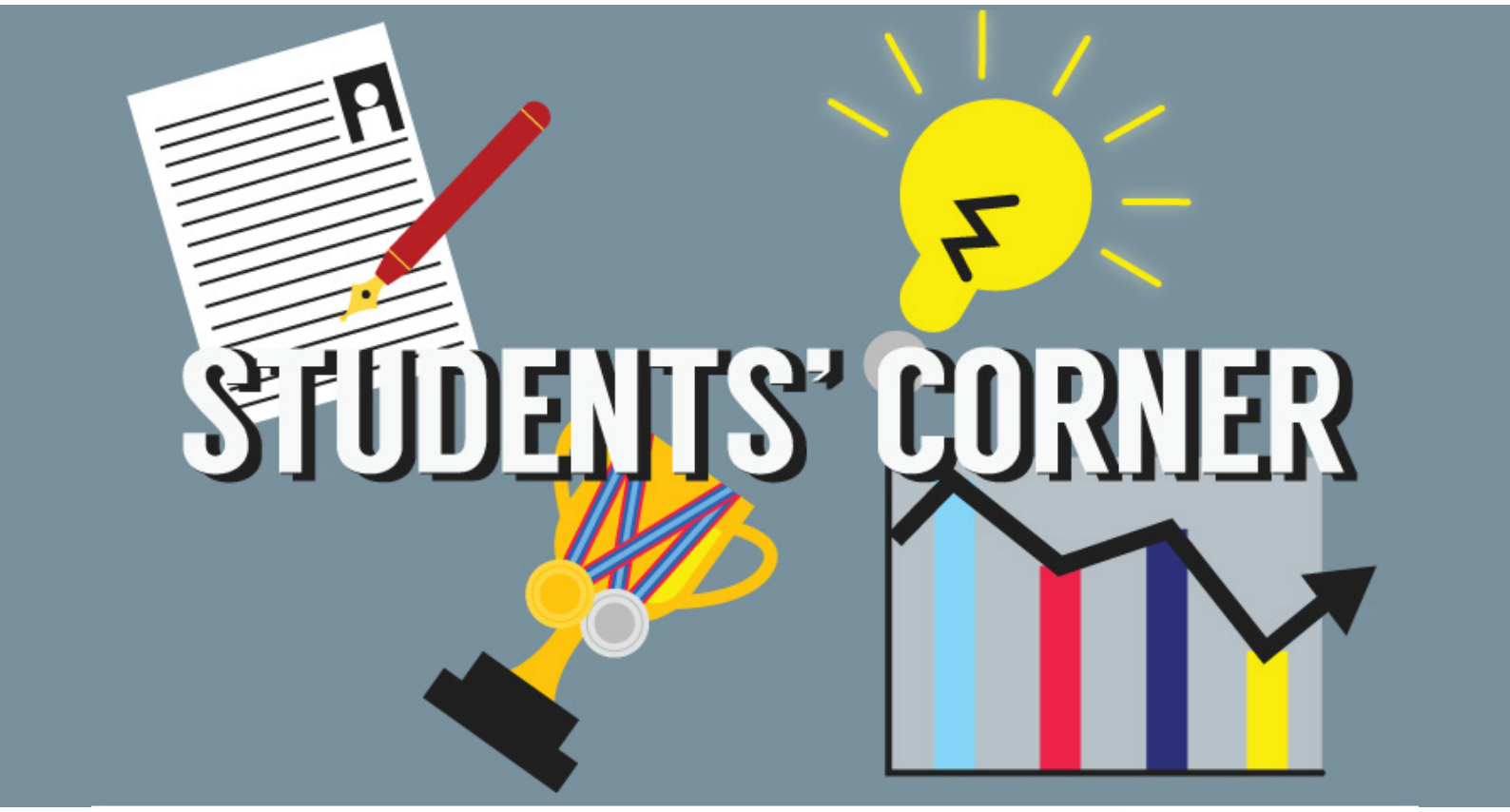
MS.R.HEMALATHA
ASST. PROF.

Abstract: Tremendous growth in microelectronics has led to the development of low-cost and miniaturized cameras which paved way for the evolution of Wireless Multimedia Sensor Networks (WMSNs). However, it is still resource constrained in terms of energy, memory and bandwidth. Hence, this thesis concentrated on utilizing Compressed Sensing to considerably reduce the bandwidth and memory requirements. The measurements required to represent an image are reduced by efficient design of the sampling strategy and reconstruction algorithm. Further, energy consumption is reduced by an efficient CS specific encoding methodology. Photovoltaic energy harvester is designed and implemented to enhance the lifetime of WMSN for image applications.

2. Ms. M. Anbuselvi, AP. under the guidance of Dr. S. Salivahanan, Senior Prof. & Principal defended her thesis titled "Studies on Various Algorithmic Improvements in Non-binary LDPC Decoder Design" on 14th Jan. 2016.

MS.M.ANBUSELVI
ASST. PROF.

Abstract: Tremendous growth in the solid state electronics incorporates high volume of communication between digital machines. The inculcation of modest error correction codes in a communication system, are significant in satisfying the critical demand of data transfer and economical system design. Thus, the choice of a suitable coding enhances the information transfer at any rate less than the channel capacity. Low Density Parity Check (LDPC) code is a linear block code with good decoding performances and inherent parallelism in the algorithmic flow. A challenging direction in the evolution of variations of LDPC is, towards the optimization of these codes in hardware realization. This research work focuses on analyzing various possible algorithmic improvements at the decoder, thereby, reducing the computational complexity of the algorithm and realization of the corresponding hardware architecture. The hardware architectural transformation of Non-binary LDPC decoder with the proposed algorithmic variations has been realized. The design can also be enhanced with different channel conditions and code construction with the cellular automata based concepts over image coding.



STUDENT CO-CURRICULAR ACTIVITIES

TECH CLUB

Mr. R. Rajagopalan, Chief Architect, Communications BU, Embedded Product Design, Tata Elxsi acted as the chief guest for the inauguration of IEEE Communications Society student branch activities and valediction of ECE Association and Tech club activities for the academic year 2015-16 and delivered the presidential address.

The following activities were carried out by the Tech Club of ECE Department between Feb. 2016 Apr. 2016.

1. Session on "Project Guidance - Introduction" by Harshavardhan Raju, III ECE; Srinath N, Shoban Narayan R, Aparnaa Ramanathan, IV ECE on 18th Feb. 2016.
2. Session on "Project Guidance Signal Processing" by Srinath N, IV ECE on 25th Feb. 2016.
3. Session on "Android App Development" by Prithviraj Prabhu, III ECE on 3rd Mar. 2016
4. Session on "MS Application" by Prithvi Shankar S, IV ECE on 17th Mar. 2016.
5. Session on "Embedded Systems Think Tank" by Harshavardhan Raju, III ECE on 17th Mar. 2016.

6. Development of "Graduate Studies Tips Mailing List" by Prithvi Shankar S, IV ECE on 18th Mar. 2016.
7. Session on "Placement Tips & Guidelines" by Prasanya Padmasha, IV ECE on 31st Mar. 2016.

Furthermore intra-departmental contests such as MATLAB coding contest, Project Ideation Contests were conducted on 6th and 7th April 2016. The winners of the contest were given certificates and cash prize.

INTERNSHIPS AND INPLANT TRAININGS

1. Mr. S. Rajkumar, Research scholar under Dr. K. T. Selvan, Prof. went to Nanyang Technological University Singapore as visiting research scholar from 1st to 26th Apr. 2016.
2. Mr. R. Sethu Manickam & Mr. V. Prem Kumar, III ECE B, Bharat Heavy Electricals Limited from 15th Jun. -12th Jul. 2016
3. Ms. Apeksha Avinash Somalinga, III ECE A, IIT Madras
4. Ms. Sanjana Smrithi, III ECE B, Team Indus
5. Ms. M. Mira, III ECE A, Spinircle India pvt ltd., 16th June-16th Jul. 2016.
6. Mr. Nandagopal Srinivasan, III ECE B, IIT Madras
7. Mr. S. Karthiknathan, III ECE A, Graphic Quarters, 20th Jun. 20th Jul. 2016.
8. Mr. Prithviraj Prabhu, III ECE B, Indian Institute of Science Education and Research, Mohali (IASc-INSA-NASI Scheme)
9. Ms. Aadya Natesan, III ECE A, IIT Madras
10. Mr.Nitin Barattwaj, III ECE B, Central Mechanical Engineering Research Institute (CMERI)
11. Mr. Rishab V enkatraman, III ECE B, ZoomRx, Chennai
12. Ms. Srihaarika Vijjappu, III ECE B, HiTech Robotic Systemz Ltd., Gurgaon
13. Ms. Sreenithy, III ECE B, IIT Madras under IASc-INSA-NASI Scheme
14. Mr. Karnik Ram, III ECE A, Naustik Autonomous Systems Lab, Pune
15. Mr. Vivek Sivaraman, III ECE B, Mobodexter Software, Bangalore
16. Ms. M. Sharadha, III ECE B, Uniphore Software Solutions, Chennai
17. Mr. R. Suresh Kumar, III ECE B, IIT Madras

SYMPOSIUM, WORKSHOPS AND OTHER ACHIEVEMENTS

1. Ms. N. Aishwarya, Research Scholar attended the two day National workshop on "Research prospects in Image Fusion and registration" organized by Department of IT, SSNCE on 1st and 2nd Feb. 2016.

2. The SSN Doctorate Scholars day was conducted on 25th Feb. 2016. Dr. S. Radha, Prof. & Head and Dr. A. Jawahar, Prof. evaluated the oral and poster presentations of ECE department. Ms. S. Aasha Nandhini, JRF/Reseach Scholar was awarded for best oral presentation.

Ms. Aasha Nandhini receiving an award during SSN Doctorate Scholars day

3. Ms. I. Divya, Research scholar attended the National workshop on "Software defined radio and cognitive radio Technologies" organized by IEEE student branch and IETE students Forum at St. Peters College of Engineering and Technology on 21st and 22nd Apr. 2016.

4. N. Srividya and V. Soniya (UG students) bagged the first place in the IEEE student project contest 2016, held on May 7th 2016. The project was guided by Dr. M. Anbuselvi and they also received the cash award of Rs. 15,000/-

STUDENT EXTRACURRICULAR ACTIVITIES

SPORTS ACHIEVEMENTS

1. E.Vignesh (III Yr ECE) have represented the Anna University Cricket team in the south zone inter University Cricket tournament organized by Saveetha University, Chennai during 25th Jan to 31st Jan 2016.

2. Divya (II ECE) have represented the Anna University Table Tennis team in the south zone inter University Table Tennis Tournament organized by VikramaSimhapuri University, Nellore during 27th Jan 2016 to 30th Jan 2016. And our college women team secured second place in the tournament.

3. Devi Rajalakshmi (II yr ECE) represented the Anna University in the in the Tamilnadu SDAT inter university women Basketball tournament organized by SDAT,Madurai between 28th Jan and 31st Jan 2016.

4. I. Gohulalakshmi (IV yr ECE) won in the RIVIERA-2016 for Badminton organized VIT vellore during 3rd Feb2016 to 6th Feb 2016.

5. K.DeviRajalakshmi (II Year ECE) has represented the Tamilnadu state women Basketball team in the National women festival games held at Telungana between 7th and 13th Feb. 2016 and she also won - GECFEST 2016 organized by Gudivallru Engineering college, Vijayawada.

6. Divya (II ECE) have represented the Anna University Table Tennis team in the All India inter University Table Tennis Tournament organized by RGPV University, Bhopal during 8th March to 12th March 2016.

7. I. Gohulalakshmi (IV yr ECE) won the REVELS CUP-2016 for badminton organized by MIT, Manipal.

SERVICE TO SOCIETY

1. 30 NSS volunteers of our college participated in “Beach Clean Up Drive” organized by Chennai Trekkers Club at Besant Nagar, Chennai on 21st Feb 2016.

2. 5 NSS volunteers of our volunteered the “Pulse Polio Immunization Drive” in association with Primary Health Centre, Thiruporur on 21st Feb. 2016.

3. Ms. P. Kaythry, AP. and Dr. S. Joseph Gladwin, Asso. Prof. NSS in association with YRC organized one day “Blood Donation camp” in our campus on 26th Feb. 2016

REFLECTIONS

ALUMNI CORNER

SUCCESS IS A MEASURE OF HAPPINESS.

SHANMUGAM RAMASAMY
CLASS OF 2014

Life is a journey, not a destination. This is one of the most important lessons that I have learnt so far. Let me begin by introducing myself. I am Shanmugam Ramasamy, a Big Data Analyst at Yahoo. I graduated from SSN in 2014. Immediately after undergrad, I did my masters in Electrical and Computer engineering at Georgia Tech after which I joined Yahoo. It has definitely been an exciting journey, from the days I was sitting in the last benches at SSN to where I am right now. I would like to reminisce about my voyage and share some of the wisdom and knowledge that I gathered during this journey.

My life started off with the routine regime, the familiar harp of how my score in 10th grades would grant me unremitting happiness. Little did I know that it was just the beginning of the expedition. After 10th, the puppet show continued seamlessly to my 12th grade, undergrad, GRE examinations and job placements. At each juncture, I was greeted with the customary monotony of how paramount it was to work diligently in order to secure my future. It was during this period of constant strife that I contemplated on life and it finally dawned on me that the quest to happiness is never ending.

However, I understood something significant along this journey. There is nothing called as eternal happiness. No success, irrespective of how big it is, will make you happy forever. It is the small memories that you made with friends and family along this journey that are etched in your mind. Few years down the line when you sit and travel down your memory lane, it's not your academic prowess, but the fun and frolic

you had which nonchalantly brings a smile on your face. So never miss out on such delicate intricacies of life for they are the ones which give you the most happiness.

Happiness and success are indeed strongly correlated. However, the way you perceive this correlation makes a tremendous difference in how you lead your life. Looking around, I see so many people defining happiness as a measure of success. I strongly affirm that they have misunderstood the basic tenets of life. Rather, your success should be a measure of happiness. Doesn't matter what you do, the happier you are the more successful you should consider yourself to be. Don't over think about your future or what friends around you are doing. Nothing is certain in this rapidly changing world. Present is all that you got. Make the best use of it. Study what you like, follow you passion, and most importantly, be happy.

All said and done, there is absolutely no substitute to hard work. Our whole life is a continuous metamorphosis right from the time we are born to the places we might venture in the future. Nothing in life is guaranteed. So working hard might not immediately get you to the exact destination you desire to be at but you would definitely reap its benefits later on. There would be times in life when the tides would turn against you without any warning. Even in one's darkest hours, instead of being bogged down by setbacks, one should pick himself up for more challenging endeavours. The satisfaction that you tried your best will goad you to think positive and come back stronger. Most of life's arduous battles are won with the mind and hence a positive attitude is one of the key attributes to success and happiness. In a nutshell, there are difficulties for everyone. Whether you win it over or let it win over you is solely determined by your attitude.

Life as such is a stunning yet meandering odyssey full of twists and turns and I was one among the millions, totally confounded on which path to choose - be it career, college, job, etc. Having crossed that phase, I can definitely tell you with conviction that there is no right or wrong decision with respect to any of them. What is more imperative is how you follow up your decision with a comprehensive plan of action. This is what critically determines your path to success and happiness. So, whatever you decide, completely believe in yourself and put in your full effort, and hope for the best. Even if it doesn't work out right away, I am sure it will sometime in the future. So be positive and always believe that things happen for a reason.

On a concluding note, each one's life is unique and full of opportunities. So never regret the past. Be happy and live in the present. Always remember, happiness defines how successful you are and not vice versa.

A FLAVOR OF THE REAL WORLD THAT I HAPPENED TO TASTE

DHINESH.R
CLASS OF 2015

It has been a year since I graduated and as soon as I did, I felt as if I was a paper boat placed in the real world ocean. I was exposed to a bunch of dazzling opportunities and I was unaware of how unpromising most of them would be in the long run. As a person who is always interested in getting a feel of the real world stuff, following clews steered me towards its entryway.

The first and foremost I would say is our interest, or in a simple and more appealing way, love for science. “Love might not happen on your first sight, but happens for sure right after your first successful experiment”. For those who keep wondering about on what to get their interests on, I would suggest them to experiment on various potential arenas that might kindle their interests. Because, as anyone would say, life has endless opportunities and this is the right age to try them out as much as we can.

The next big thing that chronologically follows right after developing a sheer interest in an arena is a question on how to become an expert in it. Most of the learners give up their efforts on gaining expertise after many attempts despite their deep interest and even the passionate ones would sometimes feel incompetent on industrial grounds. A reassuring truth that needs to be revealed is this: provided that one’s proficiency in fundamentals and basics is excellent, they do not have to toil hard to gain expertise on a specific technique, for it is immaterial to master something that is more likely to become obsolete. That must obviously and conclusively imply that you should be up for getting your hands on multiple verticals in a given domain. “Mastering the art quickly doesn’t matter. Mastering to master any art quickly does”.

A frequently raised question in most aspiring minds is whether they have to work hard. Some even get cornered at hard work which they find as the only option whereas others go about wondering if they should be working smartly. Keeping my preferences apart, I would wrap it up as, “Hard work pays you off right away. Smart work is a million dollar investment”. It is up to you to choose.

The last and most crucial factor is learning. Most of us after graduating tend to detach ourselves from the learning process under a misconception that we are good enough

to get our hands dirty in the professional arena. But it is hard to accept that actual learning which equips us for the real world starts only after we graduate. Therefore I would stress on the fact that, "Learning is the key. Learning makes you grow. Learning the right thing at the right time makes you prosperous".

Having shared my inferences on this professional world through experiences over a year, I strongly believe that this article would help you to gain some insights on the professional world scenario which is about to welcome you very soon.

All the very best!

LIFE DURING MASTERS

BHANUSRI SRIDHARAN
CLASS OF 2015

With so many hopes and dreams, thousands of students from India embark on a journey abroad every year for a graduate school degree. USA being the most popular destination amongst all for a high end education and a lucrative career, I took up this journey to be at the Ohio State University for a Master's degree in Electrical and Computer Engineering. Being an alumna from the ECE department at SSN College of Engineering, it is time for me to tell a tale or two to my fellow juniors about what I have learnt till now during my Master's.

The first thing of all, you gain freedom and independence in every way. No one is there to question your behavior or act. This might be overwhelmingly exciting for you at first. But one needs to know that a great deal of responsibility arises out of this freedom. Your parents won't be around to protect you at every step nor would your beloved professors from SSN be there to give you academic advice at every step. You are pretty much on your own, making decisions for everything.

One major form of this will be during the selection of coursework for your grad school. One wouldn't know what course to take, what not to, what's the future of taking that course, etc. My sincere advice would be to choose the courses wisely as the courses and projects during grad school help you a lot in fetching a job later. I contacted my teacher and mentor at SSN, Prof. Prabagarane who helped me out a great deal in choosing courses and giving me contacts of other alumni from SSN who have done Master's in the same field of specialization. The professors at SSN have always been

willing to help the overall development of a student in the classroom and beyond. So, do keep in touch with them once you guys graduate and give back to the department by helping out your fellow juniors in whatever way one can.

Another big thing I would like to say is projects go a long way in speaking about you and your skills on your resume. I would encourage every single student in our ECE department to actively involve and work on projects with the guidance from the professors at our department. Also, when you are choosing courses for your grad school, choose the ones that have projects as integral part of the coursework. Rest assured, this will help you a great deal later, given without doubt that all of you are smart students hailing from SSN.

One smart thing to do is do not waste the time of around three months you have between graduating from SSN and enrolling into graduate school. Utilize this period to learn and hone your data structures and algorithms skills and also learn as many popular computer languages as you can. This would help you in your internship search immediately in the first semester in your graduate school itself if you are well prepared.

These were a few tips I wanted to convey to the juniors who shall be pursuing your Master's soon and shall be carrying the pride and brand of SSN on your shoulders to the rest of the world. Though the idea of going abroad and living on your own might seem daunting in the beginning, it is a very good life changing experience where you get to know about people, learn different cultures and discover yourself as a person in the whole process. I would strongly encourage the students in our department to pursue higher education abroad and carry the flag of SSN higher and farther.

ALUMNI UPDATES

Praveen John Philip of 2008-2012 Batch cleared RBI Grade B exam and will be joining as Manager at the Reserve Bank of India.