Volume 7 Issue 1

Impulse

Dec. 2017 - May 2018

The Half-Yearly Newsletter Of ECE

EDITORS' NOTE

Hello Readers!

On behalf of the Department of ECE, SSN College of Engineering , it gives us immense pleasure to present the 7th edition of the IMPULSE magazine.

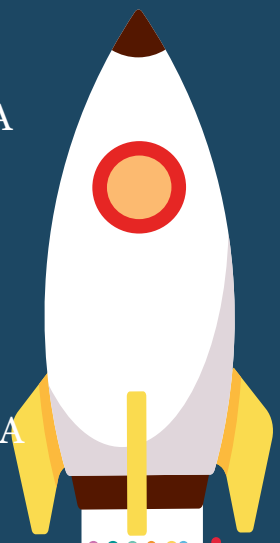
It was both exciting and exigent being the Editors of this issue of our department's Magazine. This magazine is a true reflection of the sincere efforts of our team who worked tirelessly with great zeal like ants collecting food. They went the extra mile to ensure that the magazine was impeccable - design and content wise.

The magazine focuses on the incredible achievements of our students, staff and alumni in curricular, co-curricular and extra-curricular spheres.Furthermore, we hope that this magazine is a repository of information and knowledge, providing a forum for open exchange of ideas.

From all corners of our hearts we would like to express our profound gratitude to Dr. Gulam Nabi Alsath, for his help and guidance in creating this magazine. We are sanguine that, with the support of everyone, this Magazine will make a positive impact on everyone's life.

"PRACTICE LIKE YOU'VE NEVER WON.
PERFORM LIKE YOU'VE NEVER LOST"

NIKHILESH N , IV ECE - B
RAKSHANA S , IV ECE - B



Chinmayi Udaybhaskar, III A
Harini Balasubramaniyam , III A
Shilpa J R, III B
Shivani S, III B
A Uma, IV A
Bharath Raj N, IV A
Brathindara S, IV A
Kashyap Ravichandran, IV A
Mohammed Irshad Hussain, IV A
Nikhilesh N , IV B
Nishita Maria Govias, IV B
P Anusha , IV B
S Amirthavarshini, IV B
Sarjana O S, IV B
S Rakshana IV B
Swati H , IV B

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Nikhilesh N, IV B

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S Rakshana, IV B

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Divya Sanchana A , IV A
Amirthavarshini S, IV B

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Dr. S Radha, HOD, ECE
Dr. K.T Selvan, Professor, ECE

Faculty Coordinators

Dr. M Gulam Nabi Alsath,
Associate Professor, ECE

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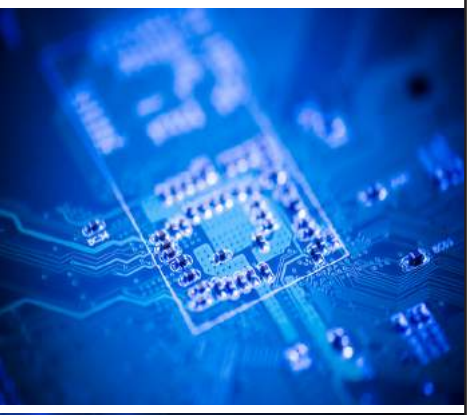
MEET TEAM IMPULSE

Though you are inquisitive and impatient to flip through the pages, take a minute to get to know the enthusiastic and hardworking team behind this edition of IMPULSE.

VOLUME 7

ISSUE 1

CONTENTS



INVITED ARTICLE

LASER BEAM MICROMACHINING (LBMM)

Expectations of the customer with more functionality in compact size drive the world of fabricating microstructures in the design and development of products. Usually, it involves CMOS fabrications processes for microelectronics applications and requires E-beam lithography, Reactive Ion Etching etc. Those mentioned equipment pose challenges such as - requires clean room environment, safety handling issues, technical support requirements etc. They are also very expensive equipments. A laser is an alternative tool to make micro/nanostructures on different materials for making many micro devices and with the advancements of the femto second laser; smooth micro/nano-scale devices are easily fabricated. Usually, it involves laser ablation process to create the defined structure. Laser is not only used in ablation process. It finds applications in many areas, Milling, Laser Induced Periodic Surface Structure (LIPSS), Laser-Induced Breakdown Spectroscopy(LIBS), Cutting and Turning, Drilling and so forth. Laser direct writing offers many advantages compared to conventional lithography - single step process, no mask required, less time consuming, ease the operation etc. Additive manufacturing such as 3D printing (metals plastic, composite etc), LASER-based fabrication is not only dominating the macro scale industries but also the field of MEMS, Microelectronics etc. A schematic representation of recent laser activities is shown in Fig. 1. Recently, laser micro/nano machining has been utilized in many applications comparing other operations like welding, hardening etc. LASER stands for light amplification by stimulated emission of radiation. The reason for using the laser as a source for ablation is it has certain unique characteristics like high mono chromaticity, coherence nature, high-intensity flux, highly directional i.e. can be focused on a small area and so forth. The laser has been used in different applications include film deposition, material characterization and micro structuring. Laser beam machining (LBM) using pulsed lasers involves the alteration of a selective portion of the material.

LBM includes laser welding, drilling, grinding, turning, cutting, shock peening etc. Laser beam micromachining(LBMM) involves the creation of micro features on any material with minimal or no collateral damage to surrounding area. Recently, LBMM has been used in many industrial sectors - microelectronics, optical components fabrication, medical field, chemical industries.

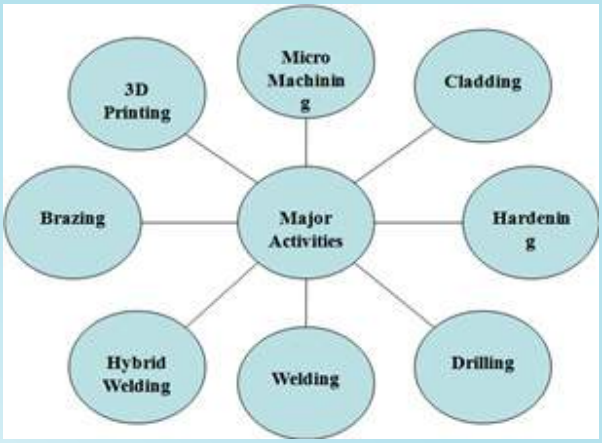


Fig. 1: Laser Major Activities

In LBMM both short and ultra short pulsed lasers (nanosecond, picoseconds and femto second) either from gas or solid state sources have been used to obtain the desired structure on any material by the removal process. A wide variety of lasers' wavelength range from ultraviolet (UV) to mid-infrared (IR) with different harmonics (second, third and fourth), by using proper optical setup, are obtained in LBMM. For nanosecond and longer laser pulses, the ablation is an entirely thermal process for metal targets. In this case, the incident optical energy is immediately converted into heat energy. But this is not true for picoseconds and femto second laser pulses.In picoseconds laser ablation, first the energy is absorbed by the free electrons in the metal and a finite amount of time is needed to convert the absorbed energy by electrons to the lattice via an electron-phonon coupling mechanism. In this case, a higher intensity was supplied in a shorter time which evaporates the material earlier compared to nanosecond laser ablation. This further reduces the molten zone which re-solidifies at the edges of the ablated area and thereby reduces the heat affected zone. In picoseconds, laser ablation occurs in two phases - either solid-vapour or solid-plasma at the surface. So picoseconds laser ablation process can be described by the standard heat diffusion equations. In fs laser processing, a rapid thermalization occurs in the electron gas and due to electron-electron scattering, a temperature distribution will be formed. This thermal diffusion induces changes in the lattice shape of the target material. This change in lattice shape further induces a break in the lattice bond and finally, the material is removed from the surface. This indicates that a higher absorption of incident energy happens at the surface of the material and direct solid to vapour transition occurs. So heat is not dissipated out of the incident beam diameter and reduces the heat affected area.

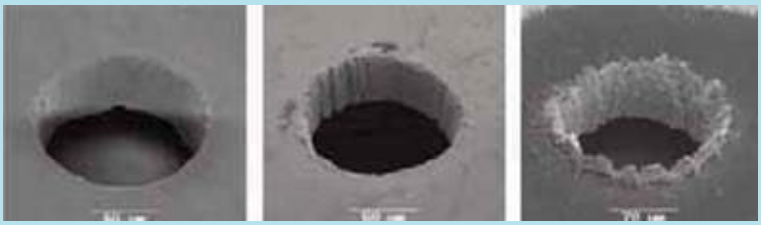


Fig. 2: Micro drilling - Aluminium Ti: sapphire,120fs
a) air
b)vacuum
c) Nd:YAG, 100ns

The application areas of this micromachining include photonics, precision engineering, MEMS, microelectronics etc. In photonics, it has been used in the production of a micro lens, waveguides, mirror and so forth. High-speed drilling of thin films without affecting the adjacent parts can be easily done with the help of ultrafast lasers. The creation of a microfluidic channel for biomedical and sensing application on a variety of polymers is easily done by laser micromachining technique. This laser is a versatile tool could be used for many applications. The fabricated micro holes in aluminium metal using short and ultrashort pulsed laser is depicted in Fig2. An ultra short pulsed laser provides clear and fine edges during ablation process compared to short pulsed laser. The advantages of laser micromachining includes,

- Non-contact machining
- Very high resolution, repeatability and aspect ratios
- Localized heating, minimal re-deposition
- No pre/post processing of material
- Wide range of materials: fragile, ultra-thin and highly reflective surfaces
- Process can be fully automated

Fig 3 shows the laser material processing set up. The laser source could be ns,ps, or fs laser depending upon the structure requirements. The setup utilizes of EM shutter (optical shutter), ND filter (neutral-density filter) and polarizer for adjusting the optical wavelength intensity. In addition to this the focal lenses are used to adjust the beam size. XY stage is used to adjust the position of the sample. Microscopes and computers support the system for visual impacts.

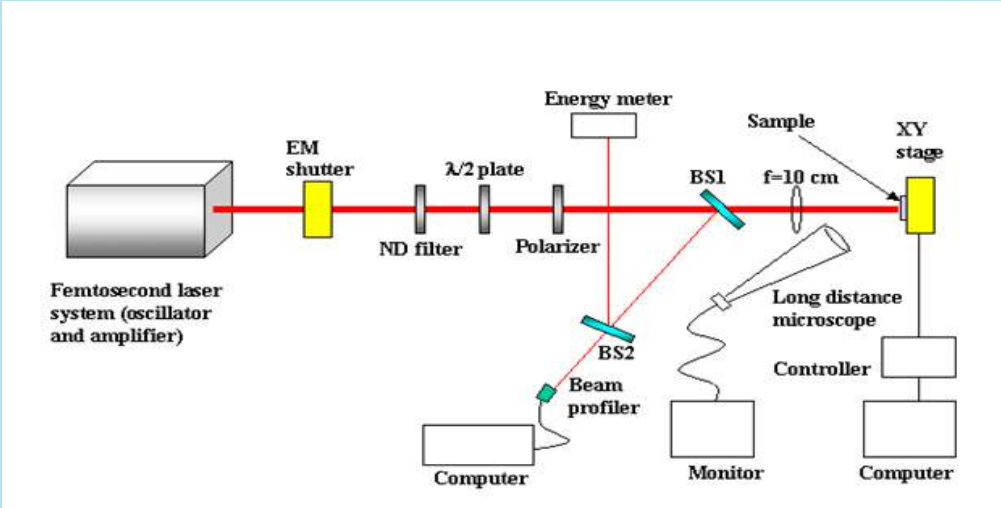


Fig 3. Laser micro machining setup

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2. Shin, J.Y. Oh, H. Sohn, Theoretical and experimental investigations into laser ablation of polyimide and copper films with 355-nm Nd:YVO4 laser, Journal of Materials Processing Technology, Volumes 187–188, 12 June 2007, Pages 260-S.Y.
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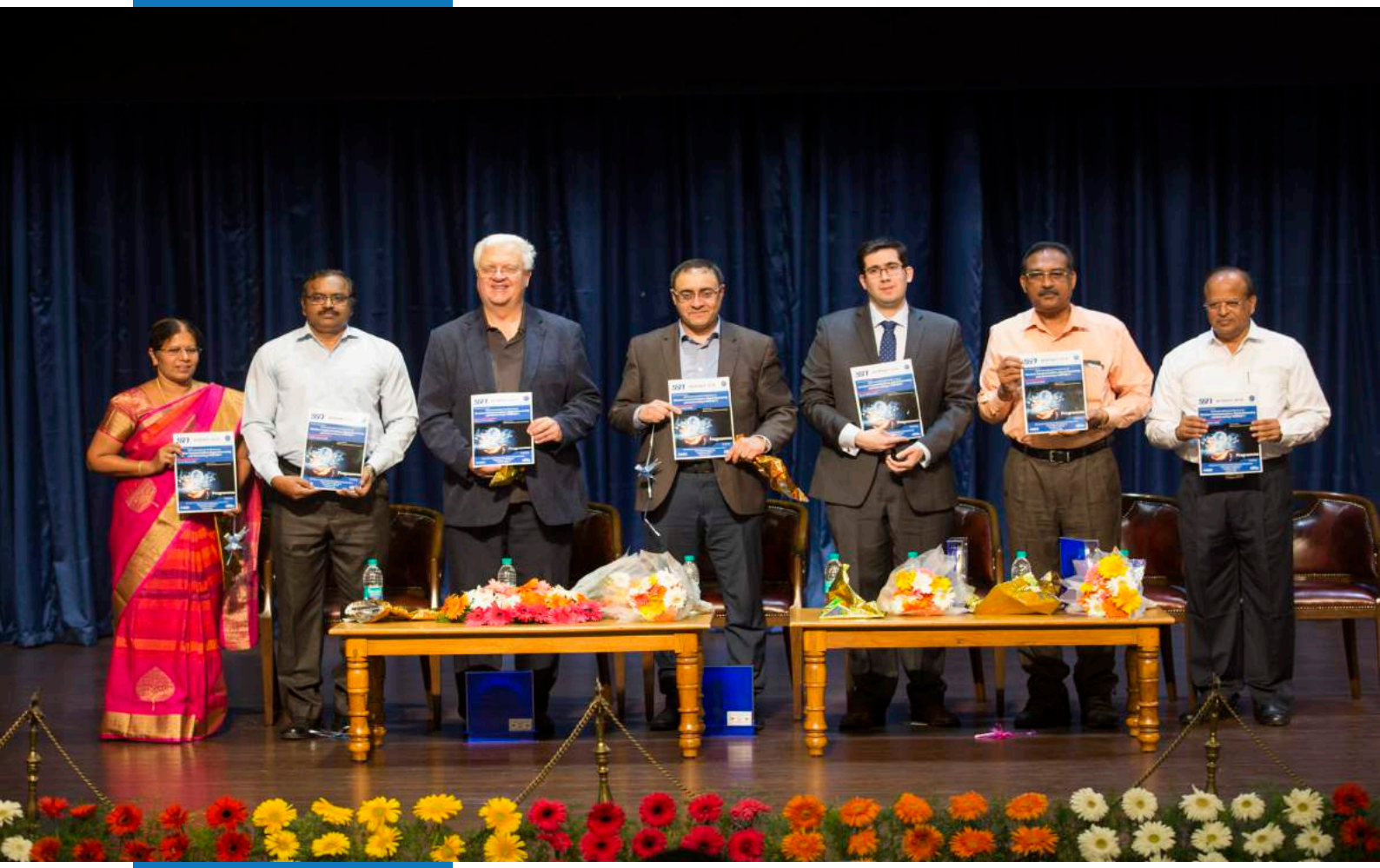
B.S.Sreeja, Asso. Prof. ,
E. Manikandan, Research Scholar

WISPNET'18

INTERNATIONAL CONFERENCE ON WIRELESS COMMUNICATION, SIGNAL PROCESSING AND NETWORKING

WiSPNET



CONFERENCE REPORT

The department of ECE, Sri Sivasubramaniya Nadar College of Engineering, hosted the IEEE international conference on Wireless Communications, Signal processing and Networking (WiSPNET 2018) during 22-24 March, 2018. Dr. S. Radha was the conference chair, Dr. R. Kishore, Asso. Prof/ECE was the conference co-chair and Mr. N. Prabagarane, AP/ECE was the organizing chair for the event. This edition received 286 submissions from 11 different countries of which 110 papers were accepted. The acceptance ratio was 38.46%. Totally 96 papers were registered. All the accepted papers were presented in 12 technical sessions conducted in four parallel tracks in three days.

Dr. Norbert Schwesinger, Chair, Department of Micro-Mechatronical Systems, Technical University of Munich, Dr. Josep Miquel Jornet, Assistant Professor, Department of Electrical Engineering University at Buffalo, The State University of New York, Dr. Ala' Khalifeh, Assistant Professor, Electrical and Computer Engineering, Communication Engineering department, German Jordanian University, Mukesh Jewariya, Scientist, CSIR-National Physical laboratory, Ministry of Science and Technology, Government of India, Shajahan M, Scientist/Engineer, Space Physics Laboratory (SPL), Department of Space, Trivandrum, Kerala, S Vijay Anand, Assistant Vice President – Technology, Aricent were the Speakers of the conference. Dr. P A Manoharan, Chairman, IEEE Madras Section participated in the conference inauguration and addressed the gathering.

A total of 7 key note talks were delivered by the speakers.

DAY 1

Dr. Josep Miquel Jornet
Assistant Professor, Department of Electrical Engineering, University at Buffalo, The State University of New York

Terahertz Communications: A key enabling technology for beyond 5G systems

Mr. Shajahan M,
Scientist/Engineer,
Space Physics Laboratory (SPL),
Department of Space, Trivandrum,
Kerala

Radar Systems Development for Atmospheric Probing

DAY 2

Dr. Ala' Khalifeh,
Assistant Professor, Electrical and Computer Engineering, Communication Engineering department,
German Jordanian University

Hybrid sensor networks for emergency critical scenarios

Dr. Norbert Schwesinger,
Chair, Department of Micro-Mechatronical Systems,
Technical University of Munich

Are energy harvesters suitable for the perspective power supply of smart sensors?

DAY 3

Mr. S Vijay Anand,
Assistant Vice President – Technology,
Aricent

Internet of Things: Fusion between connected car & home

Dr. Josep Miquel Jornet
Assistant Professor, Department of Electrical Engineering, University at Buffalo, The State University of New York

Internet of Things from Technology to Applications

Dr. Mukesh Jewariya,
Scientist, CSIR-National Physical laboratory,
Ministry of Science and Technology,
Government of India

High power Terahertz pulse generation and its application: spectroscopy and imaging

VISITS AND INTERACTIONS

DEC 6

S. Sakthivel Murugan, Asso. Prof., interacted with Prof Dr. Kiran Vijayan, Prof., Dr. Dasaradha Achari, Prof., Dr. T. Sahoo regarding ocean structure and energy harvesting at IIT Kharagpur on 6th Dec. 2017.

DEC 8

S. Sakthivel Murugan, Asso. Prof., visited the Ship Hydrodynamic Laboratory in Ocean and Naval Architecture Department at IIT Kharagpur on 8th Dec. 2017

DEC 15

S. Sakthivel Murugan, Asso. Prof., interacted with Prof Dr. P. Anbazagan, FICDM, ERF (AUS) ASP / IISc Bangalore for a joint work on geotechnical classification for offshore pile installation in shallow water region at IIT Guwahati on 15th Dec. 2017.

DEC 18

Dr. M.Gulam Nabi Alsath, Asso. Prof., Dr. S. Ramprabhu, Asso. Prof. and Dr. S. Esther Florence, Asso. Prof. had discussion with officials from Sahahjanand Laser Technology, Gujarat regarding the establishment of Antenna & EMI/EMC facility at SSN on 18th Dec. 2017.

DEC 27

Dr. S. Ramprabhu, Asso. Prof. and Dr. M. Gulam Nabi Alsath, Asso. Prof. had a meeting with officials from Conet Technologies, Bengaluru regarding the establishment of Antenna & EMI/EMC facility at SSN on 27th Dec. 2017.

JAN 2

Dr. S. Ramprabhu, Asso. Prof. and Dr. M. Gulam Nabi Alsath, Asso. Prof. had a meeting with officials from Techiknow Technologies, Chennai regarding the establishment of Antenna & EMI/EMC facility at SSN on 2nd Jan. 2018.

JAN 25

Dr. R. Hemalatha, Asso. Prof. visited the Seed Processing Unit (FR Paddy) in Tiruvarur and Kisan Vikas Kendra in Needamangalam and discussed on acquiring technical support and real-field access on 25th Jan. 2018.

VISITS AND INTERACTIONS

FEB 6

Dr. M. Gulam Nabi Alsath, Asso. Prof. & Dr. S. Ramprabhu, Asso. Prof. interacted with Mr. Gaurav Jindal, Technical Manager, Vivaan Tech Solution Systems regarding the development of Anechoic Chamber in the Department of ECE, SSNCE on 6th Feb. 2018.

FEB 20

Dr. S. Sakthivel Murugan, Asso. Prof. interacted with Ms. Sakila, Patent writer & adviser regarding patent writing and its procedure at TNSCST on 20th Feb. 2018.

MAR 1

Dr. S. Sakthivel Murugan, Asso. Prof. met Dr. S. Panneerselvam, Prof. & Head, Agro climate Research Center, Tamil Nadu Agricultural University (TNAU) regarding technical expert for TNSCST external funded project at TNAU, Coimbatore on 1st Mar. 2018.

MAR 23

Mr. S. Vijay Anand, Assistant Vice President-Technology Software BU, Aricent, Chennai visited the Underwater acoustic Research lab and interacted with Dr. S. Sakthivel Murugan Asso. Prof. and his team members on various research works taken up in the lab and collaborative work on implementation of IoT on 23rd Mar. 2018.

MAR 24

Dr. Josep Miquel Jornet, Asst. Prof. Electrical Engineering Department, University of Buffalo (the state university of New York) visited the Underwater acoustic Research lab and interacted with Dr. S. Sakthivel Murugan, Asso. Prof. and his team members regarding collaboration on various research

MAR 27

Dr. S. Sakthivel Murugan, Asso. Prof., visited Aricent technologies, OMR and interacted with Mr. Vijay Anand, Assistant Vice President-Technology, Aricent regarding new joint project between Aricent and SSN on development of algorithm for ALDS solution on 27th Mar. 2018.

VISITS AND INTERACTIONS

MAR 28

Dr. S. Sakthivel Murugan, Asso. Prof. visited M/S Imaginations in IITM Tech park and interacted with Mr. Gautham, Director regarding new joint project proposals and underwater excavation techniques for DST external funded project on 28th Mar. 2018.

APR 12

Mr. Dinesh Babu, S.O. Director & Mr. S. Hariharan, Manager-Business Development from M/S. Samhitha Marine, visited underwater acoustic research lab and interacted with Dr. S. Sakthivel Murugan, Asso. Prof. and his team on 12th Apr. 2018.

APR 13

Mr. Vivek Bansal, Addl. General Manager and Mr. C. Mohan, Sales and Application Engineer from M/S. Pan India Consultants Pvt. ltd Haryana, and Dr. Satish Ramachandran, Chief Digital Officer-Innovation from m/s. Arobot Group, Baba research center, visited underwater acoustic research lab and interacted with Dr. S. Sakthivel Murugan, Asso. Prof. and his team on 13th Apr. 2018.

APR 13

Dr. S. Sakthivel Murugan, Asso. Prof., and Mr. M. Vimal Raj, Research Scholar met Mr. Stefan Konnecke, Sales & Product Management, Deep water Sonars and Mr Alan Koong, Regional sales manager for M/S. Teledyne Marine and had discussion about Multibeam sonar systems on 13th Apr. 2018.

APR 17

Ms. P. Kaythry, Asst. Prof. attended one day workshop organized on Foldscope - a project sanctioned by Dept. of Biotechnology, Govt. of India on 17th Apr. 2018 at New Delhi.

APR 20

Dr. N. Venkateswaran and Dr. A. Jawahar, Prof(s) along with all first-year PG students visited the National Atmospheric Research laboratory, ISRO, Tirupati on 20th Apr. 2018.

APR 21

Dr. M. Meenakshi, Prof./CEG visited underwater acoustic research lab and interacted with Dr. S. Sakthivel Murugan, Asso. Prof., on various research works carried through the lab

APR 24

Commander V. M. Apte. I. N (retd) GM, Mr. Ronnie Fernandes, Customer Support Engineer from M/S. ASB systems, Mumbai visited underwater acoustic research lab and interacted with Dr. S. Sakthivel Murugan, Asso. Prof. and his team

APR 26

Dr. S. Kirubaveni, Dr. R. Kishore and Dr. M. Gulam Nabi Alsath, Asso. Prof(s) visited Aricent Technologies Ltd. for a collaborative research project

APR 27

Dr. M. Gulam Nabi Alsath and Dr. S. Ramprabhu, Asso. Prof(s) is in continuous interaction with Mr. Gaurav Verma, Director, Vivaan Tech Solution Systems for developing the RF shielded anechoic chamber in the Department premises under AICTE MODROBS scheme. Mr. Gaurav Verma and his team visited SSN Campus for the technical discussion on the project implementation

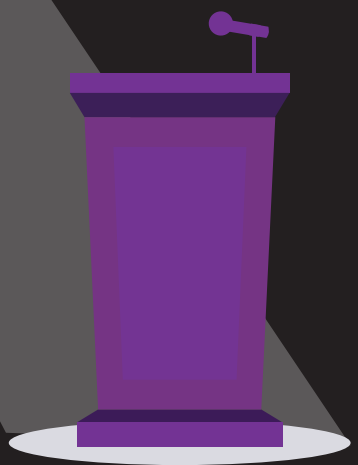
MAY 9

Dr. S. Sakthivel Murugan, Asso. Prof. & Dr. N. Padmapriya, Asst. Prof./Maths visited Arobot Group, Baba research center and interacted with Dr. Satish Ramachandran, Chief Digital Officer-Innovation and his team They also saw the demo of ROV and AUV to be purchased for their DST- SSTP project.

Dr. Varun Prasad, Director, Raads Marine; Mr. T. S. Rangaraan, Director, Nipun Engineering Solution interacted with Dr. S. Sakthivel Murugan, Asso. Prof. and his team.

Dr. R. Jayaparvathy, Prof., Dr. R. Amutha, Prof. and Dr.M. Anbuselvi, Prof. visited HCL Technologies, Ambattur for a discussion regarding syllabus for Diploma Course on Product Engineering.

EXPERT LECTURES



FACULTY TALKS
Elsewhere

01 Dr. M. Gulam Nabi Alsath, Asso. Prof., "Multi-antenna Systems for MIMO Enviornment" at Loyola-ICAM Institute of Technology, Chennai during the 1 day workshop on "Antenna Theory and Design", 16th Dec. 2017.

02 Dr. V. Vaithianathan, Asso. Prof., "VLSI - Implementation Strategies" at the Department of ECE, Velammal Engineering College, Chennai on 24th Jan. 2018.

03 Dr. S. Radha, Prof. & Head, delivered an invited talk and shared a session on International Conference held at Panimalar Engineering College on 10th Feb. 2018.

04 Dr. K. T. Selvan, Prof., "Reflections on professional development for faculty and researchers" at a Professional Development Programmeorganized by the IEEE Antennas and Propagation Society Madras Chapter on 17th Feb. 2018.

05 Dr. N. Venkateswaran, Prof., "Recent Trends in Wireless Communication" at the Department of ECE, Rajalakshmi Engineering College, Chennai on 26th Feb. 2018.

06 Dr. M. Gulam Nabi Alsath, Asso. Prof., "Modern Automotive Antennas" at the Department of ECE, Rajalakshmi Engineering College, Chennai on 2nd Mar. 2018.

07 Dr. M. Gulam Nabi Alsath, Asso. Prof., "Advanced Antenna Technologies," at the Department of ECE, Dhaanish Ahmed College of Engineering, Chennai on 20th Mar. 2018.

08 Dr. K. T. Selvan, Prof., "Fundamentals of antenna measurements" at the IEEE AP-S Madras Chapter's Seminar on "Advanced Topics in Antenna Design and Measurements," at K. Ramakrishnan College of Technology, Trichy on 27th Apr. 2018.

09 Dr. Esther Florence S, Asso. Prof., “Textile Antennas” at the IEEE AP-S Madras Chapter’s Seminar on “Advanced Topics in Antenna Design and Measurements,” at K. Ramakrishnan College of Technology, Trichy on 27th Apr. 2018.

10 On 21st May 2018, Dr. M. Gulam Nabi Alsath, Asso. Prof. delivered a guest lecture on “Passive Filter Design” at Valliammai College of Engineering during the FDTP on “Transmission Lines and Waveguides”.

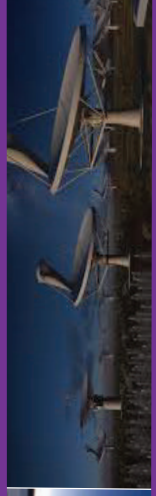
TALKS IN THE Department

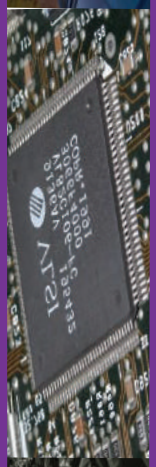
01 Mr. P. Karthikeyan, Technical Lead, Tata Elxsi, "Connected Cars," 1st Feb. 2018 for PG and research scholars.

02 Dr. Ramasubba Reddy, Professor, Biomedical Engineering Division, Department of Applied Mechanics IIT Madras, “Concepts of designing Biomedical Instruments," 6th Feb. 2018 for third year students.

03 Mr. G. Vincent Raj, Scientist D, SAMEER - Centre for Electromagnetics, “EMC Grounding," 9th Feb. 2018 for PG and research scholars.

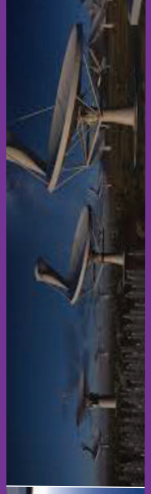
04 Dr. Swarna Ravindra Babu, Managing Director, Coovum Smart Systems and Services Private Limited, “IoT in Manufacturing," 27th Feb. 2018 for all UG, PG and research scholars.

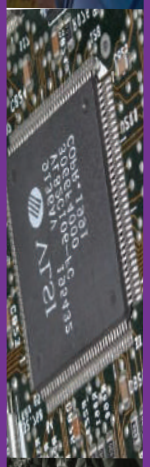










TALKS IN THE Department

05 Mr. R.S. Senthil Kumar, Manager, HCL Technologies, “EMI Mitigation Techniques," 2nd Mar. 2018 for all PG and research scholars.

06 Mr. P. N. Santosh, Co-founder of Byju's, “Higher studies Abroad and India," 16th Mar. 2018, for third year UG students.

07 Dr. M. Meenakshi, Professor, College of Engineering, Guindy, Chennai, “Advancement in Wireless Networks," 26th Mar. 2018 final year UG students and research scholars

08 Dr. Riddhi Ghosh, Education Technical Evangelist, MathWorks, “Introduction to Matlab and Simulink,” 6th Apr. 2018 for all I year PG, Research scholars and faculty members.

09 On 5th Apr. 2018, Lance C.C. Fung, Emeritus Professor, Chair, TPIC, IEEE R10 CQMC Coordinator, School of Engineering and IT, Murdoch University, Australia made a presentation about the TPIC (Technical Program Integrity Committee) activities, responsibilities and expectations on the quality publication and do’s and don’ts while organizing IEEE sponsored conferences along with Q & A. The event was coordinated by Dr. S. Radha, Prof. & Head, Dr. R. Kishore, Asso. Prof. & Mr. N. Prabagarane, Asst. Prof.





EVENTS ORGANIZED

Seven days FDP on "Computer Networks"

Date: 4th – 10th Dec. 2017
Coordinators: Dr. N. Edna Elizabeth, Prof., Ms. P. Kaythry, Asst. Prof. and Dr. R. Kishore, Asso. Prof.
Sponsors: SSN
Resource Persons: Dr. S. Radha Prof. & Head, Mr. N. Sujaudeen, Asst. Prof/Dept. of CSE, Dr. T. S. Pradeep Kumar, Asso. Prof./VIT, Mr. K. B. Gurumoorthy, Asst.Prof./ Sri Ramakrishna Engineering College, Dr. T. Manimegalai.
Participants: 23 Faculty from various Engineering colleges in Tamil Nadu

Seminar on 'Technology, Management and Society'

Date: 25th Jan. 2018
Coordinators: Dr. K. T. Selvan, Prof., Dr. S. Ramprabhu, Asso. Prof. & Ms. P. Kaythry, Asst. Prof.
Resource Persons: Dr. V. Vijayalakshmi, Department of Management Studies, IIT Madras, Professor L.S. Ganesh, Department of Management Studies, IIT Madras; Mr. R. Ramesh, Tata Elxsi; Mr. B. Srinivasan, SSN School of Management
Participants: III and IV year UG students

EVENTS ORGANIZED

National Conference on Information and Communication Technologies-NCICT 2018

Date: 6th Apr. 2018
Convener: Dr. S. Salivahanan, Principal & Dr. S. Radha, Head
Coordinator(s): Dr. K. Muthumeenakshi, Dr. S. Sakthivel Murugan & Dr. S. Joseph Gladwin, Asso. Prof(s).
Keynote Speakers: Mr. A. Nagoor Kani, Founder RBI Publications & Dr. S. S. Karthikeyan, Asst. Prof., IIIT-DM.
No. of submissions: 25
No. of accepted papers: 11
Mr.Nagoor Kani Author and Founder of RBA Publications was the chief guest and inaugurated the conference with his keynote address on "Entrepreneurship on Embedded system". The conference also had another keynote address by Dr.S.S.Karthikeyan from IITDM, Kancheepuram on "Metamaterials and their Applications".

"A day with Alumni for future Alumni" on "Connecting with the Industrial Subject Matter Expert (SME) for professional growth"

Date: 27th Feb. 2018
Coordinators: Dr. S. Sakthivel Murugan, Asso. Prof., Dr. I. Nelson, Asso. Prof., Speakers (Alumni): Mr.M.Narendran, AVP Engineering, Mr.Cooper (BE - 2002 batch) delivered on " How to prepare for industrial expectations", Mr.S.Sakthikumaran, Senior Lead Engineering, Qualcomm India Pvt., Ltd., (ME-AE 2011 batch) delivered on " Breaking Barriers to enter Core VLSI Industries", Mr.S.Kannan, Senior Principal Engineer, Dell Force 10 Networks, (BE - 2002 batch) delivered his views on " Pursuing career in Networking", Mr.G.C.Karunadurai,Senior Software Engineer, Visteon (ME - AE 2011 Batch) interacted with students on " Easy way to enter Core Industry", Ms.Janasi Rajamani, Full Time Research scholar (ME - CS 2013 Batch) shared her views on " An Insight into Academic sector"and Ms.Sayi Soundarya, Full Time Research scholar (ME - CS 2017 Batch) discussed and motivated the students on " Follow your Passion".
Participants: 90 students from First year & Second Year of PG (CS,AE,VLSI) and interested UG students of ECE

EVENTS ORGANIZED

3rd IEEE Conference on Wireless Communications, Signal processing and Networking

Date: 22nd – 24th Mar. 2018
Conference Chair: Dr. S. Radha, Prof & Head
Conference Co-chair: Dr. R. Kishore, Asso. Prof.
Organizing Chair: Mr. N. Prabagarane, Asst. Prof.
Keynote Speakers: Prof. Norbert Schwesinger, Chair, Department of Micro-Mechatronical Systems,Technical University of Munich; Prof. Josep Miquel Jornet, Assistant Professor, Department of Electrical Engineering University at Buffalo, The State University of New York; Prof. Tommaso Melodia, Associate Professor, Department of Electrical and Computer Engineering, Northeastern University, USA; Prof. Dario Pompili, Associate Professor, Department of Electrical and Computer Engineering, Rutgers University, NJ, USA; Dr. Ala' Khalifeh, Assistant Professor, Electrical and Computer Engineering Communication Engineering department, German Jordanian University; Mukesh Jewariya, Scientist, CSIR-National Physical laboratory, Ministry of Science and Technology, Government of India; Shajahan M, Scientist/Engineer, Space Physics Laboratory (SPL), Department of Space, Trivandrum, Kerala; S Vijay Anand, Assistant Vice President – Technology, Aricent
No. of submissions: 300
No. of accepted papers: 110

Students' Forum on Technology, Management and Society

Date: 22nd Feb. 2018
Coordinators: Dr. K. T. Selvan, Prof., Dr. S. Sakthivel Murugan, Asso. Prof., Dr. S. Kirubaveni, Asso. Prof.,
Referees: Ms. Sheela Mangalam, Independent RF Consultant, and Dr. T. Thiruvenkadam, SSN School of Management
Participants: UG students from III and IV year

Events Attended

01 Dr. K. Muthumeenakshi, Asso. Prof. and Dr. R. Hemalatha, Asso. Prof., attended a one day workshop on IOT Enabled Computer Vision and Analytics-ICVA 2018 at SSN College of Engineering on 2nd March. 2018.

02 Dr. S. Sakthivel Murugan, Asso. Prof. attended the DEFEXPO 2018 and interacted with various OEMs of underwater sensors on 11th Apr. 2018.

03 Dr. N. Venkateswaran, Prof., Ms. V. Angeline Beulah, Research Scholar attended GIAN course on "Vogue Technologies on 5G & 5G+ Communication and Vehicular Technology" at NIT, Trichy from 26th Dec. 2017 – 2nd Jan. 2018.

04 Dr. S. Ramprabhu, Asso. Prof. attended the trainer workshop on "Design the Thinking" organised by School of Design Thinking from 9th May 2018 to 11th May 2018 at 8012 FinTech Design Centre, Siruseri, Chennai.

05 Dr. P. Vijayalakshmi, Prof., Ms. T. A. Mariya Celin, Research Scholar attended WiSSAP 2018 at IIT Guwahati on "Signal processing for speech and hearing disorders" from 19th – 22nd Jan. 2018.

06 Ms. P. Kaythry, Asst. Prof. & NSS Programme officer attended one day workshop on "NSS Documentation" at Anna University, Chennai on 10th Mar. 2018.

07 Dr. K. T. Selvan, Prof. attended the IEEE Applied Electromagnetics Conference from Dec. 19th -22nd, 2017 and organized a session on Electromagnetic Education along with Professor Raj Mittra, University of Central Flordia on 21st Dec. 2017.

08 Mr. S. Karthie, Asst. Prof., attended GIAN course on "Coupling-matrix design of advanced RF/Microwave filters" at IIT Madras from Dec. 11th – 16th, 2017.

09 Dr. Edna Elizabeth.N attended a Faculty Internship Programme on VANET Project at Tata Elxsi from 11th to 15th Dec. 2017.

10 Dr. M. Anbuselvi, Asso. Prof., attended three days workshop on "Deep Learning" at VIT, Chennai from 1st – 3rd Feb. 2018.

11 Dr. S. Ramprabhu, Asso. Prof., Dr. M. Gulam Nabi Alsath, Asso. Prof. and Dr. R. Hemalatha, Asso. Prof., attended a faculty development programme on Communication Skills at SSN College of Engineering on 10th Feb. 2018.

12 Dr. R. Amutha, Prof., attended GIAN course on "System design for health care application" at IIT Kharagpur from 18th – 29th Dec. 2017.

PROFESSIONAL ROLES AND RECOGNITIONS

1. Dr. S. Radha, Prof. & Head as an external examiner conducted M.E. project viva-voce at Pondicherry Engineering College, Pondicherry on 16th Dec. 2017.

2. Dr. S. Radha, Prof. & Head attended IEEE Execom Meeting on 16th Dec. 2017.

3. Dr. R. Amutha, Prof. as an external examiner conducted M.E. project viva-voce at Pondicherry Engineering College, Pondicherry on 16th Dec. 2017.

4. M. Anbuselvi, Asso. Prof. acted as an auditor for the evaluation process at Rajalakshmi Engineering College (Autonomous Institution) on 16th Dec. 2017.

5. Dr. B. Ramani, Asso. Prof. reviewed 7 papers for the 4th International Conference on Electrical Energy Systems (ICEES 2018) organized by Department of EEE, SSN College of Engineering. She also chaired a session during the conference on 7th Feb. 2018. She also reviewed papers for WiSPNET 2018.

6. Dr. C. Annadurai, Asso. Prof. reviewed 3 articles submitted to the journal Computers and Electrical Engineering.

7. Dr. K. T. Selvan, Prof. reviewed four doctoral research grant applications and two design contest applications for the IEEE Antennas and Propagation Society and a paper for the International Journal of RF and Microwave Computer Aided Engineering. He also reviewed a papers for IEEE Asia Pacific Conference on Antennas and Propagation to be held in Auckland, New Zealand, during 5th – 8th Aug. 2018.

8. Dr. S. Esther Florence, Asso. Prof., reviewed a paper for IEEE International Conference on Computer, Communication, and Signal Processing (ICCCSP 2018) and a paper for IEEE Transactions on Antennas and Propagation.

9. Dr. S. Ramprabhu, Asso. Prof. reviewed a paper each for IET Electronics Letters, IEEE Transactions on Antennas and Propagation, IEEE Transactions on Electromagnetic Compatibility, Frequenz Journal, IEEE International Conference on Computer, Communication, and Signal Processing (ICCCSP 2018) and WiSPNET 2018.

10. Dr. S. Radha, Prof. & Head attended DC meeting at CEG on 4th Jan. 2018.

11. Dr. S. Radha, Prof. & Head conducted DC meeting for 2 of her research scholars on 5th Jan. 2018.

12. On 6th Jan. 2018, Dr. S. Joseph Gladwin, Asso. Prof., convened the Executive Committee meeting of IEEE AP-S Madras Chapter at IEEE Madras Section office, Chennai, wherein new office bearers of IEEE AP-S Madras Chapter took charge. Dr. S. Joseph Gladwin, Asso. Prof., is nominated as Secretary of IEEE AP-S Madras Chapter for the year 2018.

13. Dr. S. Ramprabhu, Asso. Prof., conducted DC Meeting for his part time research scholar Mr. V. Chandra Prasad at SSNCE, Kalavakkam. Dr. M. Gulam Nabi Alsath, Asso. Prof. as a DC member, attended the same on 8th Jan. 2018.

14. Dr. M. Gulam Nabi Alsath, Asso. Prof., conducted DC meeting for his full time research scholar Mr. M. Shahul Hameed on 11th Jan. 2018.

15. Dr. S. Esther Florence, Asso. Prof., conducted the first Doctoral Committee meeting of her Research scholar Mr. Mohan on 11th Jan. 2018.

16. Dr. K. T. Selvan, Prof. on an invitation from the Defence Institute of Advanced Technology (DIAT), Pune, visited the institute and reviewed four PhD students on 18th Jan. 2018. Dr. K. T. Selvan, Prof. facilitated the execution of a MoU between SSN CE and DIAT.

17. Dr. S. Ramprabhu, Asso. Prof. as a DC Member, attended DC Meeting for the full time research scholar of Dr. K. J. Jegadish Kumar, Asso. Prof. at SSNCE, Kalavakkam on 18th Jan. 2018.

18. Dr. S. Ramprabhu, Asso. Prof., conducted DC Meeting for his part time research scholar Mr. M. Singaram on 19th Jan. 2018.

19. Dr. S. Radha, Prof. & Head attended 6 month Ph.D. progress review meeting at Satyabama University on 20th Jan. 2018.

20. Dr. C. Annadurai, Asso. Prof., conducted first DC meeting for his research scholar Ms. S. Kalpana at Department of ECE on 24th Jan. 2018.

21. Dr. S. Radha, Prof. & Head attended 1st meeting of the Tier-2 Screening Committee (T2SC) on State S&T Programme Related to Location Specific Research & Technology Development Demonstration (LSR & TDD) at TNSCST, Chennai on 29th & 30th Jan. 2018.

22. Dr. B. Ramani, Asso. Prof. & Dr. M. Gulam Nabi Alsath, Asso. Prof. acted as judges for the contest "Innovator of the year" organized by IEEE ComSoc Student chapter on 31st Jan. 2018.

23. Dr. M. Gulam Nabi Alsath, Asso. Prof. reviewed articles submitted to IEEE Antennas and Wireless Propagation Letters, International Journal of Electronics, IEEE Transactions on Components, Packaging and Manufacturing Technology, IEEE Antennas and Propagation Magazine, WiSPNET 2018 and IEEE-EECCMC Conference 2018. He reviewed a book proposal on "Radio Wave Propagation in Vehicular Communication" submitted to IET. He also chaired a session during the 2nd International Conference on Computer, Communication and Signal Processing organized by the Department of IT, SSN College of Engineering on 22nd Feb. 2018.

24. Dr. C. Annadurai, Asso. Prof. reviewed a paper each for Springer's Cluster Computing and Wireless personal communication.

25. Dr. S. Sakthivel Murugan, Asso. Prof. reviewed articles for IEEE Access Journal, Journal of Marine Engineering and Technology by Taylor & Francis, IEEE Access Journal and WiSPNET 2018

26. Dr. P. Vijayalakshmi, Prof. chaired a session titled Artificial intelligence and Machine Learning for the technical paper presentation at Sairam college of engineering for the International conference on communication computing and IoT on 16th Feb. 2018.

27. Dr. S. Sakthivel Murugan, Asso. Prof. attended the Board of Studies (BoS) meeting at Mahendra Engineering college (Autonomous) at Mahendrapuri, Namakkal District on 17th Feb. 2018.

28. Dr. R. Kishore, Asso. Prof. conducted the synopsis meeting for his research scholars Ms. P. Nirmala and Ms. P. Kaythry at SSNCE on 24th Feb. 2018.

29. Dr. M. Anbuselvi, Asso. Prof., reviewed a paper titled, "Check Node LDPC Decoder Stopping Criterion" for the International Journal of Electronics Letters, Taylor & Francis, Feb. 2018.

30. Dr. M. Gulam Nabi Alsath, Asso. Prof. conducted DC meeting for his research scholar Mr. A. Henri Dass on 2nd Mar. 2018.

31. Dr. S. Sakthivel Murugan, Asso. Prof. chaired a session in 3rd IEEE Conference on Emerging Devices and Smart Systems at Mahendra Engineering College, Namakkal District on 3rd Mar. 2018.

32. Dr. N. Venkateswaran, Prof. attended the Ph.D. synopsis meeting for a research scholar at Hindustan University on 7th Mar. 2018.

33. Ms. M. P. Actlin Jeeva, Research Scholar under the guidance of Dr. P. Vijayalakshmi, Prof. defended her thesis titled "Dynamic multiband filter structures for simultaneous improvement of speech quality and intelligibility" on 16th Mar. 2018.

34. Dr. P. Vijayalakshmi, Prof. attended two PhD synopsis meetings at Rajalakshmi College of Engineering on 11th Apr. 2018.

35. Dr. P. Vijayalakshmi is an Area Chair for "Analysis of Speech and Audio signals" of INTERSPEECH 2018.

36. Ms. P. Kaythry, AP/ECE received "Best Faculty" award from Accenture on 19th Mar. 2018.

37. Dr. P. Vijayalakshmi, Prof. attended Board of studies meeting for B.E. (ECE) & M.E. (Applied Electronics) as an Academic council member at Kumaraguru College of Engineering (Autonomous) on 24th Mar. 2018.

38. Dr. S. Radha, Prof. & Head acted as subject expect during the PhD Viva Voce held at Adiparasakthi Engineering College (AEC), Melmaruvathur on 28th Mar. 2018. She also attended a synopsis meeting at AEC on 23rd Apr. 2018.

39. Dr. S. Sundaravadivelu, Prof. acted as subject expert during PhD Viva-Voce held at Ponjesly College of Engineering, Nagercoil on 28th Mar. 2018.

40. Dr. C. Annadurai, Asso. Prof. reviewed articles for Elsevier's Computers and Electrical Engineering, Springer's Cluster Computing and International Journal of Communication Systems.

41. Dr. P. Vijayalakshmi, Prof. acted as a reviewer and session chair for WiSPNET 2018.

42. Mr. C. Vinothkumar, Asst. Prof. reviewed a paper for Springer's Journal of Artificial Intelligence Review and 2 papers for the International Conference on Communication and Signal Processing (ICCSP'18) organized by Adhiparasakthi Engineering College, Melmaruvathur.

43. Dr. N. Venkateswaran, Prof/ECE acted as a Reviewer and Session Chair at WiSPNET 2018

44. Dr. S. Sakthivel Murugan, Asso. Prof. conducted the confirmation doctoral committee meeting for his full time research scholars Ms. G. Annalakshmi & Ms. S. Swathi. Dr. K. Muthumeenakshi, Asso. Prof. as DC member attended the meeting of Ms. S. Swathi on 5th Apr. 2018.

45. Dr. S. Radha, Prof. & Head attended the DC meeting at CEG, Anna University on 12th Apr. 2018.

46. Mr. P. Maran, Research Scholar of Dr. Premanand V. Chandramani, Prof. defended his PhD thesis titled "Phase displacement study in ring VCOs and harmonic suppression techniques in RF mixers" on 18th Apr. 2018.

47. Dr. B. S. Sreeja chaired a session in the "International Conference on Innovations & Discoveries in Science, Engineering and Technology (ICIDSET-18), during 17th and 18th Apr. 2018 at KCG College of Technology, Chennai.

48. Dr. S. Sakthivel Murugan, Asso. Prof. conducted the confirmation doctoral committee meeting for his part time research scholars Mr. M. Somasekar on 21st Apr. 2018.

49. Dr. R. Amutha, Prof. attended a DC meeting at Sathyabama University and VIT University on 21st and 25th Apr. 2018 respectively.

50. Dr. S. Joseph Gladwin, Asso. Prof. was nominated as Member of Executive Committee (ExeCom) of IEEE Madras Section. He is appointed as Chief Editor of IEEE Madras Section Newsletter for the year 2018.

51. Dr. K. Muthumeenakshi, Asso. Prof. reviewed a paper for the International Journal of Communication Systems

52. Dr. R. Amutha, Prof. evaluated a project proposal titled "New transform-based methods of compression of images and volumetric biomedical data" with registration number 2017/27/B/ST6/00391 submitted to National Science Center Poland.

53. Dr. R. Amutha, Prof., Dr. K. Muthumeenakshi, Asso. Prof., Dr. R.Hemalatha, Asso. Prof. Ms. S. Hanis, Asst. Prof., P.Kaythry, Asst. Prof reviewed papers for WiSPNET 2018.

54. Ms. S. Hanis, Asst. Prof. reviewed a Journal paper for Public library of Science.

55. Dr. B. S. Sreeja., Associate professor, reviewed papers for ACES journal, Microwave and optical technology letters and Materials letters.

56. Dr. S. Sakthivel Murugan, Asso. Prof. (PI) & Dr. N. Padmapriya, Asst. Prof./ Maths (Co-PI) conducted the JRF interview for the DST-SSTP external funded project. The panel members were Dr. S. Salivahanan, Principal/SSNCE, Dr. S. Radha, Prof. & Head, Dr. S. Senthil Kumar, Asso. Prof./CSE/CEG, PI and Co-PI.

57. Dr. W. Jino Hans, Asso. Prof. reviewed a paper for IEEE Access.

58. Dr. R. Jayaparvathy, Prof. reviewed a research article for International Journal of Communication Systems.

59. Dr. R. Jayaparvathy, Prof. attended the Doctoral Committee Meeting at PSG College of Technology, Coimbatore on 6th Jan. 2018.

60. Dr. R. Jayaparvathy, Prof. was appointed as Subject Expert for the Ph.D Oral Viva Voce Examination of Ms.R.Menaka on 25th Jan. 2018 at Anna University, Chennai.

61. Dr. R. Jayaparvathy, Prof. attended the Doctoral Committee Meeting at Kongu Engineering College Perundurai on 2nd Mar. 2018.

62. Dr. R. Jayaparvathy, Prof. attended the Doctoral Committee Meeting at PSG College of Technology, Coimbatore on 27th Jan. 2018.

JOURNAL ARTICLES

1. Dr. S. Aasha Nandhini, PDF, Dr. R. Hemalatha, Asso. Prof., Dr. S. Radha, Prof. & Head, Ms. K. Indumathi, (PG-CS, 2015-2017 batch), "Web Enabled Plant Disease Detection System for Agricultural Applications Using WMSN," Springer's Wireless Personal Communications, December 2017 (Published Online), pp. 1-16.

2. Ms. G. Azhaguvarthani (PG-CS, 2015-2017), Dr. B. Ramani, Asso. Prof., "Handwritten text recognition system for English," International Journal of Pure and Applied Mathematics, vol. 117, no. 16, pp. 257--263, 2017.

3. Dr. P. Saravanan, Asso. Prof./EEE, Dr. M. Anbuselvi, Asso. Prof., Dr. S. Salivahanan, Principal, "An Efficient Algorithmic-Architectural Transformation of Quasi-Cyclic Non-Binary Low Density Parity Check Decoder," Journal of Computational and Theoretical Nanoscience, vol. 14, pp.5844–5850, 2017.

4. Dr. P. Saravanan, Asso. Prof./EEE, Dr. M. Anbuselvi, Asso. Prof., "Image coding using Cellular Automata based LDPC codes," International Journal of Computer Science and Network Security, vol.17, no.11, pp. 146-150, 2017.

5. Mr. E. Manikandan, Research Scholar, Dr. B. S. Sreeja, Asso. Prof., Dr. S. Radha, Prof. & Head, Mr. Abhishek Gupta, Mr. Goutam Rana and Mr. S. Prabhu, "Laser Patterning of Thin Film Copper and ITO on Flexible Substrates for Terahertz Antenna Applications," Journal of Laser Micro/Nanoengineering, vol. 12, no. 3, pp.313-320, 2017.

6. Dr. Esther Sundarsingh, Asso. Prof., Dr. Kanagasabai, M., Asso. Prof./CEG & Mr. Ramalingam, V, Asst. Prof./Mech, "Completely integrated multilayered weave electro-textile antenna for wearable applications," International Journal of Microwave and Wireless Technologies, vol. 9, no. 10, pp. 2029-2036, 2017.

7. Ms. P. Kaythry, Asst. Prof., Dr. R. Kishore, Asso. Prof., Ms. V. Praveena, "Energy Efficient Raptor Codes for Error Control in Wireless Body Area Networks," Springer's Wireless Personal Communications, pp. 1-19, Jan. 2018.

8. Ms. K. Madheswari, Asst. Prof., Dr. N. Venkateswaran, Prof., "An Image Contrast Enhancement Algorithm for grayscale images using particle swarm optimization," Multimedia Tools and applications, Springer Journal, pp. 1-17, Jan 2018.

9. Dr. N. Edna Elizabeth, Prof., Mr. TK Gowthaman, Mr. J. Joannes Sam Mertens, Ms. P. Likhitta Dugar, "Intelligent Counter System for Generating Attendance," Microelectronics, Electromagnetics and Telecommunications, Lecture Notes in Electrical Engineering, Springer, vol.471, pp 11-22, Jan. 2018

10. Mr. V. Ramalingam, Asst. Prof./Mech; Dr. M. Kanagasabai, Asso. Prof./CEG; Dr. Esther Florence, Asso. Prof./ECE, "Transit Time Dependent Condition Monitoring of PCBs during Testing for Diagnostics in Electronics Industry," IEEE Transactions on Industrial Electronics, vol. 65, no. 1, pp. 553-560, Jan. 2018.

11. Ms. M. Dhanalakshmi, Asst. Prof./BME, Ms. T. A. Mariya Celin, Research scholar, Dr. T. Nagarajan, Prof & Head/IT, Dr. P. Vijayalakshmi, Prof., "Speech-Input Speech-Output Communication for Dysarthric Speakers Using HMM-Based Speech Recognition and Adaptive Synthesis System", Circuits, Systems and Signal Processing, Vol. 37, Issue 2, pp. 674 – 703, Feb. 2018.

12. Ms. G. Anushiya Rachel, Research scholar, Ms. N. Sripriya, Dr. P. Vijayalakshmi, Prof., Dr. T. Nagarajan, Prof & Head/IT, "Significance of Differenced EGG Signal as a Spectrum in Phase-Difference Computation for the Estimation of Glottal Closure Instants", Circuits, Systems, and Signal Processing, vol. 37, no. 5, pp. 2074 – 2097, May 2018.

13. P. Vijayalakshmi (Prof/ECE), B. Ramani (ASP/ECE), M. P. Actlin Jeeva (Research scholar), T. Nagarajan (Prof & Head/IT), "A Multilingual to Polyglot Speech Synthesizer for Indian Languages Using a Voice-Converted Polyglot Speech Corpus", Circuits, Systems and Signal Processing, vol. 37, no. 5, pp. 2142 – 2163, May 2018.

14. Ms. M. Kanthimathi, Research Scholar, Dr. R. Amutha, Prof., Dr. K. Senthil Kumar, Asst. Prof./REC, "Energy efficiency analysis of differential cooperative algorithm in wireless sensor network," Springer's Cluster Computing, pp. 1-9, Jan. 2018.

15. Mr. M. Bala Subramanian, Research Scholar/Physics, Ms. C. Joshitha, Research Scholar, Dr. B. S. Sreeja, Asso. Prof., Dr. Prita Nair, Prof., "Multiport RF MEMS switch for satellite payload applications," Journal of Microsystem Technologies, pp. 1-9, Dec. 2017 (Published online).

16. Dr. M. Gulam Nabi Alsath, Asso. Prof., Mr. A. Henridass, Research Scholar, Ms. Y. P. Selvam, Research Scholar/CEG, Dr. K. Malathi, Asso. Prof./CEG, Ms. S. Sangeetha, Research Scholar/CEG, Ms. K. Saffrine, Research Scholar/CEG, Dr. S. Ramprabhu, Asso. Prof., Dr. S. K. Palaniswamy, Asst. Prof./SRM, Dr. N. Rajesh, Asst. Prof./VEC, "An Integrated Tri-band/UWB Polarization Diversity Antenna for Vehicular Networks," IEEE Transactions on Vehicular Technology, Feb. 2018.

17. Ms. S. Sangeetha, Research Scholar/CEG, Dr. K. Malathi/CEG, Dr. M. Gulam Nabi Alsath, Asso. Prof., Ms. Y. P. Selvam, Research Scholar/CEG, Ms. K. Saffrine, Research Scholar/CEG, "Compact Multiservice Monopole Antenna for Tablet Devices," International Journal of Electronics, Taylor & Francis, vol. 105 (8), pp.1374-1387, 2018..

18. Ms. Y. P. Selvam, Research Scholar/CEG, Dr. M. Gulam Nabi Alsath, Asso. Prof., Dr. K. Malathi, Asso. Prof./CEG, Ms. L. Elumalai, PG Scholar/CEG, Dr. S. K. Palaniswamy, Asst. Prof./SRM, Ms. S. Sangeetha, Research Scholar/CEG, Ms. K. Saffrine, Research Scholar /CEG, Dr. G. Konganathan, Asso. Prof./CEG, Dr. I. Kulandhaisamy, Faculty/MSME, "A Patch-Slot Antenna Array with Compound Reconfiguration," IEEE Antennas and Wireless Propagation Letters, vol. 17(3), pp. 525 – 528, 2018.

19. Dr. V. Nagarajan, Prof./AEC, Dr. C. Annadurai, Asso. Prof., "A new error analysis technique for cooperative 5G systems," Elsevier's Computer and Electrical Engineering, Feb. 2018.

20. Ms. I. Divya, Research Scholar, Dr. K. Muthumeenakshi, Asso. Prof., Dr. S. Radha, Prof. & Head, "Statistical Analysis on Ambient RF Energy Harvesting for Low Power Wireless Applications," International Journal of Communication Systems, Feb. 2018.

21. Mr. K. A. Karthigeyan, Research Scholar, Dr. Premanand V. Chandramani, Prof., "Study and analysis of DR-VCO for rad-hardness in type II third order CPLL," Elsevier's Microelectronics Reliability, vol. 82, pp. 190-196, March 2018.

22. Dr. M. Anbuselvi, Asso. Prof., Dr. P. Saravanan, Asso. Prof., Dr. S. Joseph Gladwin, Asso. Prof., "Analysis of a Code Construction Method for Non-Binary Quasi-Cyclic Irregular Low Density Parity Check Decode," Journal of Computational and Theoretical Nanoscience, vol. 15, no. 2, pp.719-724, Feb 2018.

23. Dr. S. Kirubaveni, Asso. Prof., Dr. S. Radha, Prof. & Head, Dr. M. Gulam Nabi Alsath, Asso. Prof., Ms. M. Ani Melfa Roji, "Design and Analysis of Cantilever Based Piezoelectric Vibration Energy Harvester," Circuit World, vol. 44(2), pp. 78-86, Feb. 2018.

24. Ms. M. Sudha, Research Scholar, Dr. S. Radha, Prof. & Head, Dr. S. Kirubaveni, Asso. Prof., Ms. R. Kiruthika, Research Scholar, Mr. R. Govindaraj, SRF/SSNRC, Mr. N. Santhosh, Research Scholar/SSNRC, "Experimental study on structural, optoelectronic and room temperature sensing performance of nickel doped ZnO based ethanol sensors," Solid State Sciences, vol. 78, pp. 30-39, 2018.

25. Ms. M. Sudha, Research Scholar, Dr. S. Radha, Prof. & Head, Ms. S. Kirubaveni, Asst. Prof., Ms. R. Kiruthika, Research Scholar, Mr. R. Govindaraj, SRF/SSNRC, Mr. N. Santhosh, Research Scholar/SSNRC, Dr. P. Ramasamy, Dean (Research), "Effect of Precursor Concentration on Structural, Morphological and Optical Properties of ZnO Thin Filmed Sensor for Ethanol Detection," IEEE Transactions on Nanotechnology, vol. 17 (1), pp. 169 – 176, Jan. 2018.

26. Ms. K. Saffrine, Research Scholar/CEG, Dr. K. Malathi, Asso. Prof./CEG, Dr. M. Gulam Nabi Alsath, Asso. Prof., Ms. S. Sangeetha, Research Scholar/CEG, Ms. Y. P. Selvam Research Scholar/CEG, Dr. N. Rajesh, Asst. Prof./VEC, "Multiband reconfigurable microwave filter using dual concentric resonators," International Journal of RF and Microwave Computer Aided Engineering, Wiley Publications, Mar. 2018.

27. Ms. K. Ashwini, Research Scholar and Dr. R. Amutha, Prof., "Compressive sensing based simultaneous fusion and compression of multi-focus images using learned dictionary," Multimedia Tools and Applications, pp. 1-16, Mar. 2018.

28. Dr. W. Jino Hans Asso. Prof., Dr. N. Venkateswaran, Prof., "Selfie image super-resolution using an implicit prior learned from self-examples," Springer's Cluster Computing, pp. 1-9, March 2018.

29. Ms. G. Durga, Asst. Prof., Ms. M. Meryl Rino, (PG-VLSI 2015-2017), "Performance Analysis of Single Event Double Upset Immune D and S-R Flip flops," WSEAS Transactions on Electronics, vol. 9, pp. 61-68, 2018.

30. Ms. R. Subhashini, Research Scholar, Dr. N. Venkateswaran, Prof., "Semi Blind Hyperspectral Unmixing using Non-negative Matrix factorization," Computational Signal Processing and Analysis - Lecture Notes in Electrical Engineering, Springer, pp. 383-393, April 2018.

31. Dr. P. Saravanan, Asso. Prof./EEE, Dr. M. Balaji, Asso. Prof./EEE, Dr. M. Anbuselvi, Asso. Prof. and Dr. R. Arumugam, Prof (Retd.)/EEE, "Investigations on Embedded Processor Architectures for the Speed Control of Switched Reluctance Motor Drive," Journal of Electrical Engineering, vol.18, no.1, pp.442-450, Apr. 2018.

32. Dr.R.Kalidoss, Asso.Prof., M.Saravanan, Research scholar, K.Manikannan, Research scholar, " Analytic Hierarchy Processes for Spectrum Sharing in 5G New Radio Standard," Wireless Personal Communications (Springer), Feb. 2018.

33. B. Lakshmi Dhevi, Research scholar, Dr. K. S. Vishvaksenan, Asso.Prof., Dr. R. Kalidoss, Asso.Prof., "Isolation Enhancement in Dual-Band Microstrip Antenna Array Using Asymmetric Loop Resonator", IEEE Antennas and Wireless Propagation letters, pp. 238-241, vol.17, no.2, 2018.

34. Dr. B. Partibane, Asso.Prof., Dr. R. Kalidoss, Asso.Prof., Dr.R.Karthipan, Asst.Prof./VVEC, "Security Improvement in Next Generation Wireless System by Interleaver in Transceiver Structures", Journal of Cyber Security and Mobility, pp.379-396, vol. 6, no.4, 2017.

35. Selvam Paranche Damodaran, Research scholar, Dr. K. S. Vishvaksenan, Asso. Prof., Dr.Kalidoss Rajakani (Asso.Prof/ECE), "Optimized and low-complexity power allocation and beamforming with full duplex in massive MIMO and small-cell networks", The Journal of Super Computing, pp.1-15, May 2018.

36. Ms. P. Janani, Dr. S. Sakthivel Murugan, Asso. Prof., "Implementation of sea sand in microbial fuel cell for an energy harvesting system using LTC for underwater applications," Indian Journal of Geo Marine Sciences, vol.47, no.4, pp.884-889, Apr. 2018.

37. Ms. P. Nirmala, Research Scholar, Dr. R. Kishore, Asso. Prof., "Efficient Multi Focus Image Fusion Technique Optimized Using MOPSO for Surveillance Applications," International Journal of Intelligent Information Technologies, IGI Global, vol. 14, no. 3, pp. 18-37, 2018.

38. Ms. R. Monika, Asst. Prof./SRM, Dr. R. Hemalatha, Asso. Prof. & Dr. S. Radha, Prof. & Head, "Energy efficient surveillance system using WVSN with reweighted sampling in modified fast Haar wavelet transform domain," in Multimedia Tools and Applications, May 2018.

39. Mr. P. D. Selvam, Research Scholar, Dr. K. S. Vishvaksenan, Asso. Prof., Dr. R. Kalidoss, Asso. Prof., "Optimized and low-complexity power allocation and beamforming with full duplex in massive MIMO and small-cell networks" in Springer's Journal of Supercomputing, May 2018.

40. Mr. S. Karthie, Asst. Prof., Dr. S. Salivahanan, Principal, “Hilbert fractal stub-based wideband microstrip bandpass filter with notched band on low-cost substrate,” Microwave and Optical Technology Letters, vol. 60, no. 5, pp. 1112–1115, May 2018.

41. Mr. P. D. Selvam, Research Scholar, Dr. K. S. Vishvaksenan, Asso. Prof., “Mutual information of massive MIMO systems on block Rayleigh-faded channels” in Springer’s Cluster Computing - The Journal of Networks, Software Tools and Applications, Mar. 2018.

CONFERENCE PRESENTATIONS

1. S. Sakthivel Murugan, Asso. Prof., “A Survey on Fuzzy C Means algorithm using Empirical mode Decomposition for Underwater Image Processing” & “Implementation of acoustic propagation model for predicting ocean bottom in geo-acoustic inversion” in 5th International Conference on Ship and Offshore Technology - India, ICSOT 2017: Innovation in ocean structures” held at IIT Kharaghpur on 7th and 8th Dec. 2017.

2. S. Sakthivel Murugan, Asso. Prof., “Geo Acoustic Inversion method for analyzing impact due to sediments in underwater channel” in the 39th Indian Geotechnical Conference 2017 GeoNEst2017 held at IIT Guwahati, India from 14th – 16th Dec. 2017.

3. Mr. V. Lingasamy, Research Scholar, Ms. M. Akila, Research Scholar, Dr. K. T. Selvan, Prof.,“On the conceptual equivalence of reflectarray and conductor-backed artificial lens” at AEMC 2017, held at Aurangabad from 19th – 22nd Dec. 2017.

4. Ms. S. Swathi, Research Scholar, Dr. S. Sakthivel Murugan, Asso. Prof., “An Efficient MI waveguide based Underground wireless Communication for Smart Irrigation,” in the Proc. of 14th IEEE India Council International conference INDICON 2017 held during 15th -17th Dec. 2017 at IIT Roorkee.

5. Ms. Nithya Sivakami, Dr. S. Sakthivel Murugan, Asso. Prof., "Study on Suitable Electrode for Energy Harvesting using Galvanic Cell in Sea water," 4th International Conference on Ocean Engineering (ICOE 2018) at IIT Madras held on 19th & 20th Feb. 2018.

6. Mr. M. Somasekar, Research Scholar, Dr. S. Sakthivel Murugan, Asso. Prof., Dr. N. Padmapriya, Asst. Prof./Maths, "Exploration of Fuzzy C-Means and K-Mean clustering algorithm with Empirical Mode Decomposition for Feature Extraction of Underwater Images," 4th International Conference on Ocean Engineering (ICOE 2018) at IIT Madras held on 19th & 20th Feb. 2018.

7. Ms. G. Annalakshmi, Research Scholar, Dr. S. Sakthivel Murugan, Asso. Prof., "Analyzing the geo properties of marine sediments and water column nutrients along Tamilnadu coastal Region," 4th International Conference on Ocean Engineering (ICOE 2018) at IIT Madras held on 19th & 20th Feb. 2018.

8. Mr. Nishanth Vimalesh, UG/ECE (Batch 2014-2018), Dr. M. Gulam Nabi Alsath, Asso. Prof., "Design and Implementation of an Interactive Road Safety System for Young Bikers" in the Proc. of 4th IEEE International Conference on Advances in Electrical, Electronics, Information, Communication and Bio-Informatics (AEEICB-18), pp. 152-155, held at Prathyusha Engineering College, Chennai during 27th – 28th Feb, 2018.

9. Ms. B. Pranamika, UG/ECE (Batch 2015-2019), Dr. M. Gulam Nabi Alsath, Asso. Prof., Ms. R. P. Saranya, UG/ECE (Batch 2015-2019), Ms. Gayathri, UG/ECE (Batch 2015-2019), Ms. Shruti Penumatsa, UG/ECE (Batch 2011-2015), Ms. Radhika Prasad UG/ECE (Batch 2011-2015), "Design of a Single Layer Dual Band Reflectarray Antenna" in the Proc. of 4th IEEE International Conference on Advances in Electrical, Electronics, Information, Communication and Bio-Informatics (AEEICB-18), pp. 185-188, held at Prathyusha Engineering College, Chennai during 27th – 28th Feb, 2018.

10. Ms. K Pushpalatha, Ms. S Rajalakshmi, Ms. B. Pranamika, UG/ECE (Batch 2015-2019) students, Dr. M. Gulam Nabi Alsath, Asso. Prof., "Design of Combined UWB and MIMO UWB Antenna for Mobile Terminals" in the Proc. of 4th IEEE International Conference on Advances in Electrical, Electronics, Information, Communication and Bio-Informatics (AEEICB-18), pp. 198-202, held at Prathyusha Engineering College, Chennai during 27th – 28th Feb, 2018.

11. Ms. Jayalakshmi Rajmohan, Dr. R Amutha, Prof., "A Theoretical Study on the Implementation of Quantum Dot Cellular Automata," 4th International conference on Advances in Electrical, Electronics, Information, Communication and Bioinformatics (AEEICB'18) at Prathyusha Engineering college on 27th Feb. 2018.

12. Ms. R. Ponuma, Research Scholar, Dr. R Amutha, Prof., Ms. B. Haritha, (PG-CS 2016-2018), "Compressive Sensing and Hyper-Chaos Based Image Compression-Encryption" 4th International conference on Advances in Electrical, Electronics, Information, Communication and Bioinformatics (AEEICB'18) at Prathyusha Engineering college on 27th Feb. 2018.

13. Ms. A. Arivu selvi, (PG-CS 2016-2018), Dr. R Amutha, Prof., Dr. K. Muthmeenakshi, Asso. Prof., Dr. N. Edna Elizabeth, Prof., "Design of smart vest to monitor physical activities of children," 4th International conference on Advances in Electrical, Electronics, Information, Communication and Bioinformatics (AEEICB'18) at Prathyusha Engineering college on 27th Feb. 2018.

14. Ms. T. M. Minipriya, Research Scholar, Dr. R. Rajavel, Asso. Prof., "Review of Ideal Binary and Ratio Mask Estimation Techniques for Monaural Speech Separation" in the Proc. of 4th IEEE International Conference on Advances in Electrical, Electronics, Information, Communication and Bio-Informatics (AEEICB'18), pp. 367-371, held at Prathyusha Engineering College, Chennai during 27-28 Feb, 2018.

15. Mr. V. Lingasamy, Research Scholar, Dr. K. T. Selvan, Prof. and Rajeev Jyoti, Scientist/ISRO, "Wideband, Stub-loaded Cross-dipole Reflectarray Elements for Ku Band," in the proceedings of Progress in Electromagnetics Research Symposium - Fall (PIERS - FALL), 2017, Singapore, pp: 800-807, February 19, 2018.

16. Ms. G. Annalakshmi, Research Scholar, Dr. S. Sakthivel Murugan, Asso. Prof., "Investigations on the geo acoustic properties of sediment in Poompuhar" in the Proc. of International Conference on Sonar Systems and sensors (ICONS 2018), 22nd – 24th Feb. 2018, Naval physical and Oceanographic Laboratory (NPOL), Kochi, India.

17. Ms. Nithya, AC Tech, Dr. S. Sakthivel Murugan, Asso. Prof., "Energy harvesting of hybrid seawater activated batteries," 2nd International Conference on recent trends in analytical Chemistry organized by University of Madras from 15th – 17th Mar. 2018.

18. Ms. T. Deepa, PG scholar/CEG, Ms. K. Saffrine, RS/CEG, Ms. S. Padmathilagam, PG scholar/CEG, Dr. K. Malathi, Asso. Prof./CEG, Dr. M. Gulam Nabi Alsath, Asso. Prof., "A Coupled Square Loop Dual Pass band Bandwidth Reconfigurable Filter" in the 4th International Conference on Science Engineering Technology-ICONSET 2018, held at Jeppiaar Engineering College, Chennai during March 23-24, 2018.

19. Ms. S. Padmathilagam, PG scholar/CEG, Ms. K. Saffrine, RS/CEG, Dr. K. Malathi, Asso. Prof./CEG, Ms. T. Deepa, PG scholar/CEG, Dr. M. Gulam Nabi Alsath, Asso. Prof., "Planar Multiband Monopole antenna for Tablet applications with Metallic bottom cover" in the 4th International Conference on Science Engineering Technology-ICONSET 2018, held at Jeppiaar Engineering College, Chennai during March 23-24, 2018.

20. Mr. E. Manikandan, Research Scholar, Dr. B. S. Sreeja, Asso. Prof., Dr. S. Radha, Prof. & Head, "Micro-fabrication of Terahertz Component by Laser Ablation" in the Proc. of National Photonics Symposium (NPS-2018), Cochin University of Science and Technology, Cochin during Feb. 27th to Mar. 1st, 2018 and received 'Best Paper Award'.

21. Ms. A. Harshavardhini, PG Student, Ms. B. Sakthi Abirami, Research Scholar/ ECE and Dr. S. Esther Florence, Asso. Prof., "Design of Log-Periodic Dipole Antenna for GPS Applications," International Conference on Communication and Signal Processing, Adhiparasakthi Engineering College, Melmaruvathur, Apr. 3-5, 2018.

22. Ms. M. Umeha, (PG-CS 2016-2018 batch), Dr. R. Hemalatha, Asso. Prof., Dr. S. Radha, Prof. & Head, "Structural Crack Detection using High Boost Filtering based Enhanced Average Thresholding" in the Proc. of IEEE International Conference on Communication and Signal Processing held at Adhiparasakthi Engineering College, Melmaruvathur during Apr. 3rd – 5th, 2018, pp. 1000-1004.

23. Ms. R. Kiruthika, Research Scholar, Ms. E. Priyadharshini, PG Scholar, Dr. S. Kirubaveni, Asso. Prof., Dr. S. Radha, Prof. & Head, "Fabrication and Characterization of ZnO nanostructured thin film piezoelectric sensor for accelerometer application" in the Proc. of the International Conference on Innovations & Discoveries in Science, Engineering & Technology (ICIDSET-18) held at KCG College of Technology during April 17-18, 2018.

24. Ms. M. Sudha, Research Scholar, Ms. M. Priyadharshini, PG Scholar, Dr. S. Kirubaveni, Asso. Prof., Dr. S. Radha, Prof. & Head, "Fabrication of Nickel doped ZnO/PEDOT: PSS Schottky diode based Ultraviolet Photodetector" in the Proc. of the International Conference on Innovations & Discoveries in Science, Engineering & Technology (ICIDSET-18) held at KCG College of Technology during April 17-18, 2018.

25. Ms. E. Velkani (IV/ECE), Ms. Rapuru Srinithya (IV/ECE), Dr. M. Gulam Nabi Alsath, Asso. Prof., Dr. S. Kirubaveni, Asso. Prof., "Design and Implementation of Microwave Based Ethanol Sensor" in the Proc. of the International Conference on Innovations & Discoveries in Science, Engineering & Technology (ICIDSET-18) held at KCG College of Technology during April 17-18, 2018 and received 'Best Paper Award'.

26. Mr. M. Mohana Krishnan (UG/ECE 2013-17 batch), Mr. G. S. Sudharsana Prasad (IV/ECE), Dr. Gulam Nabi Alsath, Asso. Prof., Mr. R. Balaji (UG/ECE 2013-17 batch), Mr. S. Logesh (UG/ECE 2013-17 batch), "Audio Transmission Through Free Space Optics using Visible Light" in the Proc. of the National Conference on Emerging Trends in RF and Engineering Sciences hled at Annamalai University during Apr. 26th & 27th, 2018.

27. Mr. G. S. Sudharsana Prasad (IV/ECE), Mr. K. Arun (IV/ECE), Dr. M. Gulam Nabi Alsath, Asso. Prof., "Design of Shared Aperture Microstrip Antenna Array for Conformal 5G Communications" in the Proc. of the National Conference on Emerging Trends in RF and Engineering Sciences held at Annamalai University during Apr. 26th & 27th, 2018.

28. Mr. Y. Panneer Selvam, Research Scholar/CEG, Dr. K. Malathi, Asso. Prof./CEG, Dr. M. Gulam Nabi Alsath, Asso. Prof./ECE, Ms. K. Saffrine, Research Scholar/CEG, Ms. S. Sangeetha, Research Scholar/CEG, "A Four Port Frequency Reconfigurable Antenna Array for MIMO Terminals" in the Proc. of the National Conference on Emerging Trends in RF and Engineering Sciences, held at Annamalai University during April 26-27, 2018, pp. 136-142.

29. Ms. A. Rekha, Ms. Sowmya Bhatraju, Ms. S. Srivaishnavi (IV ECE), Dr. N. Venkateswaran, Prof., "Smart Agricultural Soil Tester using Image Processing" in the 2-day National Conference on Smart solutions for research in energy, agriculture, and challenges in Health Informatics organized by Department of CSE, SSNCE during Feb. 23rd – 24th, 2018

30. Ms. R. Indhu, Research Scholar, Dr. S. Radha, Prof. & Head, Mr. V. Sathiesh Kumar, Dr. B. S. Sreeja, Asso. Prof., Mr. E. Manikandan, Research Scholar, "Study on Cholesterol contents Detection using Laser-Induced Breakdown Spectroscopy," in the Proc. of National Photonics Symposium (NPS-2018) organized by International School of Photonics, Cochin University of Science and Technology, Cochin during Feb. 27th to Mar. 1st, 2018.

31. Ms. A. Asline Celes, Dr. N. Edna Elizabeth, "Verification Based Authentication Scheme for Bogus Attacks in VANETs for secure Communication," International Conference on Communication and Signal Processing, Melmavathur, pp 388-392, Apr. 2018.

32. Ms. D. Divya, (PG-CS 2016-2018 batch), Mr. S. Karthie, Asst. Prof., "Moore fractal based dual-band microstrip bandpass filter for wireless applications," IEEE International Conference on Communications and Signal Processing (ICCSP – 2018), Adhiparasakthi Engineering College, Melmaruvathur, 2018.

33. Ms. G. Abirami, (PG-CS 2016-2018 batch), Mr. S. Karthie, Asst. Prof., "Design of Peano Fractal Based Dual Mode Microstrip Bandpass Filter for Wireless Communication Systems," International Conference on Computer Networks and Inventive Communication Technologies (ICCNCT - 2018), RVS Technical Campus, Coimbatore, Apr. 26th & 27th, 2018.

34. Ms. D. Divya Bharathi and Dr. R. Jayaparvathy, "Efficient Node Distribution Strategies for Minimizing Energy Hole Problem in WSN," 7th IEEE International Conference on Communication and Signal Processing, Adhiparasakthi Engineering College Melmaruvathur, Apr. 3rd – 5th, 2018.

PROPOSALS AND DISCUSSIONS

1.The international collaborative project titled "Insulin Delivery and Glucose Evaluation Micro-Systems (InDeGEMS)" worth 20000 CHF, approximately Rs. 13.75 Lakh with Dr. B. S. Sreeja, Asso. Prof. as PI and Dr. S. Radha, Prof. & Head as Co-PI has been sanctioned by Cooperation and Development Center, EPFL (CODEV), Switzerland.

2. On 29th Jan. 2018, Dr. S. Sakthivel Murugan, Asso. Prof. (PI) and Dr. N. Padma Priya, Asst. Prof./Maths (Co-PI) presented the project submitted for funding to TIER2 peer review committee members for state council science and technology projects held in Tamil Nadu state council office, Chennai. The title of the project is "Offshore excavation of heritage rich Poompuhar and Mahabalipuram by EMD using machine learning". The project was favourably considered and Rs. 49.99 Lakh is sanctioned to execute the project.

3. Dr. S. Radha, Prof. & Head submitted the budget requirement of Rs. 9.35 Lakh for Centre for Smart Technology Research group to the President, SSNI on 14th Mar. 2018.

4.Dr. M. Gulam Nabi Alsath, Asso. Prof. (PI), Dr. S. Ramprabhu, Asso. Prof. (Co-PI) and Dr. S. Kirubaveni, Asso. Prof. (Co-PI) were invited to present their research proposal "Theoretical and Experimental Analysis on the Design of Compound Reconfigurable Reflectarray Antenna with an Integrated Electronic Control System" submitted to DST-SERB under Core Research Grant on 17th Mar. 2018. The team received the project approval on 12th Apr. 2018.

5. Dr. R. Kishore, Asso. Prof. submitted a project proposal titled "Exploring the possibilities of using Vedic Mathematics for implementing high performance cryptographic algorithms" worth 6 Lakhs under the scheme "Mathematical Research Impact Centric Support (MATRICS)" to DST-SERB.

6. Dr. S. Sakthivel Murugan, Asso. Prof. (PI) and Dr. K. Muthumeenakshi, Asso. Prof. (Co-PI), attended the progress review meeting and Dr. S. Sakthivel Murugan presented the progress on the DST TNSCST funded project "MI based Underground sensor Network system for smart irrigation" to the review panel at TNSCST office on 7th Apr. 2018.

7. Dr. M. Anbuselvi, Asso. Prof. submitted a proposal titled "IoT enabled smart wheelchair with health monitoring system" to DST-SERB under TARE scheme, in collaboration with IIITDM, Kancheepuram.

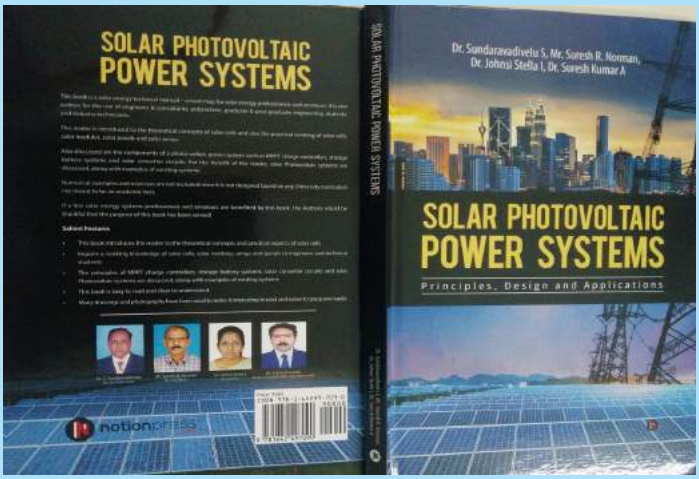
8. Dr. R. Amutha, Prof., submitted a project proposal titled "Design of one and two-dimensional chaotic map for data encryption applications " worth 6 Lakhs under the scheme "Mathematical Research Impact Centric Support (MATRICS)" to DST-SERB.

9. Dr. Edna Elizabeth N, Professor, submitted a project proposal titled “Analysis and Implementation of Elliptic Curve Cryptographic (ECC) algorithm in lightweight devices for Smart Applications” worth 6 Lakhs under the scheme “Mathematical Research Impact Centric Support (MATRICS)” to DST-SERB.

10. Dr. S. Radha, Prof. & Head as PI and Dr. R. Hemalatha, Asso. Prof. as Co-PI, along with scientists from NRCB, Trichy have submitted a proposal titled “Development of an Efficient IOT Enabled Plant Disease & Pest Detection System” worth Rs.82.84 Lakhs under DST- State Science & Technology programme.

BOOKS

1. Dr. S. Sundaravadivelu, Prof. published a book titled “Solar Photovoltaic Power Systems” by Notion Press. The book is co-authored by Mr. Suresh R. Norman, Dr. I. Johnsi Stella, Prof./SJCE, Dr. A. Suresh Kumar, Prof/PBCE. ISBN 978-1-64249-709-0.



2. Ms. R. Ponuma, Research Scholar and Dr. R. Amutha, Prof. published a book chapter titled “Compressive Sensing and Chaos-Based Image Compression Encryption” in: A. Hassanien, D. Oliva (eds) “Advances in Soft Computing and Machine Learning in Image Processing”, Studies in Computational Intelligence, vol. 730. Springer, pp. 373-392.

3. Subhashini R., Venkateswaran N., Bharathi S. published a book chapter titled, “Semi-blind Hyperspectral Unmixing Using Nonnegative Matrix Factorization” . in Nandi A., Sujatha N., Menaka R., Alex J. (eds) Computational Signal Processing and Analysis. Lecture Notes in Electrical Engineering, vol 490., pp 383-393 , April 2018

CONSULTANCY SERVICES

1. Dr. S. Radha, Prof. & Head, Dr. S. Ramprabhu, Asso. Prof., Dr. M. Gulam Nabi Alsath, Asso. Prof. & Dr. S. Esther Florence, Asso. Prof., generated a revenue of Rs. 17700/- towards RF measurements consultancy for Research Scholars from PSG College of Technology, Coimbatore on 8th Jan. 2018.

2. Dr. S. Radha, Prof. & Head, Dr. M. Gulam Nabi Alsath, Asso. Prof., Dr. S. Ramprabhu, Asso. Prof., & Dr. S. Esther Florence, Asso. Prof. generated a revenue of Rs. 5900/- towards RF measurements consultancy for IGCAR, Kalpakkam and AdhiParasakthi Engineering College on 17th Jan. 2018.

3. Dr. S. Radha, Prof. & Head, Dr. M. Gulam Nabi Alsath, Asso. Prof., Dr. S. Ramprabhu, Asso. Prof., & Dr. S. Esther Florence, Asso. Prof. generated a revenue of Rs. 5750/- towards RF measurements consultancy for Mr. Thirumaraiselvan, Adhiparasakthi Engineering College on 10th Feb. 2018.

4. Dr. S. Radha, Prof. & Head, Dr. S. Ramprabhu, Asso. Prof., Dr. M. Gulam Nabi Alsath, Asso. Prof. & Dr. S. Esther Florence, Asso. Prof., executed the Antenna Measurement consultancy and generated a revenue of Rs. 44250/- for the month of Apr. 2018. The services are offered to St. Joesph’s College of Engineering, Kumaraguru College of Engineering and Sri Venkateswara College of Engineering.

5. Dr. S. Radha, Prof. & Head, Dr. M. Gulam Nabi Alsath, Asso. Prof., Dr. S. Ramprabhu, Asso. Prof., & Dr. S. Esther Florence, Asso. Prof. generated a revenue of Rs. 5900/- towards RF measurements consultancy for Dr. A. Peterishia, Asso. Prof., TRP Engineering College, Trichy during May2018.

faculty updates

Mr. W. Jino Hans, Asst. Prof. under the guidance of Dr. N. Venkateswaran, Prof. defended his thesis titled "On the Development and Investigation on Implicit Priors for Example-based Super-Resolution Algorithms" on 1st Feb. 2018.

Mr. I. Nelson successfully defended his doctoral dissertation on the title "Investigations on the Performance of Orthogonal Frequency division Multiplexing in underwater communication" at the Department of ECE on 18th Jan. 2018.

Ms. S. Kirubaveni, Asst. Prof. under the guidance of Dr. S. Radha, Prof. & Head defended her thesis titled "On the Design and Implementation Piezo-Electric Vibration Energy Harvesting Devices" on 9th Feb. 2018.

ANNA UNIVERSITY RANK HOLDERS

Anna University released the Rank List for the year 2017. SSN Institutions bagged 107 University ranks and the Department of ECE bagged 16 University ranks. A more detailed statistics of the rank holders produced by DECE is given in the Chart below. The Faculty team congratulates the rank holders and young graduates!

Rank Holders - B.E.

Deekshitha V
Rank: 31

Suresh Kumar R
Rank: 42

Rank Holders - M.E.

CS

Subhashini R.
Rank: 23

Lena D.S.K.
Rank: 25

Kanchana D.
Rank: 25

ANNA UNIVERSITY RANK HOLDERS

Rank Holders - M.E.

AE

Indhumathi
Rank: 12

Dhivya Mullai B.
Rank: 13

Pradeesha S.K.
Rank: 15

Sudar Devi M.
Rank: 19

VLSI DESIGN

Kurinjimalar G.
Rank: 2

Devi R.
Rank: 8

Shobana V.M.
Rank: 9

Sheeba Angel A.
Rank: 10

Gowri Manohari R.
Rank: 12

Elakkiya A.
Rank: 14

Suchitra K.
Rank: 15

Student Co-currricular Activities

01 Ms. R. Indhu, Research Scholar attended a workshop on "Precision Manufacturing and its Application" organized by Department of Mechanical Engineering, Indian Institute of Technology Madras on 6th Dec. 2017.

02 Mr. Kishore A. ,Ms. Amirithavarshini S, Mr. Barath L, (III year students B.E ECE) Dr. Esther Florence S (ASP ECE) presented the student internal funded project "Smart Traffic Signals" at the Preliminary Patent Committee Meeting at SSN.

03 Ms. Mariya Celin, Research scholar, attended the Winter school on Speech and Audio Processing (WiSSAP) at IIT Guwahati from 19th - 22nd Jan. 2018.

04 Ms. Lavanya, Research scholar, attended a GIAN course on "Speech enhancement for hearing aids" at IIT Guwahati from 23rd - 27th Jan. 2018.

05 Dr. S. Aasha Nandhini, Post Doctoral Fellow, attended three days workshop on "Machine Learning Techniques, Tools and Applications" organized by the Department of CSE, College of Engineering Guindy, Anna university from 23rd and 25th Feb. 2018.

06 Mr. E. Manikandan & Ms. Indhu, Research Scholar(s) participated in DBT sponsored short-term training course on "Recent Trends in Thin Film Development and their Applications in Biomedical and Biosensor Devices" organized by Sathyabama Institute of Science and Technology, Chennai from 12th – 28th Mar. 2018.

Student Co-currricular Activities

07 Ms. R. Chithra Devi, Research Scholar participated in GIAN course on "Weather Radar and Hydrology" at IIT Madras from 5th – 17th Mar. 2018.

08 Ms. M. Akila, Research Scholar visited IIT Bombay for discussions on Computational Electromagnetics with Dr. S. V. Kulkarni, Prof/Electrical Engineering. She also had interactions with his research scholars Sairam and Greeshma on the same from 20th - 23rd Mar. 2018.

09 Mr. V. Lingasamy, Research Scholar visited Indian Institute of Science, Bangalore for measurement purpose on 19th Jan. 2018.

10 Mr. V. Lingasamy, Research Scholar conducted a hands-on session on "Smart Antenna Design using CST tool" at Selvam College of Technology, Namakkal on 24th Mar. 2018.

11 Mr. V. Lingasamy, Research Scholar conducted hands on session on "Design of printed microstrip antennas and filters using CST Microwave Studio" at Kalasalingam University from 2nd Apr. 2018.

12 The team comprising of ECE students Mr. A. Gokulakrishnan (Team leader), Ms. S. Sukanya, Mr. J. Kishore, Ms. S. Aparna, Ms. N. Keerthika, Ms. R. Deepika Devi and Dr. S. Joseph Gladwin, Asso. Prof., & Mr. C. Vinothkumar, Asst. Prof. as mentors won first prize worth Rs. 1 Lakh in "Smart India Hackathon 2018" held during March 30-31, 2018 at New Delhi Institute of Management, New Delhi for the problem statement "Smart editor - A tool for converting an image to a document" given by the AICTE Ministry.

Student Co-curricular Activities

13 Dr. M. Gulam Nabi Alsath, Asso. Prof., attended the patent committee meeting along with Mr. Nishanth Vimalesh and Mr. Sudharsana Prasad (IV ECE students) to file the patent of their internal funded project. Dr. S. Kirubaveni, Asso. Prof., and Dr. S. Radha, Prof. & Head attended the same as panel members on 17th Apr. 2018.

14 Mr. Bharath Raj, Mr. M.S. Praveen Kumar, Mr. Rakesh V (III year B.E) were adjudged the Runners-Up in AWS Deep Learning Hackathon conducted by IITM Shaastra in January 2018.

15 Ms. Reshma Immaculate (III year B.E) won first prize in Paper Presentation on at Intechno'18 conducted by Madras Institute of Technology on 25 January 2018. Topic : 'Wireless Charging of Electric Vehicles'

16 Mr. Jayanth SP (II year B.E) won third prize in 'Rush Hour' conducted by Pragyan, NIT Trichy. He also participated in Make-a-thon conducted by Lema Labs.

17 Mr. Bharath Raj (III year B.E) was adjudged Runner-up in Data Science Challenge at IITM Exebit , April 2018.

18 The team comprising of students Ms. Sanjana Mallya (Team leader), Ms. S. Akruthi, Ms. K. Nandhini, Mr. S. Roshan Arvind, Mr. S. Satchit, Mr. B. Skandharuban (CSE) and Dr. W. Jino Hans, Asso. Prof., & Mr. G. Harshvardhan, Alumnus as mentors participated in "Smart India Hackathon 2018" held during March 30-31, 2018 at CVR College of Engineering, Hyderabad for the problem statement "Docscan" given by the Ministry of Electronics and Information Technology (MEITY).

Student Co–currricular Activities

19 Ms. G. Padmalaya, Research Scholar attended BRNS-AEACI Thirteenth School on Analytical Chemistry-2018, conducted in Department of Hydro & Electrometallurgy, CSIR-IMMT, Bhubaneswar, Odisha during April 23-30, 2018 and received the Best performer award in seminar and third Prize in group seminar presentation.

20 The team comprising of ECE students Mr. A. K. Vagheesan (Team leader), Mr. Varun Vaidyanathan, Ms. R. Visali, Mr. V. Sriram, Mr. Vishaal Venkat, Mr. S. Venkatesh and Dr. K. J. Jegadish Kumar, Asso. Prof. & Dr. K. K. Nagarajan, Asso. Prof., as mentors participated in "Smart India Hackathon 2018" held during March 30-31, 2018 at Gujarat University, Ahmedabad for the problem statement "Azimuth finder" given by the Department of Space (ISRO).

Student Extracurricular Activities

Sports Achievements

01 L.Barath (III ECE) secured the runner-up title in the Chess tournament organized by Chennai institute of Technology on 10th Jan. 2018 .

02 K.Devi Rajalakshmi (IV ECE) participated in the Tamil Nadu senior women's Basketball team selections trials conducted by SDAT held at Nehru stadium, Chennai on 27th Mar. 2018.

NSS & YRC ACTIVITIES

NSS & YRC ACTIVITIES

1. 65 NSS volunteers of our college attended “We the Volunteers – TO edify youth integration” one day confederacy on 8th Feb. 2018 at Anna University, Chennai.

2. Our NSS Unit organized the “Eureka-AID INIDA Marathon” as organizing partner in association with AID India an NGO on 11th Feb. 2018. 75 NSS Volunteers of our unit organized the AID India marathon event.

3. 20 NSS Volunteers of our College participated in the “Lake safari” organized by Environmentalist Foundation of India on 17th Feb. 2018 at Chennai.

4. 10 NSS Volunteers of our college volunteered the “Turtle Walk” event organized by Chennai Trekkers Club on 24th Feb. 2018 at Neelankarai beach.

5. NSS unit of our college coordinated with DEFEXPO 2018 organizing partner, Hindustan Aeronautics Ltd, with 80 volunteers from our college during 11th April 2018 to 14th April 2018 Our Volunteers were appreciated for their job at DEFEXPO 18 by his excellency Governor of Tamil Nadu on 14th April 2018.

6. 30 NSS Volunteers were volunteered for Eureka Skill fest organized by AID INDIA in 13 villages in Thiruporur Taluk on 20th April 2018.

7. 30 NSS Volunteers participated in the Nanmangalam - Forest Walk, jointly organized by Tamil Nadu Forest Department and Environmentalist foundation of India on 7th April 2018.

8. 25 NSS Volunteers participated in the “Eco Bird Sanctuary – Awareness programme” organized by Tamil Nadu Forest department and visited Vedanthangal Bird Sanctuary on 9th April 2018.

CREATECH

THE TECH CLUB, IEEE COMSOC AND THE AECE ARE THE 3 PILLARS OF THE ECE DEPARTMENT. THE PREVIOUS SEMESTER SAW PLENTY OF EVENTS AND WORKSHOPS ORGANISED BY THESE CLUBS.

TECH CLUB REPORT DEC 2017 - APR 2018

The Tech Club of ECE had a busy semester (Dec 2017 - April 2018) , with many technical events and workshops being conducted for the students to expand their horizons and explore various fields.
Most notable was the 'TriWizard Tournament', a three level technical event, organised as part of the Intra-departmental competition 'TESLA 2018'. The event saw active participation from over thirteen teams with top three teams declared as winners.

Apart from the competitions, the Tech Club organised weekly sessions for the second and third years on various domains such as Machine Learning, Deep Learning and Digital Image Processing. Sessions were also held on the basics of MATLAB for the second years which included practical exercises to help them get acquainted with the tool. To cap off another successful semester, an informative session on placements and higher studies was conducted by the Final year students. Through this session, the seniors gave a lot of tips, suggestions and advices to the juniors.

The events organized by the Tech Club enabled the juniors to engage with their seniors and have an all-round learning experience. The club now looks forward to another eventful semester. The following is the agenda laid down by the Tech Club heads which gives an insight into what the students can expect in the coming months.

TECH CLUB AGENDA JUL 2018 - NOV 2018

1. July - Orientation - Introduction to all the domains in ECE

2. July - Robotics - 2 sessions - basics of Robotics and building a Line follower robot.

3. July, August, September - weekly sessions on Machine Learning, Computer Vision, IoT and VLSI to help students get a better understanding of these domains.

4. September, October - sessions on Placement, Internships and Higher Studies (MS).

5. Hackathon to be conducted as part of 'INVENTE 2018'.

6. A Mini Hackathon to be conducted exclusively for the Tech Club members.

7. Inter-department online contests to be organised on Machine Learning and Com -puter Vision every month.

8. 2-3 HANDS-ON WORKSHOPS TO be arranged.

9. A blog to be created and updated regularly.

IEEE COMSOC REPORT DEC 2017 - APR 2018

IEEE ComSoc™
IEEE Communications Society

The first session conducted by the IEEE ComSoc was on Internship on 18/01/2018. It was aimed at creating awareness among the students on the various internship opportunities in Industrial and Research domains. Next, with the objective of giving the students a golden opportunity to think out of the box, the club initiated the 'Innovator of the Year' competition on 31/01/2018. The students let their creativity flow and some brilliant ideas emerged as a result. It is safe to say that this event was very successful.

In the first week of February, a 2-day workshop (08/02/18 - 09/02/18) on 'Electronic Devices' was organised by the UG students with the first year students being the target audience. The intention was to expose the students to the world of electronics and communication before they officially set foot into the department. The event saw an impressive attendance of over 100 students. Due to their enthusiasm, another workshop on 13/02/2018, this time on 'Arduino and Raspberry Pi' was organised by Ph.D scholars for the first years as part of the Intra-Department event 'TESLA 2018' which saw an attendance of 75 students.

LOOKING TO TAKE THINGS TO THE NEXT LEVEL, THE IEEE COMSOC HAS A PLETHORA OF ACTIVITIES PLANNED FOR THE FORTHCOMING SEMESTER.

IEEE COMSOC AGENDA JUL 2018 - NOV 2018

1. July 1st week - Orientation for the current 2nd and 3rd years.
2. July 2nd week - MATLAB workshop mainly for the 2nd years
3. July 3rd week - Image Processing workshop
4. August - 'Minute Masters' , 'Innovation Challenge' to be organised as part of 'CORONA 2018'
5. August 2nd week - Workshop on PCB Design
6. August 4th week - MATLAB Coding contest
7. September - Event to be conducted as part of 'INVENTE 2018'
8. September 2nd week - Workshop on 'How to write a Research paper'
9. September 3rd week - Paper presentation contest
10. September 4th week - ComSoc Makeathon
11. Weekend sessions - Robotics and Application Development

AECE REPORT DEC 2017 - APR 2018

AECE, TechClub and IEEE ComSoc of Department of ECE, jointly organized an Intra-College Technical Symposium, "TESLA" and conducted various events such as Workshop on Arduino and Raspberry Pi (Speakers: Dr. Aasha Nandhini, PDF and Ms. R. Jancy, JRF), Tri-Wizard Tournament, Paper Presentation, Mock Placement, Think-D and Ny-Quizzed. The AECE (Association of Electronics and Communications Engineers) worked very hard along with the office bearers and students from other departments to pull off the Inter-college extravaganza 'INSTINCTS 2018'. The valedictory function of AECE for the academic year 2017-2018 was held on 02/04/2018. The office bearers of AECE, Tech Club and IEEE ComSoc were felicitated for their contribution in organizing various events during the previous academic year. It also doubled as a Farewell to our Final year Students, where both faculty members and students felicitated each other and recalled fond memories. AECE is now determined to carry the legacy forward and organise many such splendid events in the coming academic year.

OTHER EVENTS

Prabandh 2k18, a first of its kind contest on management and ethics, was conducted on 22 february 2018 in the ECE Seminar Hall. It was a presentation contest where the participants had a time limit of 15 minutes to present on any of the following topics : Role of Reflective thinking in management, Organizational culture and employee motivation, Technology for sustainable development, Ethical dilemmas at work. It saw a participation of 24 students and was judged by Dr. T Thiruvenkadam, Asso Prof, SSN School of Management and Ms. Sheela M. Krishnaswami, RF Consultant. The team 'The Reflectors' consisting of Annapoorani Bharani, Aparna Srinivasan, Manasa Bharathi (IV A), Amirthavarshini (III B) was adjudged the winner. The event was jointly organized by Dr. S . Sakthivel Murugan, Dr. Krishnasamy T Selvan, Dr. S. Kirubaveni, Dr. S. Ramprabhu and the students.

Congradulations Students!

PLACEMENT REPORT

Total no. of students registered	:	*135*
Total no. of eligible students	:	*126*
No. of companies visited	:	*87*
Total no. of offers	:	*143*
Total no. of students placed	:	*106*

Meet The Winners!

This year's outgoing batch (2014-2018) of the ECE department has always been the pride of SSN, given the number of papers they've had published in reputed journals, the kind of prestigious universities they've been admitted into and the giant companies they've got themselves placed in.

It therefore was not a surprise when it was announced that a team from our department had won this year's edition of Smart India Hackathon conducted by the Ministry of Human Resource Development, Government of India. The team consisting of three final year students and three M.E students has bagged a cash prize of INR 1,00,000 at the national finals conducted at the capital.

The team called the 'Super Sixtet' lead by Gokulakrishnan.A and consisting of Kishore J, Deepika Devi R, Sukanya S, Aparna S and Keerthika N was much praised for their dedicated efforts in making SSN proud! The team was escorted by Dr. S. Joseph Gladwin and Mr. C. Vinoth Kumar.

Gokul and Aparna open up in an informal interview for Impulse about their remarkable win. Here is the excerpt.

Who conducts the SIH? How is the qualification process?

Aparna: Smart India Hackathon is an annual 36-hour programming event or a 5-day hardware development event conducted across various states in India. It's organized by the MHRD and has two separate editions: hardware and software. Selection to the finale is dependent on the proposals submitted for the problem statement put up in the SIH website. Successfully submitting a proposal and getting selected to the finals would be the first barrier. In the finale there are three evaluation rounds after which the top 8 teams would be announced. These teams would make the presentation to the panel leading to the declaration of the winner.

What was your project? Who came up with the idea and why?

Gokul: My final year project was related to facial recognition, so we thought the proposal would get through because we had perfectly working codes for it. Our problem statement was basically "Smart Editor – A tool for fetching and editing information from scanned documents of image type" by AICTE. We chose this because Aparna had previously worked on handwriting recognition, so we had a flow in mind as to how to tackle the problem. After discussing with the team members, we submitted the proposal. Out of the many solutions, the handwriting to text recognition got selected.

How long did you take for preparation?

Aparna: We took approximately a month to prepare for the finale. We actually had a half-baked code in hand 10 days prior to leaving for Delhi.

Gokul: We didn't make the mistake we made the previous years. We had working codes ready before the actual finale so all we had to do during the finale was to work on larger aspects such as developing the mobile app, MATLAB app and also predict what kind of questions would be posed to us so that we would be prepared.

How did you feel after getting to know you got through to the finals?

Aparna: Elated! We were excited at least one of the five proposals submitted was selected.

Gokul: Getting through to the finals was one thing. Going through the final process was a whole other ball game. There was power judging where we had to present our project to a panel of 25 industry experts. We were so anxious. We had been assigned mentors and there was evaluation after each round. There were 8 people working on the same topic, so there was some pressure.

How was the whole experience for you?

Gokul: Adventurous, indeed! There was much confusion about some change in team members even till the day before we were supposed to leave. We even thought of giving up after getting qualified. But our HoD Ma'am and other faculty were very motivating and insisted on our participation in the finals. The longest wait and the most nervous one was definitely the prize announcement ceremony that started at 8 pm and ended at 12:30 am. It was towards the end that they announced our names as the winners in the finale! It was a very special and unexpected moment. We were completely exhausted. We hadn't even had our lunch but we were very excited about winning the grand prize. In the end I was really happy we had won the finals that we ended up in a celebratory dinner at 1 am. It was fun, overall.

Aparna: It was a once in a lifetime experience. Non-stop coding, brainstorming with the team members and mentors, getting high after drinking Red Bull, nervousness before final presentation and Delhi food were some of the most memorable things. We were enervated(?) after the event, but it was totally worth it (irrespective of whether we had won or not). The host institute, New Delhi Institute of Management ensured we were comfortable throughout the hackathon.

What was your prize?

We were the winners for AICTE, Delhi. Our prize money was Rs. 1,00,000 /-.

What does it take to win the SIH?

Aparna:
Tips to apply:
1. Submit proposals for multiple problem statements. Usually similar problems are posted by different ministries. Scour through the entire website and make multiple entries.
2. The proposal should highlight what your proposed solution can do. How your algorithm works is secondary, what are the applications of your algorithm is of the most importance.
3. Ensure your proposal has a basic UI to clearly communicate your solution.
Tips to win:
1. Ensure your solution can be used by a layman. Make a UI (very much necessary). The judges are more interested on the functionality of your solution. They should be able to meddle with it.
2. Make a mark every evaluation round. Show that you have made progress. Incorporate the requirements of the judges into your solution.
3. In the first evaluation, ask the judges about what the solution should contain. Sometimes it is possible that the judges have a different perspective about the problem statement. So get the requirement clarified in the first round to ensure you are on the right path.

What are your future plans?

Aparna: I would definitely continue working in machine learning and computer vision. I look forward to R&D in these fields. And so they sign off! Here's a picture of the winning team. We wish them the very best for their future!

BY
SWATI H
IV B

Meet The Winners!

The Department of ECE had another reason to rejoice as one more team from ECE bagged the first prize in the Inaugural Edition of the SMART INDIA HACKATHON – HARDWARE 2018. The team, Brainstorm Troopers comprised of Indulakshmi S (2014-2018 batch) [Team Leader], S S Ramachandran, Sasidharan V, A Uma, Amirthavarshini S (2015-2019 batch) and Sriram V (2016-2020 batch), was accompanied by their mentor, Prof. Dr. A Jawahar. It was a five day event which took place at Central Scientific Instruments Organization (CSIO), Chandigarh from 18th June 2018 to 22nd June 2018. Here is an excerpt from the interview with the team members.

What was your project and explain the motivation behind it?

Ramachandran: The project is titled "Asthma Trigger Detection System ". This system uses certain techniques to ascertain the potential of the environment to trigger an asthma attack. We believe that this model is adaptable to different environments. Our motivation for this project was based on a statistical analysis highlighted the deplorable state of the pollution levels in Indian cities, which ultimately trigger asthma.

What was the selection procedure for participation in the Grand Finale?

Amirthavarshini: There were two levels to qualify for the Finale. After finalising the idea we submitted the proposal for the problem statement in the SIH website. Once we were shortlisted, we had to submit a video of the prototype and a supporting document highlighting its uniqueness and innovation. The marketability of our idea made us one of the thirteen finalists.

How was the entire experience at the Grand Finale?

Amirthavarshini: Truly memorable! I would call the five days of intense competition a once in a lifetime experience. Though our initial progress was sedate, we worked relentlessly with encouragement and support from our mentors.

Sasidharan: The experience was a good balance between work and fun. Contrary to general expectations, the environment was totally stress free. The cultural entertainment and food were excellent. The labs were well equipped and fully functional.

What in your opinion helped you to standout from other teams and win the coveted prize?

Ramachandran: The project was low cost and had greater public appeal due to its simplicity. It was innovative with good market potential. The idea was simple but well implemented.

Tell us about the role that your mentors played.

Uma: Three external Mentors were assigned by I4C for the hardware edition in addition to our mentor, Dr. Jawahar without whom this achievement would not have been possible. The mentors were highly experienced and their insights were extremely helpful. Their assistance in solving technical issues and pointers in developing the idea were invaluable.

What are your plans for the future?

Sasidharan: The success of our project has given us the motivation to further explore this domain. We believe that with continued guidance from our mentors, we can achieve greater heights.

What are the tips you would like to give your juniors?

Uma: You must be able to think quickly on your feet, but good preparation beforehand, especially for the hardware edition, is a must. You should have a model ready, and be familiar with its working. A thorough understanding of the concepts involved is necessary. The project idea must be appealing to the public and open to amendment.

TECH & TRAVEL

Remember when winter and summer break were synonymous with vacation? Those were the days! As future engineering graduates it is worthwhile for us to do one or two internships during our four years in college. A few months at a research institute, company or a start-up provides us with an understanding of the real world workplace scenario as it involves practical applications of the theory we learn in class.

We caught up with Kashyap Ravichandran from IV year who managed to lay his hands upon the highly coveted internship as a fellow at IIT Madras this summer. He gave us a description of the entire experience from start to finish.

The process started by looking out for advertisements for internships and checking the IIT Madras website for internship openings. The application procedure consisted of filling out an application form, uploading transcripts and a bona fide certificate through the link on the website. The whole process was quite simple. The same, however, could not be said about the selection process. The IITs perform a strict evaluation of the applications and offer the very best a chance to a intern at their institution. In order to be selected, one has to have a strong profile that clearly conveys your research interest.

The selected candidates were notified by email. He was immediately assigned a mentor, a professor from the Electrical Sciences department, who works with the start-up 'Enability' - which designs and manufactures devices to aid persons with special needs. His project, called 'Take Note', involved the development of a wireless Braille keyboard, to assist the visually challenged.

He worked primarily with NodeMCU, which is an open source IoT platform micro controller and programmed the board using Arduino. He worked an average of nine hours a day at the research park.

Though the work was hectic, the interns were given time to develop solutions for the problems encountered, thus promoting a problem solving technique rather than a mere application of concepts. His team was a diverse combination of people from different departments, consisting of mechanical engineers to design the outer chassis of the devices, programming engineers for the coding of the devices and of course embedded and electronics engineers.

He appreciated the fact that the mentors were always ready to provide assistance to them, many times going out of their way to explain concepts to ensure their understanding. He described the workplace environment as calm and work-oriented. The flexible working hours and casual dress code also gave the workplace a more student-friendly vibe.

The skills he acquired by collaborating with members from other departments, stood him in good stead and in the process, he gained a broader understanding of the technical aspects of other branches of engineering.

He branched out into other areas of software programming, previously unfamiliar to him, and attributed this to the wide nature of the skill set required for the development of such projects. He thoroughly enjoyed the experience and gained immeasurably from working with a variety of students from different institutions. He also highly recommends the food court at IIT Madras - a huge plus point for the institute

- BY
NISHITA MARIA GOVIAS
IV B

Campus Stars

Prithvishankar Srinivasan, an alumnus of ECE, SSN (2012-2016), is employed as a Software Development Engineer at Microsoft, Bellevue. He is currently working on app search and tech download segments in Bing with focus on triggering and intelligent data. Soon after completing his undergrad in SSN he went on to do his Masters in Electrical and Computer Engineering from Carnegie Mellon University. The idea of automated machines fascinates him which explains his profound interest and expertise in Machine Learning, Natural Language Processing and Deep Learning. In his free time he plays guitar, drums or binge watches Game of Thrones. We managed to catch up with this star.

HERE IS THE TRANSCRIPT:

1.What made you choose Software Development over the other options available for an ECE student?

Math has always been my passion. I was interested in Image processing at first. For my undergraduate thesis project I decided to pursue an image processing project with some Machine Learning. This led to me choosing software oriented subjects there on and I finally ended up in Microsoft.

2. How was the interview procedure for getting into Microsoft ? What was your approach to tackling it?

Most companies have a technical phone screening first followed by 4-5 rounds of on-site interviews. The key to cracking an on-site interview is to familiarize yourself with the probable questions for the same role and be confident on the day of the interview.

3.What would you like to tell your juniors when it comes to placements, especially in core companies?

Most times I feel that students give more importance to the company over the job profile offered. Working in a reputed company will get you recognition but working in a challenging and interesting role will help you meet your professional goals. I feel that most of the students do not proactively reach out to companies other than those which come for campus placement. It's important to have a lot of options.

4. How do we select companies based on our career interests ?

As mentioned above, as important as it is to join a good company it is equally important to join a good team within the company and in a good role. So email the recruiters, message them on Linkedin to know about the role before the interview.

5.What would you like to tell students about the existing employment scenario in our country?

Every day new companies are propping up and offering competitive salaries. So, I'd definitely say it's improving.

6.How can students today learn and develop skills outside the scope of the curriculum.

Online courses can be learnt on sites like Coursera, Udacity, etc. With social media playing a huge role in our lives you can even develop your skills by following facebook pages which put out blogs on your favorite topics regularly.

7.Tell us more about yourself. What are your future plans ?

Too early to tell! But I'd like to pursue an entrepreneurial role sometime in the near future.

8.How was the experience of studying at Carnegie Mellon University ?

It was amazing to learn from some of the best professors in the US. It was challenging to compete with brilliant students from all parts of the world but competition makes everyone better. It was a tough two years but I guess I'm reaping the benefits now.

9. What would you like to tell students who are interested in pursuing higher education after graduation ?

Go with a game plan. Know exactly what you want to study and what career opportunities you'll get. Ultimately, your goal should be to construct a better future for yourself.

10. What is your advice to students who wish to pursue the same career path as yours ?

Every person's path is different. Long term goals and short term goals are equally important. Find what you're passionate about and put your best foot forward.

WE THANK PRITHVISHANKAR FOR THIS CHAT . WE CAN'T WAIT TO SEE WHAT HE WILL ACHIEVE IN THE FUTURE!

- By
Amirthavarshini
IV B

STUDY CORNER

As you hop from one semester to the next, you are exposed to the different domains in electronics and communication. In this edition, we dive deep into two domains that have had a profound impact in the world of communication - Cryptography and Satellite Communication. We sat down with our faculty experts in these domains to ask them some of the frequently asked questions pertaining to these subjects. Here is the transcript:

CRYPTOGRAPHY

When checking your email over a secure connection, or making a purchase from an online retailer, have you ever wondered how your private information or credit card data is kept secure? Our information is kept away from dangerous, prying eyes thanks to cryptographic algorithms, which scramble the message such that no one, other than its intended recipient, can read it. **Dr. N. Edna Elizabeth**, who is the in-house Cryptography expert, shares her valuable inputs for aspiring students.

1.What is Cryptography about?

Cryptography is the practice and study of techniques for secure communication in the presence of third parties, called adversaries. Cryptography is composed of two key processes: encryption and decryption. Cryptography operates by a sender's transmittal of an encrypted message in a systematic manner, which conceals its original meaning, and is then received by the receiver, who decrypts the transmission to get the original message. Various cryptographic algorithms are used for the same, depending upon the ap plication. These algorithms use a group of specific parameters, known as a key, that is used in combination with the original message as an input to the encryption algorithm. The encrypted message together with the key serves as the input for the receiver, when applying the decryption algorithm. The security depends upon the secrecy of the key. Cryptography has two major goals: Information privacy and Authentication. The former is concerned with keeping the transmitted information private and secure from adversaries, while the latter is concerned with the integrity of the message received by the user. With rapid increase in the amount of electronically transmitted information, cryptography is also rapidly gaining importance.

2.As a subject, when and how must Cryptography be introduced to students?

A.As a course, Cryptography does not require any prerequisites apart from a strong foundation in mathematics. It can be introduced after a student has earned sufficient credits in mathematics. Actually, the mathematical nature of this subject makes it very interesting. In this particular course, everything will be taught from the basics. Cryptography is an application oriented subject, dealing with various real time security issues and its associated algorithms. For effective reach of the concepts, a 'lecture cum scenario analysis' method is prescribed. Real time reasoning (for example, why one algorithm is preferred over another for a given scenario) increases the interest of students. Apart from lectures, the curiosity of the student is pivotal for understanding the subject.

3. What are the guidelines for a student interested in this domain?

A.A genuinely interested student must allocate time for studying and understanding the various concepts and algorithms. Classic books for this course include 'Cryptography and Network Security: Principles and Practice' by William Stallings and 'Cryptography and Network Security' by Behrouz A Forouzan. 'Cryptography Theory and Practice' by Doug Stinson has precise pseudocode and numerical exercises with solutions, which provide an informational description of cryptosystems. Interested students can take up certified courses from various online platforms like Coursera, Cybrary, NPTEL and Udemy. Workshops organized by SETS (Society for Electronic Transactions and Security) are also very useful.

4.Is Cryptography a popular field for higher studies?

A.Yes, Cryptography is indeed a popular field for higher studies. With the field of cryptography gaining rapid importance, the number of students pursuing master's degree in it is on the rise. Some of the top institutions in India which offer master's degree in cryptography include IIT, IIIT, IISC and ISI. Students who intend to study abroad can choose from one of the many colleges which offer a course in Cryptology and Cryptography. Some of them are Royal Holloway, University of London, Merrimack College and Brown University in the USA, Queen's University, Ireland, and University of Bradford in the United Kingdom.

5.What kind of jobs can be expected by people who specialize in this domain?

A.There are currently over a million Cyber Security job openings globally and the demand is greatly outpacing supply, which means more opportunity, better job security and higher pay. The work of a cryptologist includes designing algorithms depending on the requirements, analyzing them, implementing such algorithms on various platforms, and interfacing to input/output media. Cryptologists are in demand in military forces, government agencies, technology companies, banking and financial organizations, law enforcement agencies, universities, and research institutes. Their salary is on par with that of a computer science engineering graduate.

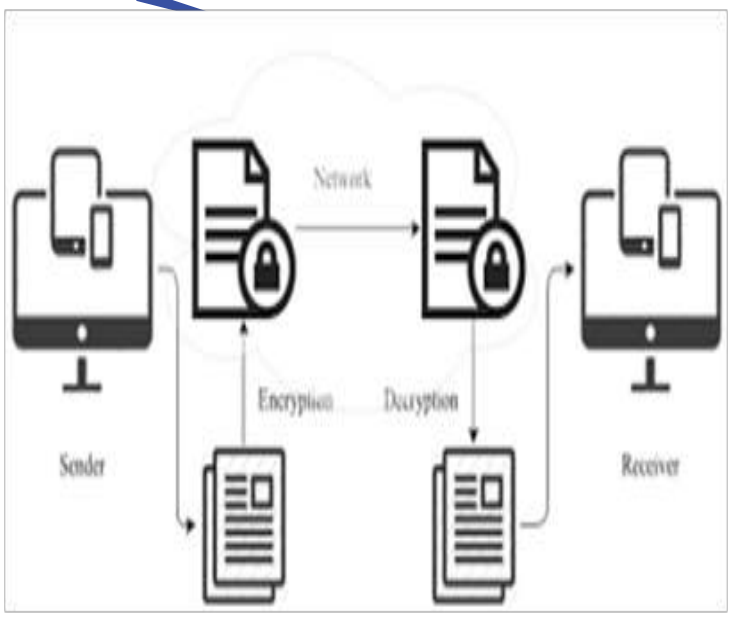
6.Are there any domains interlinked to this field, which students can opt for in case they wish to diversify their interest?

A.Domains that are related to cryptogr-

aphy are Network security, Quantum Co-mmunication, Security Architecture and Design, Reverse engineering, Block chain technology, Information Theory to name a few. So students have ample scope to diversify their interests.

7.Would you recommend students to choose this elective putting into perspective Anna University's curriculum, evaluation, and mark oriented approach?

A.Yes, if the students have the interest and willingness to learn I would definitely recommend them to opt for this elective, as this subject is becoming immensely important. Of course, to establish mastery in this subject one must put in a lot of effort. However if the students are truly interested, the course will be a breeze.



We thank Dr. N. Edna Elizabeth for taking time to give us valuable insights that we are sure will be of great help to the readers.

- By
Nikhilesh N
IV B

SATELLITE COMMUNICATION

A domain that has radically impacted our lives is Satellite Communication. It plays a vital role in the global telecommunications system. Approximately 2,000 artificial satellites, orbiting the Earth, relay analog and digital signals carrying voice, video, and data, to and from one or many locations worldwide. **Dr. S. Sakthivel Murugan**, who has extensive knowledge in this field, gave his valuable counsel.

1. What is Satellite Communication?

A.Satellite communication is, in general, about all communication in the globe. It has various applications and today; satellite communication is the back bone that supports all advanced applications in military, research, and everyday life. It has two main components: one is a ground station on the earth's surface and the other is the satellite in outer space. A typical satellite communication involves the transmission of a signal from an Earth station to a satellite in space, amplification and retransmission of the received signal by the satellite, and reception of this signal by another Earth station. The reason why we have worldwide connectivity today is based on a revolutionary idea proposed about a hundred years ago. A satellite at an approximate altitude of 35,000 km above Earth's surface would be moving at the same speed as the Earth's rotation. Therefore, at this altitude, the satellite would remain in a fixed position relative to a point on Earth. This orbit is called as geostationary orbit. So based on this concept an antenna on the ground can be pointed to a satellite 24 hours a day without having to change its position. Now, if three satellites are spaced equidistantly in the geostationary orbit, they would be able to cover almost all parts of the world.

2. What are the prerequisites for this course?

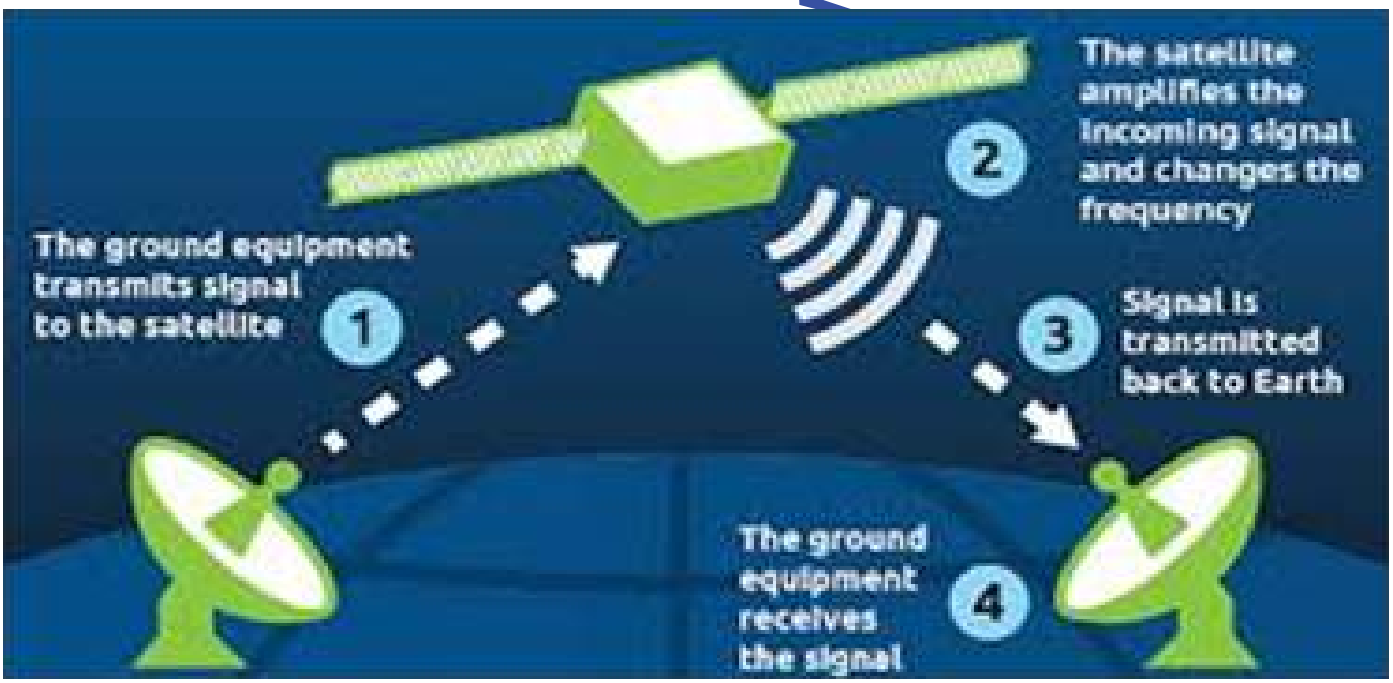
A.Since Satellite communication deals with transmission and reception of signals, fundamental knowledge of communication systems, both analog and digital, is essential. Basic knowledge on the advanced applications of satellite communication is an added bonus.

3. As a subject, when and how must Satellite Communication be introduced to students? What other channels of learning can they use if they want to pursue this course in depth?

A. Usually, students study this subject in the last semester after completing their basics on analog and digital communication techniques. I would suggest that rather than studying this subject to score grades, it would be better if students understand this subject, because they are living in the satellite era, and everything they use is based on satellites. We say that the world is in the palm of all youngsters because the mobile phone has become such a powerful tool. This is possible only through satellite communication. So, it would be better if students took an interest in this subject which affects their daily life. Some books that I would suggest as reference are 'Satellite Communication' by Dennis Roddy, 'Satellite Communication Systems Engineering' by Wilbur Pritchard, and 'Manual of Satellite Communications' by Emanuel Fthenakis. If students wish to pursue this course in depth they can always find online courses and other open source material.

5. What kind of jobs can be expected by people who specialize in this domain? Which companies are the major recruiters?

A. People majoring in this field are usually recruited for positions such as Scientists, Antenna Developer and Designer etc. Institutions such as ISRO, NASA and DRDO are on a constant lookout for people who are well versed and highly skilled in this field. Since there is such a high demand for Satellite engineers, the pay is also very high.



6. What are the other jobs and roles in the satellite communication industry?

A.Satellite communication has five major subsystems.

1.Altitude and orbit control subsystem: This concentrates on placing the satellite in the correct altitude and orbit. It has thrusters, and mechanical operations for takeoff, and navigation of launch vehicle, to place the satellite in orbit. Fuel efficiency and fuel maintenance are important too. It therefore requires Electrical, Chemical and Electronic engineers.

2.Power subsystem: This concentrates on providing power to all equipments, devices and the various sensors in the satellite. It operates on solar, battery etc. It has AC as well as DC components which require good electrical engineers.

3.Communication subsystem: This focuses on transmission and reception of signals which requires communication engineers.

4.Antenna subsystem: There are different types of antennas that can be used in a satellite. It requires RF and microwave engineers.

5.Telemetry tracking and control subsystem- This involves the total operation process of the satellite.

As you can see, satellite communication is not a domain only for those specialized in this subjects. Other engineers with good technical knowledge are very much required.

7. Would you recommend students to choose this elective putting into perspective Anna University's curriculum, evaluation, and mark oriented approach?

A.I would definitely recommend students to opt for this elective. This field finds its application in our everyday life and therefore it is important for the students to have a basic understanding of this field.

We thank Dr.Sakthivel Murugan for taking the time to answer our questions in great detail. There is no doubt that the information shared above will be very useful for the readers.

- By
Rakshana
IV B

COUNSEL FOR CONFUSION

As the final year of college approaches, we are faced with a dilemma. We have to make an important call - one that will shape our career. Higher studies or job? This is perhaps the first of the many crucial decisions that we will take in our lives. Agreed, both are lucrative options but which one is the right choice for you? Read on to inform yourself about the job market situation in our country and the various higher studies opportunities.

THE BALL IS NOW IN YOUR COURT.

JOB MARKET IN INDIA

It is the bitter truth that, in recent times, an Engineering degree has become synonymous with unemployment and we as future graduates cannot escape this harsh reality. To understand how grave the situation is , just try googling 'engineering unemployment' and by the time you complete typing you see search suggestions like 'engineering unemployment in India', 'engineering unemployment in Tamil Nadu' and so on. It is an open secret that our country is well known for churning out sub-standard graduates with below-par engineering avant-garde. According to AICTE, around 60% of 'engineers' graduating every year remain unemployed. But, just as we keep bashing our so-called technical education, what also needs to be seen is that, a minority of graduates go on to achieve remarkable feats forcing employers to applaud our rigorous technical curriculum. This article does not aim to lament over the flaws in our system or blame the policy makers. Instead it hopes to shed light on the new-age opportunities available to this generation and hence, enable us 'engineers' to seize them. The mood of the current employer is vivid and clear - vanilla graduates who are a liability to the organisation of no serious value addition will be shown the pink slip with no mercy whatsoever. The employers have made it crystal clear that it is value over volume (and rightly so) any day. We have to come to terms with the fact that there is a huge gap between what we read in textbooks and what is put into practice.

Bridging this gap by acquiring more relevant skills is what these employers mean by the word “value”.

Now, let us explore every blooming avenue with detail and the choice is left to the reader to see where he/she fits. Let’s start off with all the patriotic folks who believe in the ‘land of endless opportunity’ called India, and want a career that is more ‘India-centric’. If you want to stay loyal to your technical degree and be a part of the country’s success story, there is the evergreen option of GATE (Graduate Aptitude Test in Engineering) conducted by the IITs and IISc in a round robin basis. Another option is IES (Indian Engineering Services) conducted by the Government of India. These tests offer a plethora of opportunities to explore various Government departments and help in nation building. In addition to these exams, tests are also conducted by various states for selecting the best candidates for an entry into the various roles offered by that state government. For instance, TNPSC conducted by the Tamil Nadu State Government, offers roles from Draughtsmen to Chief Engineers. To provide an insight into how lucrative this option is , about 60+ Public sector Undertakings offer technical positions and the selection for these positions is done purely based on these exams.

Major private players who are primarily involved in the technology space also offer lucrative jobs to skilled graduates. For instance, semiconductor supergiants like Intel and Qualcomm have job openings on a daily basis. Intel, for example, has a job title named ‘Pre Silicon Verification Engineer’ in its Bengaluru office. Most of these jobs descriptions expect years of training and expertise from the applicants.

The Start-Up ecosystem in the country looks promising and diverse. Though facts like ‘more than 70% of the start-ups fail’ is discouraging, this less trodden path is for the brave and in fact, very rewarding. Bengaluru , which is the start-up capital of India, is host to more than 3000 start-ups and this number is increasing everyday. Ather Energy, a hardware startup, has received capital

worth crores from venture capitalists to accelerate productions and at the same time created hundreds of skilled jobs. The government is incentivising start-ups in the form of tax exemptions, help find investors etc..

“Data is the new oil”, said Dhiraj Rajaram, the founder of Mu Sigma. Data sciences, Machine Learning , Big data are sometimes referred to as being ‘the genesis of the next industrial revolution’. More than a million jobs are expected to

" Data is the new oil"

be created in the Data sciences space in the next few years. Strong mathematical skills coupled with the ability to make sense out of raw data are strong pre-requisites for making a career in this sector. Careers in more niche areas like artificial intelligence, robotics and Machine Learning also looks propitious. With the concepts of Machine Learning now being incorporated into every other technological advancement, it becomes highly imperative that we keep ourselves abreast of these new developments. Robotics is a fancy career choice for many technical graduates but we need to understand that the current investment rate in our country in this sector is dismal compared to other developed countries. Besides, country in this sector is dismal compared there is also steady increase in opposition to 'automation in industries caused by robots'. Careers in the robotics space looks attractive especially in the far east and the far west of the globe. However , with government initiatives like 'Make in India', things have started to look up in this sector in India as well . So robotics enthusiasts, fret not as better times lie ahead for you in the sub-continent!

Well , if you are one of those who is unable to make sense out of what engineering has taught you and are looking for a career swap , there are huge opportunities that lie ahead of you. Besides the traditional management careers that have existed since time immemorial, exciting, new avenues have opened up. Digital marketing and social media branding is one such. With over 460 million users, India is the second-largest Internet user market in the world, after China. This number is expected to reach a whopping 500 million by June 2018 and 829 million by 2021, A study by Google and KPMG shows that by 2021, about 75 per cent of Indian internet user base will be in regional Indian languages. The high cost-effectiveness offered by the digital media, compared to traditional TV and print advertising, the ability to powerfully target and personalise ads to the relevant audience in the digital networks and increase in smartphone adoption are some other reasons for this emerging trend. Today, every industry - E-commerce, FMCG (fast moving consumer goods), financial and banking services, the technology sector - needs an established digital presence and marketing strategy.

However, there is a wide gapof talent in digital marketing not only in India, but in the entire world. Studies show that 66 percent of Indian business leaders feel that finding the right digital talent is a big challenge.

Talent gap has been listed as one of the top digital marketing trends to watch out for in 2018, by Forbes Communications Council. The article says that in order to attract and retain talent, HR managers may have to create customised compensation packages for high-performing individuals who deliver a high return on investment (RoI). As brands invest more in digital media, an effective orchestration of such large-scale campaigns demands talented workforce across fields like social media marketing, content marketing, mobile marketing and SEO at both senior and entry levels. Currently, the average salary of a digital marketing specialist is about 3 lakh INR per annum while that of a professional with over six years experience is above 17 lakh INR! Since this is a performance-driven career, the money you make is directly proportional to the value and RoI you generate for your employer.

> "JOBS ARE NOT GIVEN TO THOSE WHO ASK FOR IT BUT INSTEAD GIVEN TO THOSE WHO DESERVE IT"

So, from this article we can say with confidence that there isn't any dearth in opportunities for us engineers. Modifying Dumbledore's famous quote, 'Jobs are not given to those who ask for it but instead given to those who deserve it'. Besides, let us not restrict ourselves to the above mentioned opportunities be-cause the world has opened up like neverbefore and is ready to accept anyone in any role as long you make a meaningful impact. Just look around and see the sheer impact engineers have made in technology, policy making, politics, social work, literature (Chetan Bhagat not considered!) and so on . You could very well be the next big name but not necessarily as a competent technologist. Ultimately, the onus lies on the aspirant to choose a path that he/she thinks fits his/her aspirations and start working towards them.

By
Irshad Hussain
IV A

Higher Education

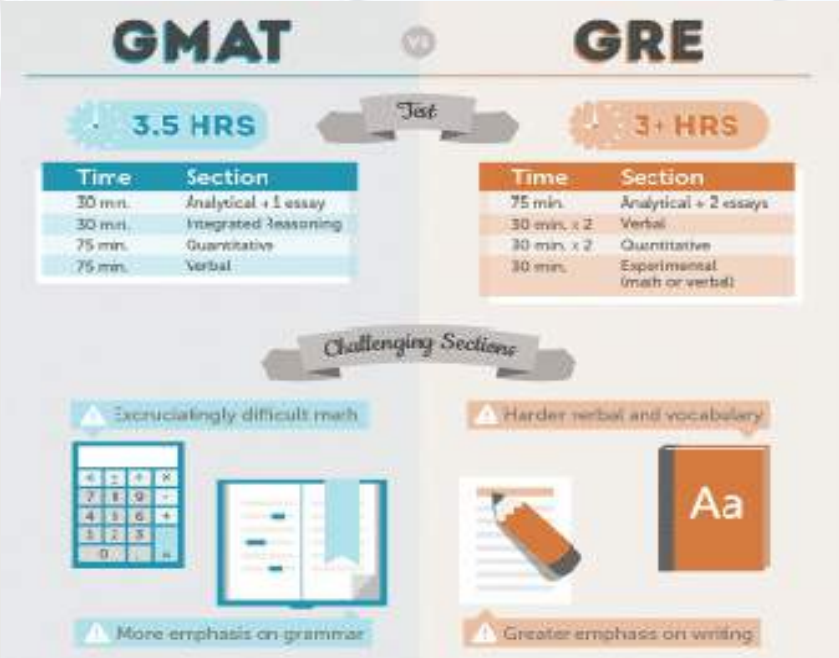
'Higher education' is defined by Wikipedia as an optional final stage of learning that occurs after the completion of secondary education. To most students, it is a decision that they need to make pretty early on; pursuing a master's degree or choosing the 9-5 job.

The thought of working with technology will always be exciting to the engineer in us but it is important to understand that just a bachelor's degree in electronics might not be sufficient to give us the skill or the knowledge required to make it in the electronics world.

Electronics is one of the fastest growing sectors in the world today. As students of Electronics and Communication Engineering, we are bestowed with numerous opportunities, be it on the job front or from a higher studies viewpoint. A masters degree will give you an edge over others in interviews and also help you hone your soft skills. However, it can be a little time consuming to read and sift through the multitude of courses offered by various educational institutions. But fear not, for the following article contains a list of masters degrees (courses are subject to the individual's interests) that all ECE students are eligible for and their respective entrance exams. One has to have a clear view of where he/she wants to pursue masters in India or abroad. This is important because the preparation required for both differ fundamentally. To apply to a foreign university, the first thing the universities look for is a good GRE (Graduate Record Examinations) score along with a CGPA of 8.5 or above. Participation in extracurricular activities also play an important role in the selection process. The more activities you have dabbled in, the higher chances you have of getting into a good university. GRE is a standardized test conducted bythe Educa tional Testing services. Re quiring only passport as an identity proof, this test can be taken by all students. That's right, there is no age limit and no qualification required to take the test. Just a passport. However the universities you apply to may have rules on minimum age, qualification and experience. GRE, unlike most other entrance exams, can be taken at any time of the year in India. It lasts for 3 hours and 45 minutes, consists of 6 sections, and tests your analytical writing, quantitative and verbal reasoning skills. This makes it one of the most valued score that almost every college looks for. No pressure at all!

Indian colleges such as IITs and NITs, on the other hand, require a decent GATE (Graduate Aptitude Test in Engineering) score and a good foundation on technical and mathematical aspects. While extracurricular activities are a definite bonus in Indian schools, they do not carry the same value here as they do in foreign universities. GATE is an exam that tests the comprehensive understanding of various subjects in engineering and science. It is conducted jointly by IISc and seven IITs on behalf of the Ministry of Human Resources Development, Government of India. It is an annual exam, conducted usually in the month of February, lasting for 3 hours. The scores are valid up to 3 years , however only final year students of UG are allowed to take it. A decent GATE score will get you an admission into a good college. An even better GATE score will help you land in PSUs. As usual, there are entrance exams that individual universities conduct to further filter the applicants. For example, BITS (Birla Institute of Technology and Science) conducts its own admission test called BITS Higher Degree Admission Tests like its undergrad counter entrance exam conducted by Indian Institutes of Management(IIM). Apart from the twenty IIMs, CAT scores are also used for admission to various other management institutes in the country. GMAT, however, is an international level test for admission to various graduate business and management institutions abroad (the scores are widely accepted in India too).

Now that we've seen the different universities let's look at the actual degrees. The three major masters degrees that attract ECE students are: Masters of Sciences M.S), Masters of Engineering/ Technol ogy (M.E/M.Tech) and Masters of Business Administration (MBA). While these degrees may seem all too similar, they're actually not. Except the course subject, (an M.S and M.Tech degree are as part BITSAT. There are also management courses, that might interest you if you're looking to turn into an entrepreneur. Admission to a management institute requires a CAT (Common Admission Test) or GMAT (Graduate Management Admission Test) score. CAT is a national level common different as one would



The primary focus of the M.Tech degree lies in course work (much like B.E), whereas MS is more project oriented. An M.Tech degree is considered completed two years after you join, while an MS degree is not considered complete till you've finished your project and gained a thorough knowledge of your chosen subject. In M.Tech, importance is given to attending classes and keeping up with the coursework, which is pretty heavy, whereas in MS, regular attendance is not mandatory but more work should be dedicated towards your thesis. In simpler words, MS requires a lot of self study.

Most undergraduates have this question and that is: Should I do my masters here or abroad? The answer to that is really simple. Think about where you would like to work. If you're looking to settle abroad then a degree from a foreign university would be your way to go. This is especially true for MBA aspirants. A lot of foreign universities teach based on the current business and economic situation. So, an MBA from an Australian university would be far more advantageous to you in Australia than in any other country. Having said all that, a degree is just that- a degree. What use it is put to depends upon the capability of the individual. Nevertheless, to get oneself into a university one needs to write and pass at least one entrance exam be it GRE, GATE GMAT, CAT, etc,. Scholarships are given to meritorious students who score well in the above exams and have maintained a consistent CGPA throughout their college life. As we all know, a masters degree is not cheap. According to FinAid, it costs 10's and 100's of lakhs of rupees to complete a single degree. In such situations, getting a scholarship is always beneficial for the general public. There are several scholarships offered by universities, the government, some external funding organizations and charitable enterprises. There are even scholarships targeting a specific group of students. Some offer to cover a portion of the tuition fee while others offer monthly scholarships. Indian scholarships work a little different. While a foreign scholarship is given to you based on your academic performance and other skills, an Indian scholarship can be typically looked as a sponsorship. That is, a certain company sponsors your masters education after you've worked with them a few years. They also expect you to work for them for a certain period of time after completion of your masters. This way students will have a guaranteed job at the end of their degree.

I hope this article helped you gain some clarity regarding the world of masters education and didn't scare you (as it did me). At the end of the day, to paraphrase the great Dumbledore,

"To a well organized mind, a masters degree is but the next great adventure!"

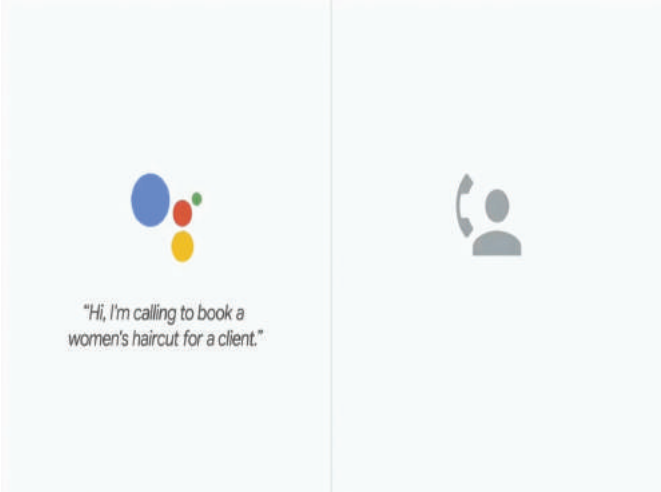
By
Chinmayi Udaybhaskar
III A

Gadget Gizmos

The Jetsons' premiered way back in 1962. Set a hundred years in the future in 2062, it presented an utopian world filled with flying cars, sky high cities and robots helpers. It's 2018 now and we are well on our way in making 'The Jetsons' world a reality thanks to technology! Technology is moving at breakneck speed and Artificial Intelligence and Machine Learning are poised to radically change the world as we know it - the Google Assistant having a 'natural' conversation with a human is only the beginning. AI has infiltrated almost every industry from construction to medicine. But is it really worth the hype? And what does the future hold for us? Read on to find out!

AI can now make phone calls on your behalf!

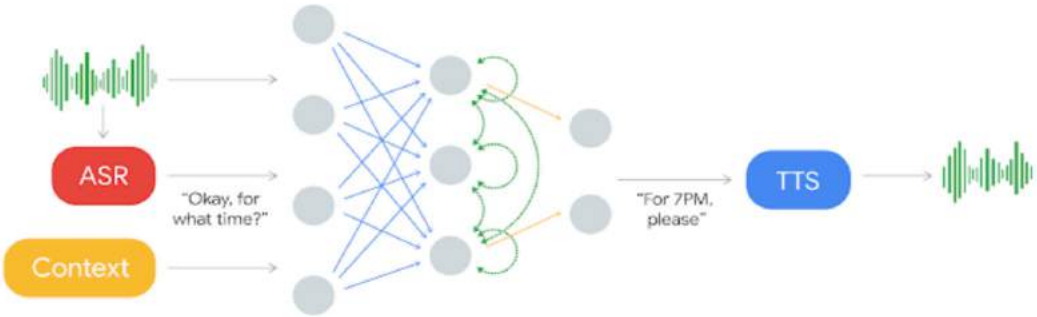
Over the years, with the development in artificial intelligence, speech recognition and understanding has become possible. It has been a long-time dream to experience a natural conversation between a human and a computer. May 2018 proved that we are very close to achieving that as Google showed off a jaw-dropping , new ability of the Google Assistant.



Google Duplex, which is an extension of Google assistant, is capable of making phone calls to other human beings. It uses Recurrent Neural Networks (RNN) built using TensorFlow Extended (TFX). Since the Duplex is still in its testing stage, the preliminary focus is on making restaurant reservations, hair appointments and enquiring about business holidays. The aim is to make the chat-bot sound natural and make the experience of the conversation as comfortable as possible. It has not been tested to carry out general conversations but I am sure that it will also be covered in the near future. The moment I heard the Assistant utter "Um" during the conversation , I realized I was hearing something extraordinary. A computer carrying out a completely natural and very human-sounding conversation with a real person is no longer fiction!

Duplex really feels like it is the future of AI but the team says that it is still under development. Google admitted that during the developmental stage there were a number of hurdles that had to be crossed. The Chat-bot must understand the language and pronunciation of the speaker. It must be able to understand the corrections made between sentences and the pauses between words. Overall the word error rates had to be lowered. Another big challenge was the background noises that affected the quality of sound.

The Google Duplex model was trained separately for each of the tasks mentioned. Then, Google decided to use the hyperparameter optimisation (in machine learning, hyperparameter optimization or tuning is the problem of choosing a set of optimal hyperparameters for a learning algorithm) from TFX to improve the model.



Now the question is how did the team make it sound so natural? It is actually a combination of a text to speech (TTS) engine and a synthesis engine like Wavenet. Sometimes responses within 100ms are required. In these cases, faster approximations are used instead of RNN. The Duplex completes majority of its tasks without any human involvement. It interacts with the Google Assistant and the call takes place without the help from the user.

However as every coin has two sides, Google Duplex has some disadvantages as well. The main drawback with this technology is that there is no control over the call. The user cannot control the call if the task has to happen in a way that has not been instructed.

Nevertheless, the idea and its implementation has left us all awestruck! Regardless of whether you think Google Duplex is good or bad, it's incredible to see how far Google's AI has come in the last decade. Virtual assistants will see swift adoption as we make the transition through the different stages of artificial intelligence.

Sometime in the near future, most of us would have definitely had a successful exchange with a robot over the phone without realising it at all!

By
Harini Balasubramaniyam
III A

The Artificial Intelligence Bandwagon

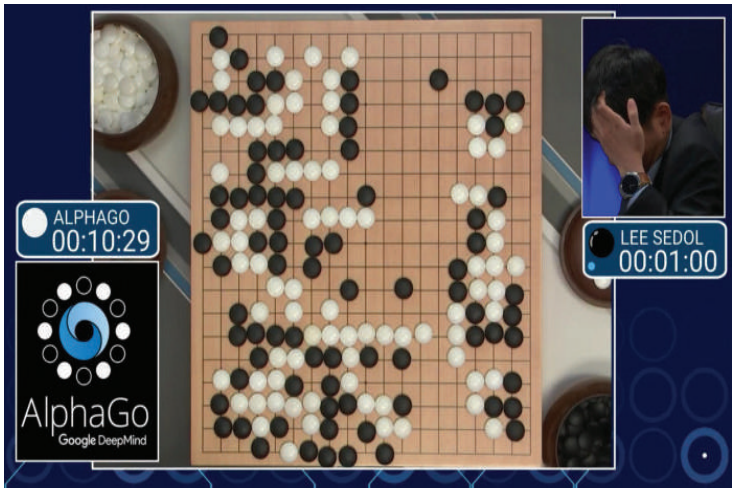
You've heard about it, seen it in the news - OpenAI defeating a world class Dota champion. You've taken Andrew Ng's ML course and titled yourself an expert; or rather denigrated your peers, who did the same. You feel like the world of technology will never be the same, now that AI has had "massive breakthroughs" in almost every field. You might have even considered making it your full time job. But is it really what it appears to be? Let us address these issues one by one. Firstly, the "breakthroughs". Save for a few, all the powerful machine learning algorithms that we use today were invented decades ago. In fact, perceptrons have been theorised as early as 1960's; a time when computers were exclusively used by scientists. Popular ML algorithms are either rule based or adaptive. Neural Networks (NN) are one subset of these algorithms, and most of the popular AI innovations today are variants of neural networks put to use.

Okay but, if they are old news, why was there no breakthrough much earlier?

There are two distinct responses for this question.

1. Lack of Supporting Technology and Data

A few notable developments in other sectors, which weren't available back in the day, were crucial for the effective implementation of these algorithms. For instance, standard image classification datasets range from 150MB to 3TB in size. Around 1979, a 250MB hard disk drive (HDD) was as large as a refrigerator. Now, a 256GB micro SD card is smaller than your thumb. While this can be attributed to Moore's Law, the end result for AI was that, significantly more data can be stored and used. Neural Networks by themselves are large as well, with complex architectures as large as a few hundred MB. Another important factor was the increase in computational power. Powerful microprocessors as well as GPU accelerated computing reduced the running time of these paradigms from days to minutes, from weeks to days, and from impossible to possible. CNNs are very effective for image classification problems because of the above two reasons.



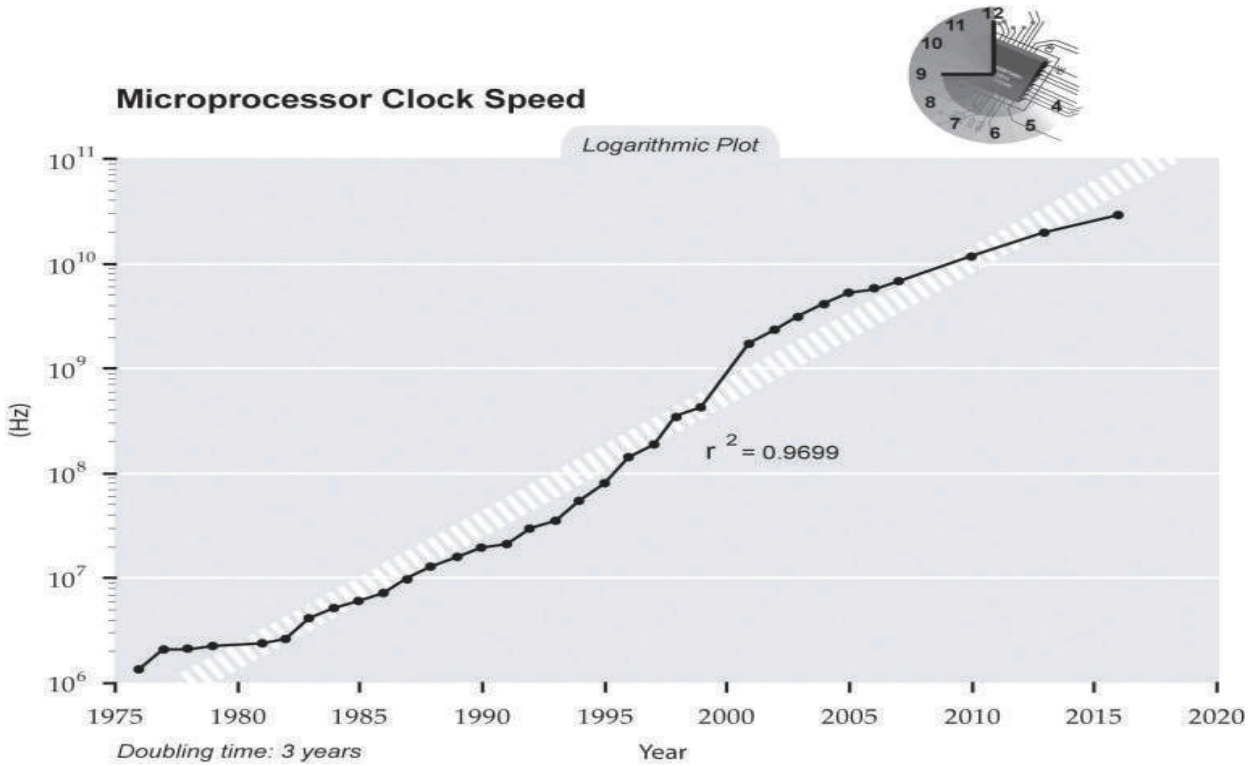
Finally, the last reason why Deep Learning works so good is, you! The moment you accept Google's Terms and Conditions for data storage in Google Drive, they have the legal right to use your data to "improve their services". There are similar clauses in several other T&C's as well. So you could say, the unlimited photo storage space offered by Google is just a ploy to make Google Lens work better. But hey, don't blame them, literally every company that uses an AI component is doing that.

2. Overselling Achievements

Part two of why there wasn't a huge breakthrough earlier, is that there aren't massive breakthroughs now as well. But, the results are oversold impressively by companies.

For instance, take AlphaGo. We all know that it defeated a world class champion on the game "Go", which is infamous for its unimaginably large number of piece configurations (Also known as 'states').

It is not possible to find "the" optimal solution for this game (or even chess) the "classical way", because the number of states are far greater than the number of atoms in the universe. But we can approximate "a" solution using heuristics. Alternatively, a Neural Network can be programmed to intelligently choose states that can give it a 'higher reward' (Reinforcement Learning). Sounds cool, but what they don't mention often is that, the hardware requirement for the same is massive. The standalone version had 48 CPUs and 8 GPUs ! But wait. The one that defeated the human was the "distributed version" and it had 1202 CPUs and 176 GPUs!!

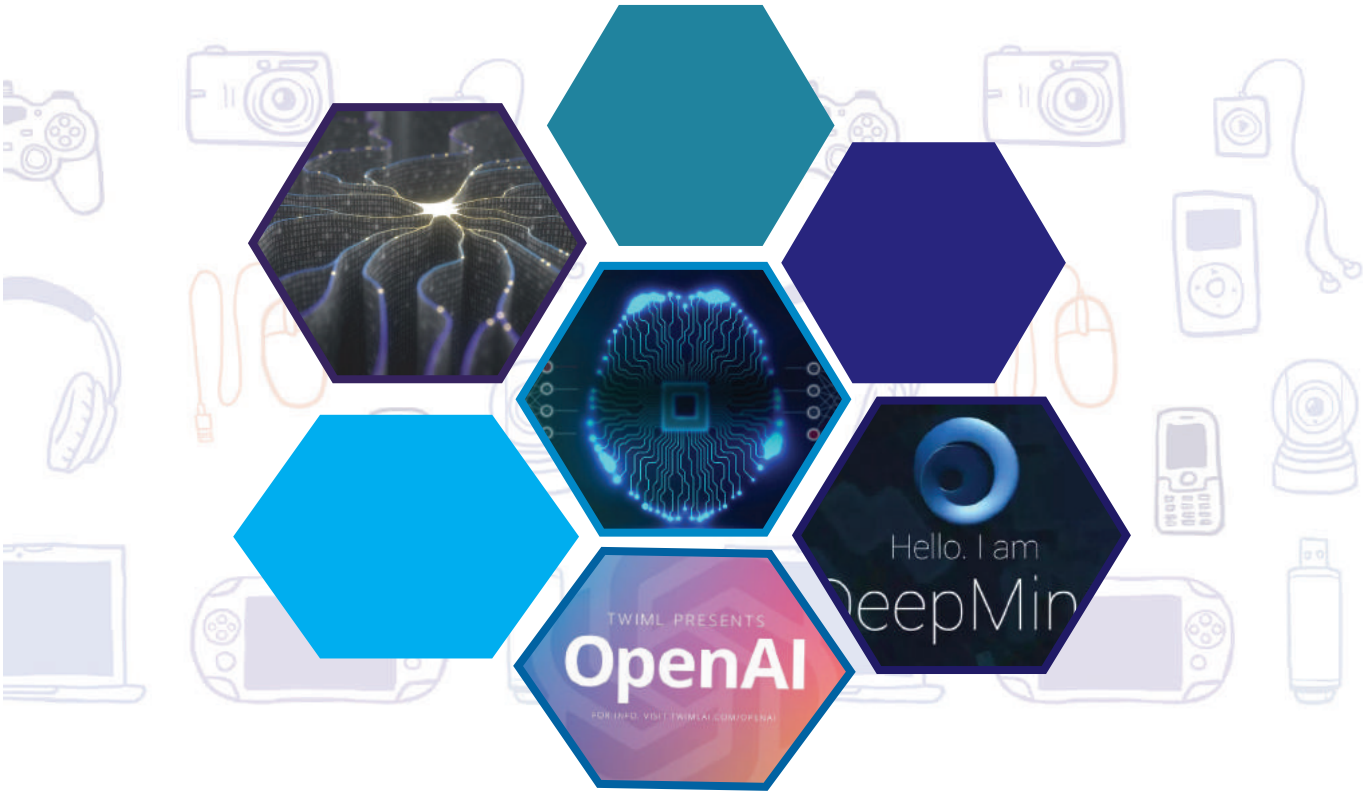


Consider the Dota achievement, by OpenAI. The game was a 1v1 battle, not the standard 5v5 battle. Critics argue that the state space of a 1v1 game would be lesser than that of the game “Go”, so isn’t as spectacular as AlphaGo.

While it’s true that they are building a system that can beat the classic 5v5 game, it’s not something everyone can replicate. It’s being trained using 256 GPUs and 128000 CPUs.

Finally, take IBM’s fiasco. They sold proprietary AI software with the promise of intelligent cancer predictions from health care data. But it just proved to be a massive failure, sometimes still unable to distinguish between two types of cancer.

The point to take from here is that, most of these breakthroughs are cool, but are as significant as any other development in other fields (so far). AI is still as good as an infant, or an aged person who is literally good at one thing.



Okay so now what, should I not involve myself in AI at all?

As a guy who has experimented with Machine Learning and Neural Nets for over a year, I would honestly say it is the most exciting domain I've come across but you must be wary about how you use your skill. Remember that, ML and AI are tools for your job, and not the job itself; unless you want to get into research in that field.

Several people jump on the bandwagon in hopes that it'll enhance their recruitment chances. It would, but only if you use it like any other programming paradigm and have practical use cases. IoT was once as hyped as AI is now hyped. Now, even though it is still big, IoT is used more as a tool. A similar fate awaits AI. It could also be possible that other technology can make certain features obsolete. For instance, using Quantum Computing, we can search exponentially through state spaces, which might help us find optimal solutions which are now thought of as "impossible". Artificial General Intelligence (AGI) is still a far fetched dream. It will take ages for a sentient 'Skynet' or 'Ultron' to be born. We are more likely to be killed by human error. I would like to conclude by adding a footnote that, not everything is hyped. In the field of Neural Networks, generative models and image segmentation underwent massive breakthroughs in the past few years. Image segmentation became 250 times more efficient in terms of computing time, in just a span of two years. The point you need to take from this article is that, never jump into any hot domain of technology, before learning about the subtleties that UNILAD and TechInsider won't tell you about.

By
Bharath Raj
IV A

What Next?

Author's disclaimer: Things here are a bit exaggerated. My family is cool and I love them! I will definitely be sending them a copy of this magazine.

Writing for 'Impulse' this year has been nothing short of a herculean task for me. It was way simpler last year. If you remember, I ranted about the iPhone. Nobody knew what it was, and I found it interesting to write about. This year however a lot has transpired already - from CES which was held in the month of January till the latest Google I/O.

Before I begin my article, let me recount a particular incident that happened not so long ago. I'm sure everyone of us is part of a family whatsapp group. Everyone in the group is well beyond our age. Now that is the only family whatsapp group you could be a part of, because your cousins kicked you out of the group you created as you have grown old. Coming back to my story, my grand uncle, being the good samaritan that he is, started the day with a 'good morning' message and others started sending those weird Sai Baba and battery forwards. A typical day on the group. Suddenly one random periappa (or chitappa, I don't remember) sent a message about the Google I/O. THE GROUP WENT BERSERK! Uncles and aunts who previously asked their sons and daughters to teach them on how to send an email on whatsapp were now having a heated conversation on Duplex and Google Lens. I realised two things that day. One, everybody now knows something about everything. If they don't, they google or youtube it. Two, don't get cocky with your family members. That day, I went on a tech rant in the group about Machine Learning (ML) and Natural Language Processing (just a bunch of jargons here and there). I got seen zoned. Sad life, I know. What I am trying to imply is that everybody has access to everything. So when I couldn't think of a topic for this article I was in a deep state of confusion. Writing about the Google I/O was my backup plan in case I couldn't think of anything else. 3 days before the deadline, I heard that an article on Google Duplex was already submitted and I was back to square one. I am proud that I filled out 3 paragraphs without talking about technology or anything closely related to it. (\m/)

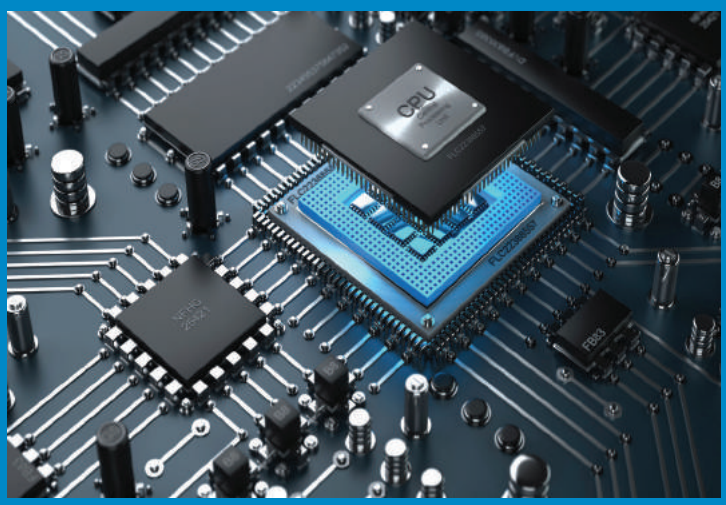
So after putting some serious thought into this I decided to write about the future of technology.

Let us put our Robert Zemeckis' 'Back to the future' hat on and predict the future shall we?. Let's not get too ahead of ourselves and wish for smart boats which can transform into an airplane which can be driven on roads by the year 2023. Basically I am asking y'all to not go full Michael Bay on this.

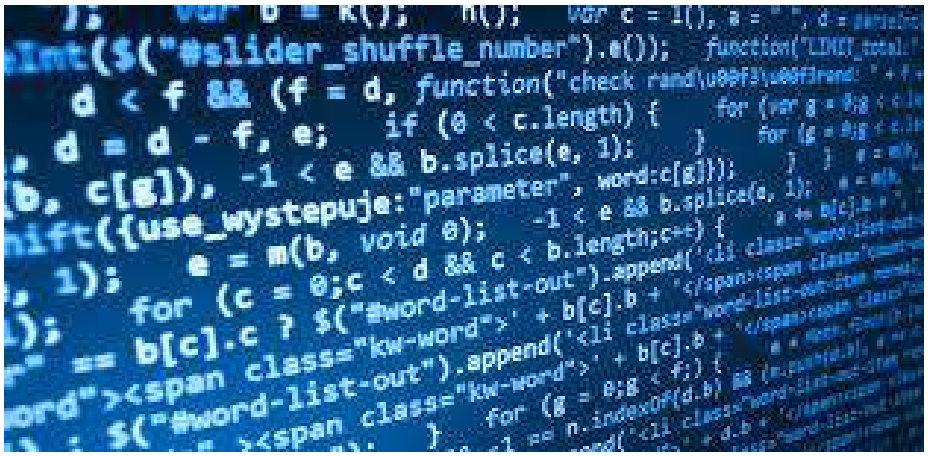
With that cleared, let's get cracking!

1. Processor

It is well known that processors are becoming faster and more powerful. It is safe to assume that by the year 2020 we will have a processor with 10 billion transistors although there won't be a significant increase in the process type. It is seen that any process below 10nm can't be used on mass produced devices. Basically what I am trying to say is that the Moore's law would be saturated. However, people at the Berkeley Lab have developed a 1nm long transistor. They are now trying to produce it in mass quantities. So looks like Moore's law might be valid for a couple of more lustrums. Now in the future we would see more processors with dedicated ML support. It started with Apple's A11 Fusion last year and Qualcomm released a new version to match (not quite) Apple's processor. These particular functionalities are important for a couple of reasons. One, all our phones these days have biometric scanners - be it a complicated dot matrix based facial recognition sensor or a humble fingerprint scanner. It is important to be accurate and safe with these biometric scanners. And speed can't be traded off for accuracy and security. Having a dedicated neural engine would help us mitigate these issues. The second reason is that, starting from the mundane task of displaying frequently contacted to a sophisticated assistant(not looking at you Siri!) everything is implemented using Machine Learning. Literally everything! If you are planning to start a toaster making company, hire a computer science engineer to write a ML code to decide on how brown a side should be. You will go golden I am telling you. So it makes all the more sense to have a dedicated section for these computations.



Let me give you another example to show how pervasive ML actually is. Recently AMD (Advanced Micro Devices) released a processor called Ryzen. The processor has (maxed out values) 16 cores, 32 processing threads and a 40MB cache. The USP of this processor is that it uses Machine intelligence to decide how to split task and perform parallel processing. Ryzen could very well be the future of processors. From the looks of it, it is the future of processors.



2. Software

Nowadays people don't really value software the way they should. With the hardware not really changing or giving enough reasons to switch a device, companies are focusing on improving their software and make it compelling for people to go that extra mile in changing their phones or PDAs (Personal Digital Assistants). Most of the software coming out would primarily be focused on AI and AI only. We can almost take this for granted. The recent I/O gives us a quick glance on what is to be expected from Google in the future. Based on the current trends, Google would keep improving their AI systems.I feel Duplex is only a starting point to a greater revolution the industry is going to witness. We might have Operating Systems which could run on both PCs and mobile devices. Windows 10 was a step in the right direction for Windows with the continuum feature. But looks like Microsoft gave up on Windows after the release of Windows 10. Apple with iOS and MacOS is trying to provide a common platform for developers to develop apps to run on both machines. If what we hear is true, then Apple is very much in line to release a common OS for both their iDevices and Macs. I am counting on Apple to pull such maneuvers.A unified OS could well be a reality by the end of the this decade!

3. Facebook

I am going to go out on a limb and make a bold statement against Facebook. By the end of the decade facebook.com would very well be irrelevant. I might or might not be right. Based on the current trends people don't really use Facebook as much as they used to. This could very much be because of memes and ads on Facebook. Recent lawsuits and the Senate hearing have added on to the problems they face. The company however would still continue to be relevant with apps like Whatsapp, Instagram and devices like the Oculus in their kitty. Even if the company loses Facebook they wouldn't suffer too much as they would still own the most popular Social networking app, Instagram.

4. The Internet and the Web

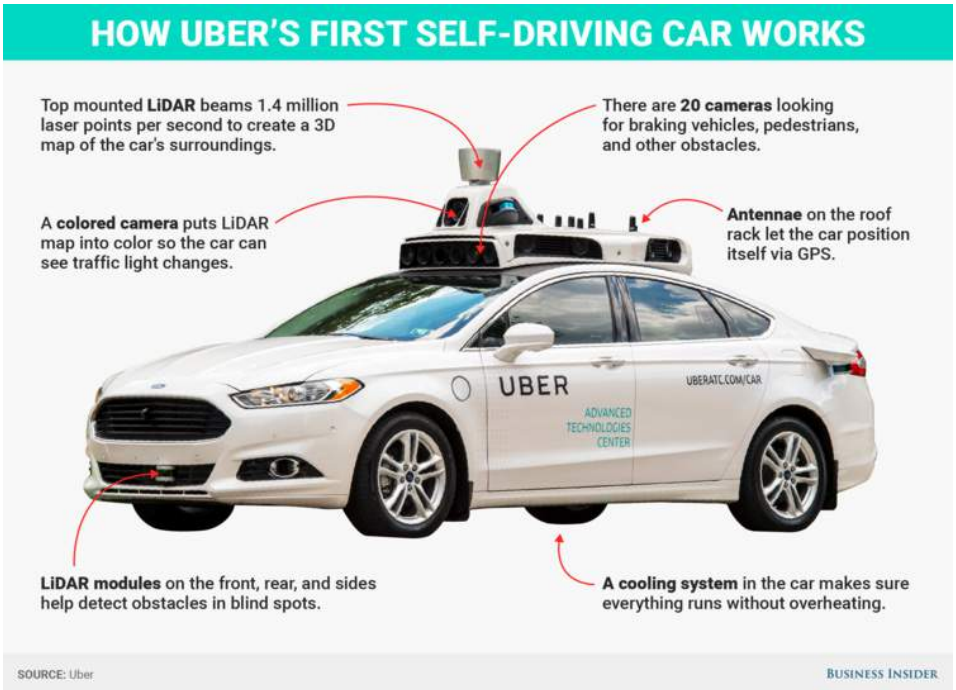
As we all know, the web was supposed to be decentralized. No single corporation was supposed to have a pseudo absolute control over the web. However in the past few years we have seen few major organizations at the helm of the web. It was Microsoft in the late 90s and the early 2000s and Google from early 2000s to early 2010s. The birth of this decade saw the power shift from Google to Facebook. Facebook has been the epicenter of the web for the past 5 years. It is time for a change, and with Google no longer interested in the web (they have mellowed down :P) the power would logically go to Amazon. Amazon with its streaming platform for movies and music is quickly replacing Netflix, Hulu and other streaming services. Amazon also offers cloud related services at a relatively affordable rates. AWS (Amazon Web Services) has done wonders for Amazon. The recent allegations made against Facebook have actually helped Amazon grow. So I think in the upcoming years Amazon has a huge chance to become a web powerhouse.

5. 5G

5G could well be a standard by 2019. From a 5G summit held by IEEE ComSoc, Nokia and NYU in April in Brooklyn , it is known that the organizations are trying to get the standard out ASAP. This annual summit ,showcases to the world many firsts in the field of Communication. Several market leaders like AT&T and Verizon are expected to start testing 5G by end of this year. Based on current estimates we could see a 5G device by late 2019. 5G is expected to provide close to 4 Gbps which will put many wired connections to shame. With widespread adoption of 5G, we could very well see a huge increase in the number of IoT devices being produced and consumed. 5G would also pave the way for smart vehicles.

6.Widespread adoption of self-driven cars (SDC)

The future looks interesting for SDC. Towards the end of 2017, Uber incorporated several self driven cars into its fleet. The updates from the I/O this year shows us that self-driven cars are here to stay. Cars are expected to double down on safety measures. It will be nearly impossible to total your car in the near future. There are several theories formulated to understand the working of a self driven car. Two of the most popular theories are: using computer vision and another one using IoT. What is finally incorporated is left to be seen. But based on the current trends people would be very close to realising an SDC with computer vision.



7. Digital Payment System

What was supposed to kick start in the year 2015 is still trying to find its footing. Apple Pay was supposed to change the way digital payments were made. Apple Pay had a simple interface and was secure. As of today, there are way too many clients for online payment and we are in the middle of a hot mess. We have Tez, Phonepe, Airtel money, PayTM to name a few. These many clients give the user many choices but none of them follow the same standard. So it would be difficult to use one app for everything. Apple Pay had an 'innovative solution' for this problem. They are now trying incorporate all these clients to provide them a unified solution. It would be safe to assume that by the year 2020 we would get a suitable solution to this problem.

8. Content war

By the end of 2013 there was massive shift in the way people consumed media. It all started with companies like Netflix and Hulu understanding that they could produce and distribute media over the internet. Needless to say, this transformed the industry. Mobile phones and laptops replaced traditional television. Smart televisions replaced Laptops and Tablets proving that size matters. Media consumed on a large display gives the viewer an immersive experience. In 2017 we saw Amazon coming out with their own streaming platform. Disney announced that it was planning to release its own version of Netflix by 2019. The whole medium provides so many benefits, the most important being the continuous cash flows. Such lucrative deals has made Apple, a tech giant, invest hundreds of billions of dollars to create 4 R-rated TV shows in 2016 but they are yet to materialize. (Probably Apple was not able to get make a fair deal out of this whole business.) Who knows what happened or what will happen. But it is clear at this point, that the content industry is an untapped resource worth billions. With saturating quarterly revenues, several tech companies are eager to get their own streaming service up and running. We would probably see Apple's streaming service in some form or the other before the end of this decade.

9. Wireless

I am calling it. None of the phones in the year 2020 would have an headphone jack. Companies like Samsung might still have an headphone jack just to spite Apple. Headphones have no use as of now. A single port which doubles up as both your charging cable and your headphone jack makes all the sense in the world. Removing a port from a phone provides the phone enough space to evolve. Turns out, if you remove a port the phone becomes more durable as it is now less prone to problems caused by dust and water. Based on current trends OEMs (Other Equipment Manufacturers) can actually remove your charging port to provide induction based charging and a clean true wireless experience.
So get ready to say Ta-Ta to your charging bricks and adaptors!

10. One Port to rule them all - USB Type C everything

Wireless chargers and headphones are the future. They give a tangle free experience. However, it is known fact that wired connections are faster than wireless connections. Several professional machines which work on several Gbs of data simultaneously might find it difficult to transfer the same via a wireless channel. USB and Thunderbolt have provided users and consumers a wide variety of options/ standards to choose from. Apple has prefered Thunderbolt over USB in its Macs and a proprietary connector for its iDevices. Several Windows machines prefer USB and mobile device manufacturers use USB micro. All these were expected to change with the introduction of USB type C. The industry is slowing adopting the new standard and is trying to have one universal port for data throughput. In the future you would be able to charge your phone, laptop and your tablet using the same charger and listen to music via the same port. Sounds crazy, right?

These are my top ten predictions for the next few years. We might end up seeing something not on this list so don't take it to the T, boys and girls!

By
Kashyap Ravichandran
IV B

INDUSTRY INSIGHT

Life is all about making decisions and soon, we'll all be making an important decision, one that would shape our career. Throughout the course of engineering, we've all been asked the "innocuous" question of what we intend to do after undergrad by relatives, neighbours, friends and every person in between. We reply, they suggest, we get confused... and we're back to square one. The reason why this happens is primarily due to lack of clarity in what one intends to do. However, one can have a great deal of clarity after thorough research. Whatever it is that we wish to do – be it higher education or setting foot in a company –we must make sure to gather sufficient information before taking a decision. This section deals with the latter option. Before dropping the resume for recruitment, one ought to analyse the various dimensions of the company. The policies, structure and values of a company are as important as its products and services.

NOKIA

NOKIA NETWORKS

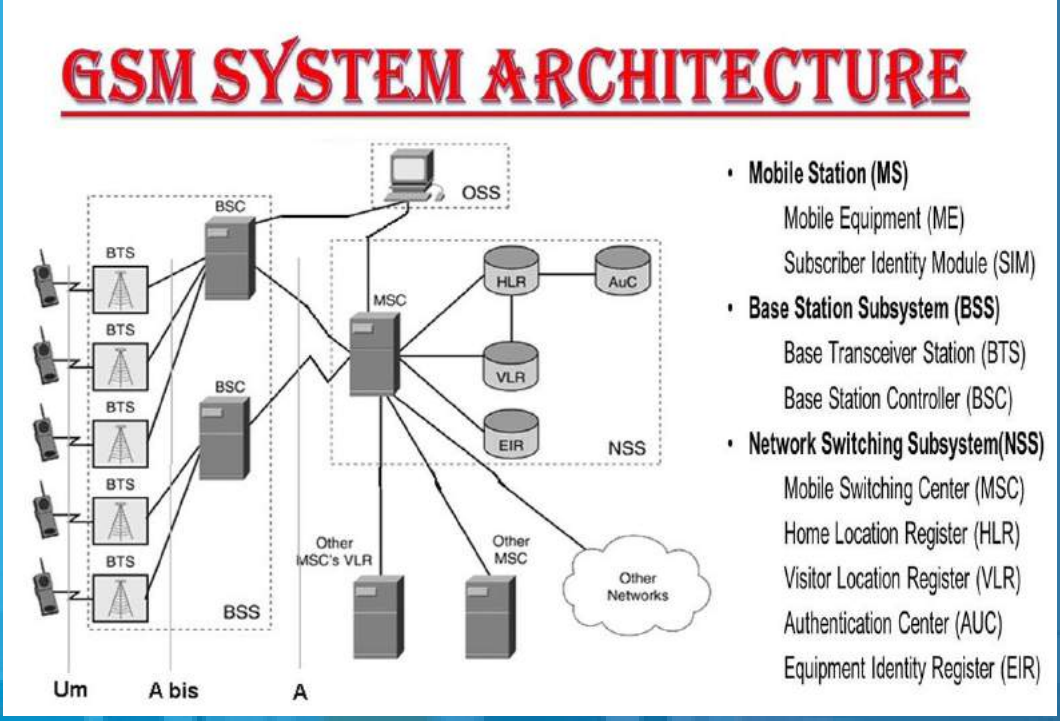
Nokia Solutions Networks, formerly Nokia Siemens Networks (NSN) is a multinational data networking and telecommunications equipment company headquartered in Espoo, Finland. The company has an R&D centre at Bengaluru, India with a dedicated lab for 5G communications and IoT. Two of its other R&D centres are at Dallas (Texas) and Espoo (Finland). Nokia Networks set up a manufacturing facility at Oragadam, Chennai in the year 2008 and is currently the largest manufacturer of telecommunications equipment, by volume in India. The company manufactures Base Transceiver Station (BTS) equipment for its clients, which include major network carriers such as Aircel, Bharti, Defence, railways, AT&T, Vodafone India, Tata, Videocon, etc. BTS sits at the heart of telecom towers and provides connectivity to the mobile devices possessed by end users. Nokia boasts a 30% market share in the mobile broadband sector. Nokia is truly a market leader in the telecom industry. It is the #1 in GSM Railways, #1 in packet core, #1 in Managed services, and #2 in wireless infrastructure. One can find various teams working in diverse fields such as Machine Learning, Augmented Reality (AR), Virtual Reality (VR), Internet of Things (IoT) etc. with emphasis on manufacturing applications. For example, the company monitors the Overall Equipment Efficiency (OEE) of production line machines using the Internet of Things (IoT). There are teams which focus on front-end IoT (web development) and back-end IoT (hardware interface).

Nokia is a people-oriented organization which strives for the development of employees along with the development of the organization per se. The values of the company –respect, challenge, achievement, renewal –also reflect its vision. It follows an informal work environment in which the officials at the top level can be approached by any employee at any level of the organization. Employees have their own space to work and all employees collaborate, cooperate and work with each other in a common space in line with its informal work environment. All employees are treated equally and are encouraged to call each other by names, without salutations such as sir/madam.

The company believes that respect must be earned and that everyone deserves it irrespective of their designations. Employee performance is evaluated on a timely basis and the firm does not follow a forced distribution rating. Employees are appreciated and rated as per the objectives and values of the organization.

Nokia is also trying to achieve gender equality at workplace and encourages women to come back to work after pregnancy, providing day care centres within the office premises and allowing mothers to visit their offspring anytime they wish to. The company provides a platform for its employees to showcase their talents in non-work areas like music, sports, cultural activities and the like. 'All work and no play makes Jack a dull boy!' These activities are completely organized by the employees . All arrangements are made by the employees themselves without outsourcing in a hope to promote a sense of oneness, improve collaboration.

In an effort to enrich soft skills of employees, Nokia features a Toastmasters International club, a not for profit multinational organization that helps people develop their communication, leadership and public speaking skills.



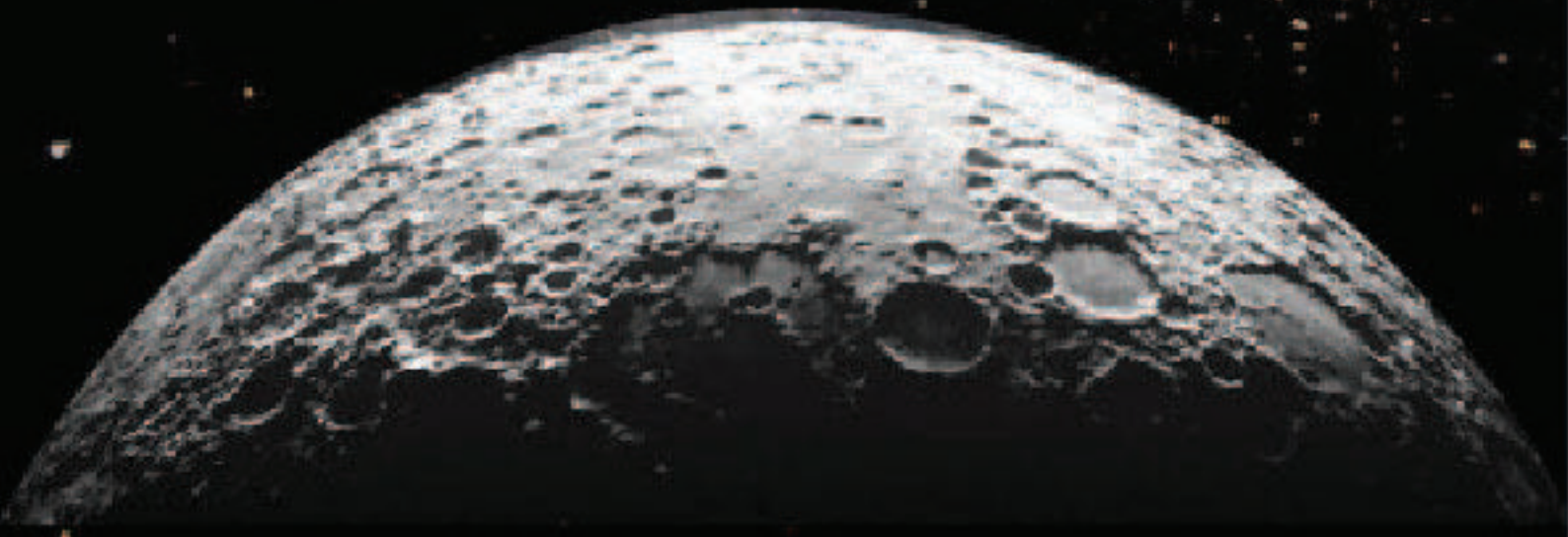
I interned at Nokia Networks, Oragadam for a period of 1 month and am glad to say that it was a very pleasant experience. Finally, I could fulfil my dream of getting a hands-on experience and learn how the various concepts we come across throughout our college course are used in real-world applications. I was initially paranoid about the whole idea since I couldn't remember much of the compound knowledge stuffed into my brains right from the beginning of college. This has always been my worst nightmare and I believe I'm not the only one who feels this way. However, a few days into the internship, I understood that the secret is not in memorizing or devouring as much information as possible, but instead in a strong grasp of the fundamentals. Learning by principles, as Richard Feynman, Elon Musk, Jeff Bezos and many others believe, is the key to learn anything quickly and eternally. Mr Ramarajan, who has been with Nokia Networks for 6 years, says that the most interesting part of his job is working with state of the art technology – communications and RF engineering, IoT, cloud/remote access, etc. and facing new challenges every day. He and his team strive to improve/enhance product/process quality.

> **Have a strong grasp of the very basics in all the core subjects with some level of expertise in one particular field that you are passionate about. Knowledge of both hardware and software are important employability skills for an electronics engineer**

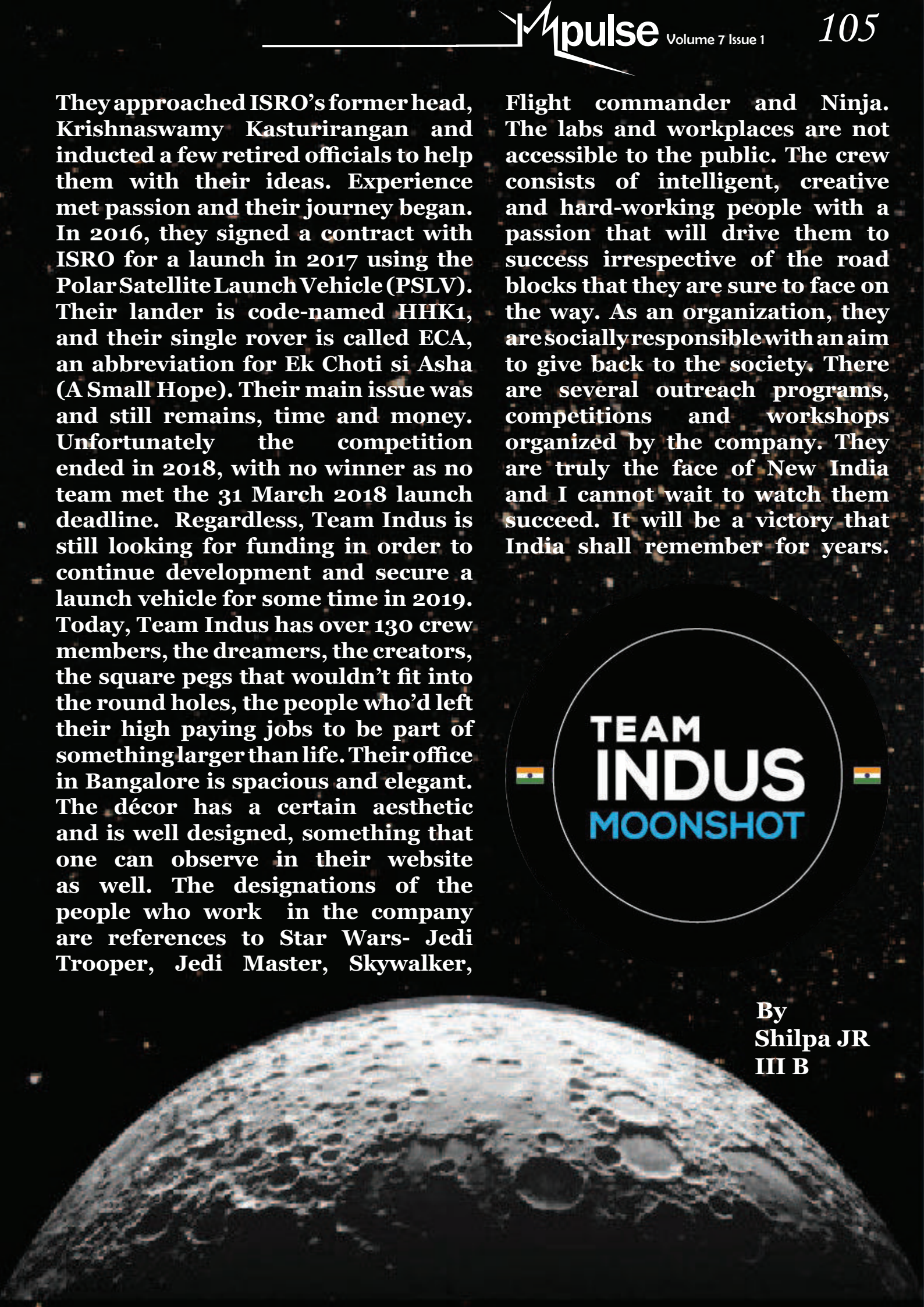
By
Brathindara S
IV A

TEAM INDUS

Team Indus, India's first entrepreneurial effort in the field of space research is, quite literally, aiming for the stars. Founded in 2011, Team Indus has made it its mission to send a robotic explorer to the Moon's surface. The private startup located in Bangalore, consists of 130 members from various backgrounds in science, technology, finance, and media. What brought them together initially, was the Google Lunar X Prize (GLXP) Competition. The GLXP, sponsored by Google, was an inducement prize space competition announced in 2007. The challenge called for privately funded teams to land a spacecraft on the Moon, travel 500 m and take high-definition pictures of the surface. For a very long time, ISRO was the only known organization that was successful in sending objects to outer space. And appropriately so. The term "It's not rocket science" didn't pop out of nowhere. Human exploration of the moon began and ended with the Apollo Missions. It has been 45 years since a human landed on the surface of the Moon. This decade witnessed the rise of one of the most powerful players in this business, SpaceX. Headed by Elon Musk and powered by the success of the Falcon Missions, the possibility of visiting Mars seems higher than ever. However when Rahul Narayan, founder of Team Indus and Axiom Research Labs, first came up with the idea of the organization in 2010, he says -"It was an interesting time for one to let go of inhibitions and imagining something that was not mainstream". The initial crew was a bunch of amateurs with no background in aerospace, attempting to achieve a magnanimous feat. The first few years were difficult as with any startup.But planning a mission to another astronomical body, is not your everyday problem.



They approached ISRO's former head, Krishnaswamy Kasturirangan and inducted a few retired officials to help them with their ideas. Experience met passion and their journey began. In 2016, they signed a contract with ISRO for a launch in 2017 using the Polar Satellite Launch Vehicle (PSLV). Their lander is code-named HHK1, and their single rover is called ECA, an abbreviation for Ek Choti si Asha (A Small Hope). Their main issue was and still remains, time and money. Unfortunately the competition ended in 2018, with no winner as no team met the 31 March 2018 launch deadline. Regardless, Team Indus is still looking for funding in order to continue development and secure a launch vehicle for some time in 2019. Today, Team Indus has over 130 crew members, the dreamers, the creators, the square pegs that wouldn't fit into the round holes, the people who'd left their high paying jobs to be part of something larger than life. Their office in Bangalore is spacious and elegant. The décor has a certain aesthetic and is well designed, something that one can observe in their website as well. The designations of the people who work in the company are references to Star Wars- Jedi Trooper, Jedi Master, Skywalker, Flight commander and Ninja. The labs and workplaces are not accessible to the public. The crew consists of intelligent, creative and hard-working people with a passion that will drive them to success irrespective of the road blocks that they are sure to face on the way. As an organization, they are socially responsible with an aim to give back to the society. There are several outreach programs, competitions and workshops organized by the company. They are truly the face of New India and I cannot wait to watch them succeed. It will be a victory that India shall remember for years.



By
Shilpa JR
III B

WASSUP?

You have come this far! You have taken a look at the impressive achievements of our faculty members and students. It's now your turn. Want to explore opportunities that tap your talent? Look no further. Here is a list of some of the conferences and events you can attend in the coming few months.

1

7 July 2018
ICAIEEC 2018

3rd International Conference on Advancement and Innovations in Electrical, Electronics and Communication

St. Anns College of Engineering and Technology, Chirala, AP

2

12-13 July 2018
ICIS 2018

1st international Conference on Intelligent Systems

SCSVMV University, Kancheepuram

3

19-21 July 2018
RoSMa

International Conference on Robotics and Smart Manufacturing

IIIT DM Kancheepuram

4

27-28 July 2018
ICCMIA 2018

International Conference on Clinical and Medical Image Analysis

Karunya Institute of Technology and Sciences, Coimbatore

5

30-31 August 2018

IEEE Nanotechnology Summer School 2018

Indian Institute of Science, Bengaluru

6

30-31 August 2018

ICMR Sponsored National Level Seminar on Smart Sensors in Healthcare Applications 2018,

Kongu Engineering College, Erode,

Last Date for Receipt of Applications: 13.08.2018

WASSUP?

7-8 September 2018

PySangamam - Tamil Nadu's first Python conference

IC & SR Building, IIT-M

7

10-11 September 2018

International Conference on Recent Trends in Advanced Computing 2018

VIT University, Chennai

8

21 September 2018

Festember 2018

NIT Trichy

9

4-6th October 2018

ICONSEA 2018

International Conference on Nano Science and Engineering Applications

JNTUH College of Engineering Hyderabad

Last Dates for Registration: 10th Sept, 2018

10

12-14 October 2018

graVITas

VIT University's Annual International Technical Fest

VIT Vellore

11

27-30 November 2018

ISPACS 2018

International Symposium on Intelligent Signal Processing and Communication Systems

ANA International Ishigaki Resort, Okinawa Japan

12

DEXTEROUS

Music, dance, sports and the creative arts are part of the joy of humanity. Though there are seeds of talent and passion sown in every person, only a few of us nurture and grow it. It takes immense dedication and diligence to follow one's passion. We therefore set out in pursuit of such students and happened to meet these five talented youngsters. They boast of an illustrious track record not only in academics but also in other arts. We introduce you to the 'Dexterous'!

DEXTEROUS

SHIVANI

Ever thought of bringing boring walls to life or making personalised gifts for your friends? Shivani who is doing her third year ECE paints wall murals. She does customised paintings on ceramic mugs , Kurtis, T-shirts, wooden doors, polymer pouches and even designs her own keychains. She has been pursuing this art , which is close to her heart, and honing her skills ever since her childhood. “I kept drawing and painting as my hobby. Whenever I’m bored I just grab a pencil and draw some zentangles or abstract modern art which reflect my thoughts and emotions.

I keep adding materials to my collection and fill my home with them”. Now she has ventured into a different medium, namely, wall mural art. She got her maiden assignment from Visteon Electronics to paint their indoor play area at their Chennai Maraimalai Nagar plant, with the theme being ‘Tamilnadu, Chennai in particular’. This wall art was completed in 15 hours over a span of two days and was very well appreciated. She makes customised tees and administers creativity based on the theme. She shows her design thinking in the way she places her object on the tee, choice of cool or warm colours and apt font based on the theme and uses different methods to draw them based on the genre.“Design is often misconstrued for painting or drawing , it’s about value added thinking, creativity and proper implementation to make a customer friendly product. To me it is compiling my thoughts and steering them into the product

> **Design is not just drawing or painting, it involves creative thinking couples with intelligent implementation**

I create. Drawing and painting are my instruments to realise a working model. I have always wanted to go to the beachside with an easel and canvas and draw whatever that came to my mind”, says Shivani with a smile on her face.

DEXTEROUS

SABHARISH PADMANAABAN

Violin is a string instrument that needs a lot of passion and dedication to play. Sabharish Padmanaaban from third year is an amateur violinist who has been playing the violin since he was 9 years old after being inspired by the sound of the instrument.Talking about his journey he says,"In the beginning I learnt to play the violin from Akkarai Murugan for a year. However my growth as a violinist happened under the tutelage of Melakaveri K Thiagarajan who is an A grade violin artist. After 8 years, I am now learning from guru Akkarai Swamynathan". Playing the violin is always pleasurable to him despite it being one of the toughest instruments to play. He is an ardent music lover who entertains his friends by playing their favourite songs in his free time. Over the years, he performed on various stages and events and was appreciated by many renowned artists. He has also participated in various state level competitions and won prizes. Reflecting on his first win, he says, "I participated in my first competition when I was in my seventh grade and was representing my school. Despite being a junior I was competing in the senior category to challenge myself. I practiced hard and ensured I gave my best on the day of the competition. Winning the first prize in my first ever competition. Winning the first prize in my first ever competition was a huge morale booster and it motivated me to get better and better". So who is the inspiration for this remarkable musician? "My inspiration is Embar S Kannan. When I first heard him live in a T.M Krishna concert,

> "Music is a gift, it is a universal language that allows us to create an avenue for empathy and understanding which is a resonance of spirit and recognition"

I was in awe with his style which was very unique. Hearing him play, one could easily get into the feel of the song. Actually there are many artists I admire and learn from. Now, I'm trying to discover my own style of playing. I feel that inspiration need not be hunted outside. It is your soul and inner being which is the biggest inspiration!"

DEXTEROUS

SWATI H.

It needs a lot of concentration to play against a swift moving celluloid ball flying across a 9x5 table.Here is Swati, a fourth year ECE student, who is a seasoned table tennis player. She has been playing competitive table-tennis since her school days in the District, State and National level competitions and consistently ranks in the top 8 in state level. She has always been in the top two places in both singles and team categories in Cluster V tournaments.She has trained in Lord's TT Academy, YMCA,Chennai since the young age of 8. Talking about her early start and wins,"Winning the bronze for my school at the national CBSE clusters at Gurgaon was my maiden achievement. At the beginning I started out with school matches and State ranking tournaments and gradually got to represent the Chennai district and also Tamil Nadu at the nationals". She got her first break when she won the Mylapore Club tournament in Class 7 in two categories , for which she was awarded with two cycles and also cash prizes. She hit her peak when she won the JVS Rao State Level tournament for women singles.However a lot of effort goes behind her incredible achievements. "When I started out, it was just a hobby. It helped me in getting fit and strong. Later when I moved to competitive table tennis I realised that it was so much more. A typical day consists of 2 hours of extensive fitness training that includes stretches, step running, shadow practice, agility training, skipping etc and it turned out to be harder than I imagined".It is clear that table tennis is not just a sport to her. According to her:

> Table tennis is an art more than a sport. Being the second fastest sport in the world, agility and hand eye coordination are most required

"It [table tennis] means the world to me, it always has. My calling has always been this sport. Never once in my life have I regretted playing it. It has given me a lot of maturity and confidence in life. It has improved my concentration and has even helped me in my academics"

DEXTEROUS

POOJAH

Bharatnatyam is a wonderful classical genre of dance that originated from Tamil Nadu.

Poojah from second year ECE is a virtuoso dancer who exudes elegance and grace. Here she talks to us about her training,"I actually started learning Bharatnatyam 5 - 6 years ago. Initially it was just out of interest. I used to dance in culturals and annual days. I ended up getting a lot of appreciation. So I wanted to learn more and more."She is professionally trained under Purnima Sriraman, a Doordarshan artist and a disciple of Dr. Lakshmy Ramaswamy. She can dance any style from Bharatnatyam to HipHop. During her free time she turns on some cool music and adapts to the tunes. Dancing is the best stress buster for her.Talking about her achievements,"I did my Arangetram recently. I've been a part of my guru's programs and I even got the opportunity to perform on channel DD once. I then performed in a government sponsored program in Hyderabad. Finally I got an opportunity to perform in Dheeran TV in July last year." She is an incredible dancer who teaches this artform to others as well. She wants to become a professional dancer and continue taking dance classes in the future. Her dedication to this artform is unmatched. Before her Arangetram on March 3, 2017, she had a practice schedule that would be considered gruelling by most others but not her. "I would have dance class in the morning from 5-6 am. I would rush home to leave for college. In college, since I was part of the classical dance team for Instincts, we would have daily practice sessions from 1-5:30 pm. I would come back home and immediately head to dance class and practice till 9pm in the night!

> "Dance is not just a series of steps and movements that match the speed of music, it needs a lot of mind- body corrdination and flexibility to render"

Dancing is my passion and I love it! I'll sacrifice anything for dance because it's my everything".

DEXTEROUS

APARAJITH

Invented by Bartolomeo Cristofori, the piano is a stringed musical instrument struck by hammers. Aparajith from second year ECE is an adept player of this instrument. He shares his musical journey with us," I started to learn keyboard at the age of 5 from Mr.Kavi Balu from Adambakkam. I gave some public performances at that time and completed A grade (grade 7 in both theory and practicals in keyboard).Then, at the age of 15 I started learning guitar and electronic music production." He loves playing the piano and the guitar and says he never got scared by the monstrous size of a professional piano. Instead he feels it is a soulful and pleasurable experience playing it.He is a true blue music freak who hopes to set up his own music firm in the future.

"Music is the other half of me. I'm incomplete without music. I'll never regret having no sibling as long as music is there with me. It truly means the world to me. They are not just some stringed instruments, but my coolest pals!" He derives inspiration from many musicians such as Mozart, Beethoven, Illayaraja , AR Rahman and Yanni. Here's how he describes himself, "I call myself a humble student of the 6th element of nature. I want to see people get influenced by music and I want to create a revolution in the musical era. I want it to help people with musical talents who crave for recognition. I want to bring them from darkness to light."

> Music is not just a sound, it is a feeling inside ; your heart should bring out the inner you

By
Shivani S
III B

Writer's Enclave

'The pen is mightier than a sword'.

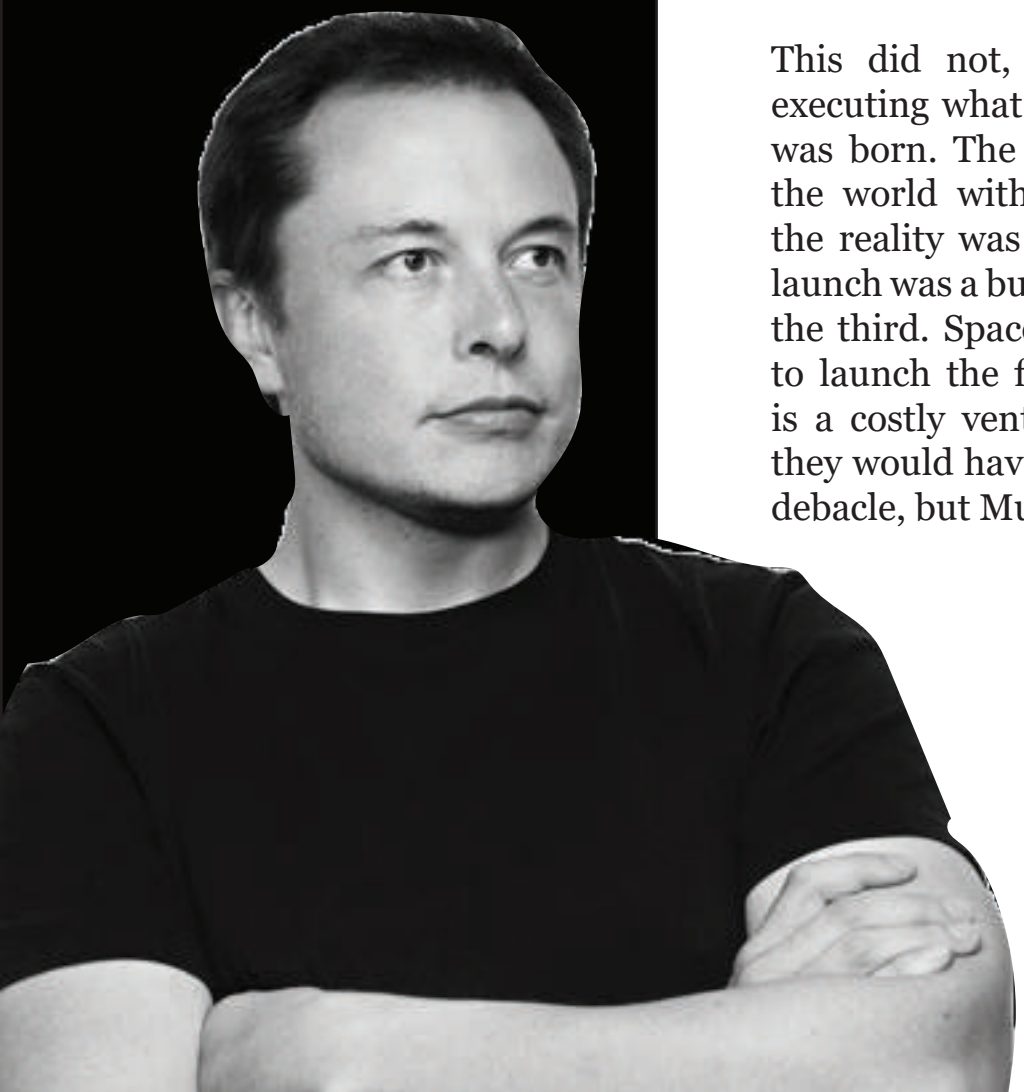
A writer's mind is like a magician's hat. Words are pulled out and strung together to create a masterpiece. To a writer, the pen is the greatest weapon that can invent and destroy. With a simple stroke against the smooth white paper, the writer can create and recreate; write and rewrite.

Writing is a gift that only few possess to inspire and influence. Some write to vent their pent up frustrations. Some write to voice their opinion on matters of concern while some others write because they are triggered by a figment of their imagination. Welcome to the Writer's Enclave! Let us traverse the creative caverns of our writers.

WHAT AN IDEA SIRJI!

I personally believe that an idea can change the world. If a person truly and wholeheartedly believes in an idea, assuming that the belief is derived from a consistent analysis of the repercussions of the idea itself, there is nothing that can thwart a tenacious person from implementing his/her idea. In fact, these are the people who tend to leave a long lasting legacy apart from inspiring and motivating trenchant minds.

I am a huge fan of Elon Musk and I find nobody fits the above description better than him. In his words, “When something is important enough, you do it even if the odds are not in your favour”. This probably explains the story behind SpaceX. When he came up with the idea of building his own private space company, his close friend, in Musk’s best interests, showed him a compilation of rocket failure videos.



This did not, however, stop Musk from executing what he had in mind and SpaceX was born. The man was looking to change the world with his revolutionary idea but the reality was far from it. The first rocket launch was a bummer, so was the second and the third. SpaceX did not have the funding to launch the fourth rocket; after all space is a costly venture. If it were anyone else, they would have packed their bags after this debacle, but Musk was not ‘anyone else’.

He did not perceive these failures (that almost killed his company) as a forlorn situation. Although he was insolvent, he was ready to walk on thin ice. Years later, when asked if he had ever thought of quitting after the first three failures, Musk replied promptly , “Never”. This shows that Musk was strong willed, courageous and believed in his idea completely. It is important for one to not be influenced by the doubts of others.

Musk’s determination is definitely worth noting as well. Being a maverick alone doesn’t help. One must be able to carefully implement the idea. Even if the task at hand was an uphill climb, Musk was courageous and plucky. If it wasn’t for his zest, the world would have neither seen its first successful private space company that sends reusable rockets nor had hopes to carry the heaviest of the heaviest payloads to outer space.

However it must be kept in mind that the idea must be carefully evaluated before implementation. Again to quote Musk, ”A well thought out critique of whatever you are doing is as valuable as gold”. The pith of this statement is ‘well thought out critique’. After all, it should not end up like our beloved TN minister Sellur Raju who proposed to prevent water evaporation by placing thermocol in dams. It is an absolute waste of time and resources to work on nonsensical ideas.

To conclude, I would like to quote Musk, ”One should not be afraid to innovate. But don’t delude yourself into thinking that something is working when it is not or you can get fixated on a bad solution”. Thus, work hard on ideas that can change the world and be a responsible social being!

- BY
Uma. A
IV A

One should not be afraid to innovate. But don't delude yourself into thinking that something is working when it is not or you can get fixated on a bad solution.

- Elon Musk

honest internships

Timeline Resume Application Interview

Eduardo Saverin , after a hard day at his 'club' , enters a dimly lit room. He sees 6 people typing furiously on their laptops with glasses of tequila nearby. He nods his head at Mark Zuckerberg. Mark acknowledges his nod and rushes towards him. "What on earth is going on!" exclaims Eduardo. "And why is this place SO loud? GOD!". " We are hiring!", Mark replies coolly. Eduardo has no idea what was happening."Okay.... But why do we need tequila for that?" asks a bewildered Eduardo. Mark rambles on and on about how each person has to take a shot if the network detects them or they create a bug or how they need to take a shot every two minutes. When he is just about to finish his monologue, two hackers wave their hands furiously signaling that they were done.

Mark walks towards them and has a look at their screens. He ponders for a moment or two and then says, "Welcome to Facebook!".Here is my two cents on the whole intern hiring scene from the movie 'The Social Network'. "DAMN YOU DAVID FINCHER!". I know it was cool but is the process, in reality, this interesting?

I have interned at 4 companies and none of the hiring processes were similar to the one shown in the movie. Neither was I given a bottle of tequila nor were there hot girls cheering for me. Sad Life. It truly is.

So what is the typical hiring process for an internship?

It all starts when our college semester begins (Or that is what I usually do). I send out a gazillion e-mails to everybody I know. My aunt, my uncle, even my grandfather's distant cousin's 'sambanthi's' (Strange that there is no english equivalent for sambanthi. We can probably come up with our own equivalent term, co-parent-in-law?) daughter in law's brother who apparently worked in Intel for 2 years before quitting his job recently. Basically, I spam my relatives twice a year (no regrets). I do this because a recommendation, apparently, helps my profile move faster. A person from the HR team would then reply in about 2-3 weeks. Now time is important because we need to start interning immediately after our semester exams. So that gives us about 2 months to attend interviews, get LORs, Bonafides etc. So it is important to start ASAP.

Our profile usually gets sent to the HR team first. Nobody seems to know for sure what an HR does. Now ignorance ain't bliss. Here is my assumption. Basically an HR is that one person in your batch who says "Machan, chuck it.I'm doing an MBA" after graduation. These HR people are given a huge magnifying glass. They start nit-picking and finally after a series of filtering you will be called if your profile is good enough. If it's through recommendation, this entire step gets skipped. (So moral of the story boys and girls, it's okay to spam once in a while.)

In about 2 - 3 weeks, we might get a call or an email from the HR Dept. inviting us for an interview. The interview might be in person, through Skype , through a simple phone call or if the network is super weird you might even have a Whatsapp interview (I attended one!). After saying TaTa bye bye they will ask you to wait for another two weeks or so.

The second time they call you, it will be for something known as a technical interview. Now these two interviews are interchangeable. During a technical interview a senior person (potential boss BTW) will ask you about the stuff you know, projects you have worked on and so on. After the interview is over they will let you know whether you are eligible or not.

After going through all these interviews, you will be asked to submit some paperwork. Generally a company might ask for your mark sheet, a letter of recommendation, bonafide certificate etc. Typically getting these documents ready would take around 1 to 2 weeks.

Finally after going through this whole strenuous process you will be given an acknowledgement letter. So, here is the crucial question. After facing so many ordeals, is an internship really worth it? Chuck it. Let me do an MBA instead.

- By
Kashyap Ravichandran
IV A

LIFE IS A WAR BETWEEN EMPATHY AND APATHY

As I write this article, a flash of unfinished thoughts run across my mind. The tagline you see above is very apt as far as any individual's life is concerned.

We live in a world with different kinds of people who share different ideals and beliefs. An individual born in this world is vulnerable to some kind of extreme hardships and, it is his/her assertiveness and sanity that helps to surmount the hurdles and emerge with flying colors.
At some point of time, life might seem too dry or rather unenterprising. Those are the times that test our perseverance and clarity of mind.

An individual in a social society is encircled by different kinds of people - intellectual,gossipy,vicious,etc.. It is up to him to choose the circle he wants. Life is decided by our own choices. Whether good or bad, one must have the courage to face the forthcoming consequences. Problems may seem complex or silly, depending on our perception. If we view it through a magnifying lens, we can get an enlarged and elaborate picture of it. Instead, if we choose to view it like distant scenery , it might seem diminished.

All choices that are made in life lead to a beaten path of hurdles. Some hurdles may push one into a cloak of darkness. As negative thoughts begin to creep in, the individual becomes mentally unstable. He/She does not know how to pick the right choice out of the options available. Solitude will push him/her further into a pit of irrecoverable trauma. All he/she needs is to be encompassed by people who shower unconditional love on him. Convincing and encouraging principles have to be imparted in him/her at the right time by the right people. Sometimes people are pushed into worse situations misguided by people who have a strong faith in stigma of caste and religion. It is up to an individual to pay cognizance to compelling situations. Apathy is a sin against humankind.

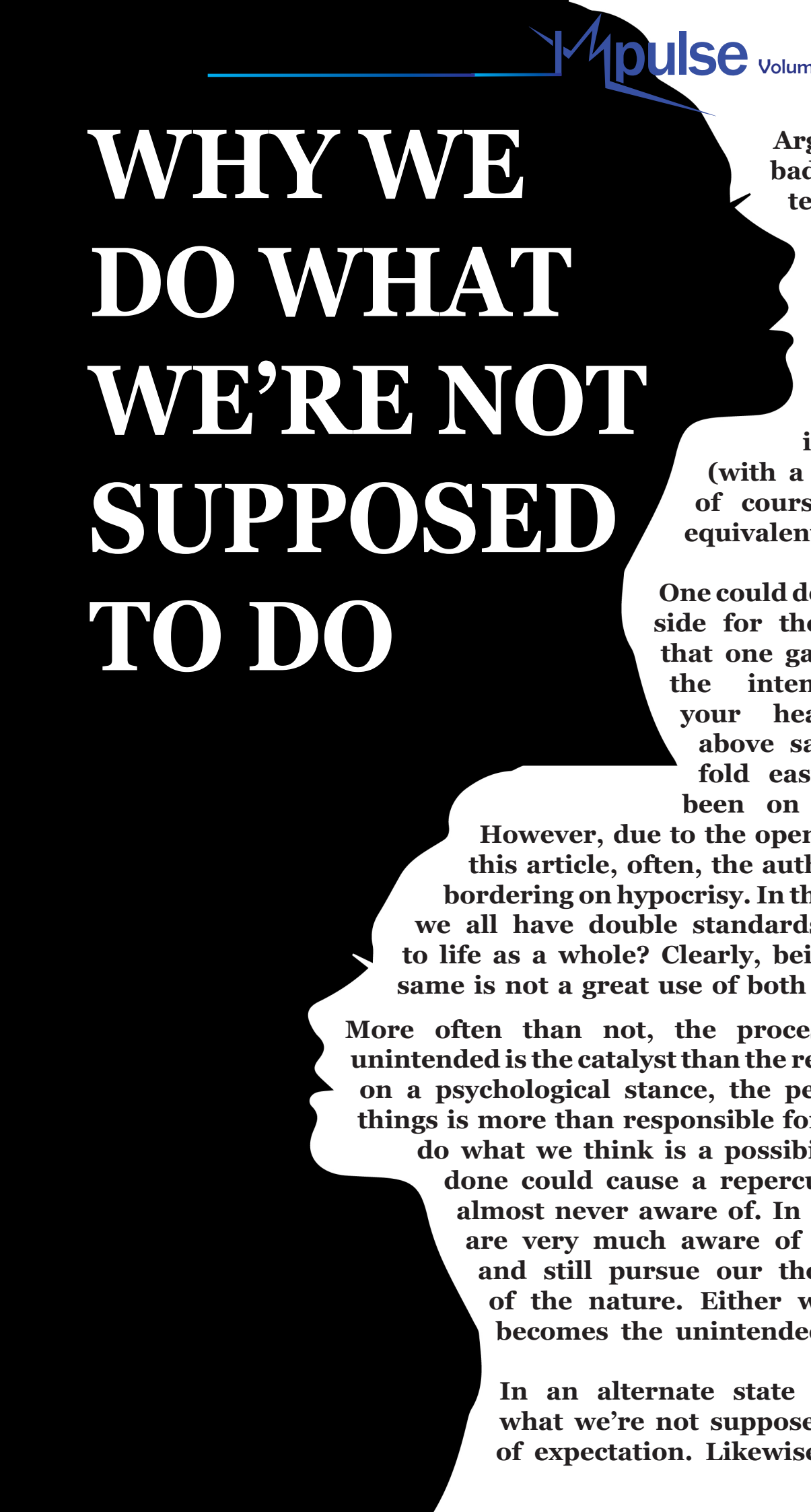
Every individual must empathize with others so that he/she can stand as a pillar of support in times of extreme dejections. A person who is apathetic will hurt his loved ones only to realize that he/ she will have no one to stand by him/her at the end. It reflects not only on the negative side of his/her character but also on his lack of mental strength. When a person is being demeaned by many, his/her loved ones must provide a shoulder to lean on. If they fail at this, then he/she is pushed into a pit of agony. He/she claims his/her rights and put a foot down for his/her self-dignity. In the process he/she tries to muster so much of courage and strength. Moreover, he delves into deep thinking of the events that mentally disturbed him and ultimately ends up being called an unstable person .

Mind and heart are two complementary elements in a human body. Heart is a processing unit and mind is a front-line soldier. One is totally influenced by the collaborative thoughts of mind and heart. Many situations may weaken us mentally or physically or both. It is imperative for a person to choose what to do. Either he can succumb to them or fight back. Fleeing from problems is merely an act of cowardice. One must have the endurance to face the harsh reality. Act of forgiving is a bliss. Nobody is infallible in this human world. It is up to an individual to give a 'second' chance to the concerned to correct their shortcomings. We live in a chauvinistic world which exhibits its dominance in different fields. Exhibiting independence and self-pride in a chauvinistic society does not seem far-fetched. Unfortunately mental weakness forces an individual to get enslaved to the dominance. In such situations one must derive inspiration from the successful souls for a better future. If one seems to be gullible or easily taken in by the outside world, people will exploit him/her for their solistic pleasures , whims and fancies. He/she easily gets swayed by their preachings. If the individual keeps up his/her sanity and lucidity and seeks to be impervious to other's words, he/she can lead the life to the happiest. One should turn a deaf ear to exploiting people and take decisions on one's own. In the end, one will have utmost confidence and determination to face the reality.Loving the loved ones is not a herculean task as far as human life is concerned. It is a task to be taken as a pleasure, else it isn't a task at all! It is the duty of any individual to bestow his/her blessings and take utmost care of his/her loved ones. Too much of love is also fatiguing. It turns into a state of possession rather than love. One starts to criticise others and fails to view any problem in a holistic way. Constant encouragement and support from loved ones propels the individual to reach the zenith of success. One should devote maximum time to spend with one's loved ones and life will be brewing with ecstasy if one seeks to do this.

Success is not a one day affair. It is the fruit of uncompromising efforts and unconditional support from loved ones. One can surely scale great heights if one sheds the fear of society and lives for oneself! Love your loved ones and lead a happy life!

By
Shivani S
III B

WHY WE DO WHAT WE'RE NOT SUPPOSED TO DO



Arguably, good and bad are relative terms. What may be perceived as right could presumably be wrong to another pair of eyes. With that being said the title is, in a generic sense (with a debatable stance of course) , a sentence equivalent of a misnomer.

One could delve into the other side for the sheer pleasure that one gains by not doing the intended. Wrapping your head around the above said becomes ten-fold easier when you've been on the other side. However, due to the open-ended nature of this article, often, the author could be seen bordering on hypocrisy. In their defense, don't we all have double standards when it comes to life as a whole? Clearly, being salty over the same is not a great use of both time and energy.

More often than not, the process of doing the unintended is the catalyst than the result itself. Taking on a psychological stance, the perverse nature of things is more than responsible for our actions. We do what we think is a possibility, which when done could cause a repercussion that we're almost never aware of. In another light, we are very much aware of the consequence and still pursue our thoughts-regardless of the nature. Either way the intended becomes the unintended and vice-versa.

In an alternate state of things, doing what we're not supposed to do could be of expectation. Likewise, the other side,

WHY WE DO WHAT WE'RE NOT SUPPOSED TO DO

- By
P. Anusha
IV B

though not clearly established (for the purpose of brevity) need not hold its infamous stature. Owing to this duality, it is only fair if the alternative is considered in the present world as well. Consider a situation where the supposition is under the good bucket, but the situation easily goes south due to external factors-the most common being quantity. Looking back, the author is not glorifying hypocrisy and its variants but simply pointing out how the yin and yang condition could easily be mistaken for the same.

Concepts of good and bad are almost as old as time itself. Cynics tend to perceive both sides of the coin as a possible and evidently viable option. As convoluted as this might be, it is only but natural that we often miss irony as it presents itself. Throughout this article there is no visible stand as to what should or shouldn't be done and its follow up-the good and bad. With that being said, we come back to the very beginning of this article where the title is under scrutiny. In an ideal world, what we do or atleast intend to, shouldn't be up for evaluation-as long as it doesn't hinder societal perceptions - because we hold the consequence and hence could choose or rather not choose to see things differently. Essentially, this would reduce the title to 'why we do what we do?', but again, anyone with an eye for absurdity and possible hypocrisy would say otherwise.