VOLUME 6: ISSUE: 1

SMRITI

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

SNEAK PEEK

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HOD'S DESK

I am very much pleased to see another issue of Smriti being released with an impressive list of activities and achievements by both faculty as well as students. This year also, we organized the computational thinking workshop for the newly joined first year students, as we did last year with lots of fun-filled activities and puzzle-solving. The session given by our final year students, Rithwin, Sricharan, Simran, Prashant and Roopeshwar, on various dimensions such as higher studies, competitive programming and entrepreneurship won the hearts of the first year students. My appreciations to all of them.

Apart from this, a useful tutorial on Deep learning with TensorFlow and a workshop on Information Retrieval were organized, which benefitted a large number of students. I commend all the faculty members involved in organizing these events. I really appreciate Prof. Milton's training sessions on Python programming for faculty who are handling the first year programming course.

My compliments to Muthu Annamalai, Varun Ranganathan and Adhitya for developing the SSN App, which was launched by our beloved chairman Dr. Shiv Nadar. Congratulations to R. N. Kirtana who won second prize in the programming contest that was conducted as part of the ACM India Celebrations of Women in Computing. My heartfelt congratulations to our students on winning the first and the fourth prizes in the prestigious ACM ICPC India Chennai Provincial Programming Contest.

It is wonderful that our students Gajesh and Thamizh Nambi have been selected to intern at Microsoft and Sundararaman has been selected to intern at Goldman Sachs.

Hearty congratulations to Prashant Mahesh, Sricharan and Varun Ranganathan on bagging the coveted placement offers by Facebook, Apple, Spotify and Directi. I am happy to see our alumnus, Abhishek Kataria sharing his experiences at USA. It feels great to see so many of our alumni landing in prestigious companies after completing their Masters degree.

Dr. Chitra Babu
HoD/CSE

FACULTY PUBLICATIONS

1. **Renuka Devi Saravanan, Shyamala Loganathan, Saraswathi Shunmuganathan, Yogesh Palanichamy**, Suspicious Score Based Mechanism to Protect Web Servers against Application Layer Distributed Denial of Service Attacks, International Journal of Intelligent Engineering and Systems, Vol.10, No.4, 2017, pp.147-156.
2. **Tejeswinee K, Shomona Gracia Jacob, Athilakshmi R,** Feature Selection Techniques for Prediction of Neuro-Degenerative Disorders: A Case-Study with Alzheimer's and Parkinson's Disease, In Procs. of 7th International Conference on Advances in Computing and Communications (ICACC-2017),held in Kochi, India, August 22-24, 2-17.Proceedings published by Elsevier Procedia (SJR:0.27 - Scopus Indexed) and SciDirect, In Press.
3. **Sudha MR, Sriraghav, Sudar Abhisheck, Shomona Gracia Jacob, Manisha S,** "Approaches and Applications of Virtual Reality and Gesture Recognition: A Review", International Journal of Ambient Computing and Intelligence, Vol.8(4),pp.1-18.(SJR:0.125)
4. **Hannah S and Shomona Gracia Jacob,** "Feature Selection Techniques for Alzheimer's Disease: A Review", International Journal of Engineering Technology Science and Research, Vol.4(7), pp.494-499, 2017.
5. **Megha and Mirnalinee, T. T.,** published a paper titled, “Dynamic small world particle swarm optimizer for function optimization”, Natural Computing, Springer, issn = {1567-7818}, doi = {10.1007/s11047-017-9639-9}, 10, pages 1--17, 2017.

FACULTY ACTIVITIES

1. **Dr. T. T. Mirnalinee, Prof./CSE** served as PhD viva voce Examiner of Ms. Ferni Ukrit for the thesis titled "Compression Techniques for Dynamic Digital Images".
2. **Mr.H.Shahul Hamead, AP/CSE** presented his Patent Idea titled "An Effective Frequency Provisioning Technique for Scalable devices in NB-IoT Platform" to the Panel members of Patent Application Screening and Expert Committee.
3. **D.Venkata Vara Prasad, Prof./CSE,** acted as PhD viva voce Examiner of Ms.Betty Elizabeth Samuel for the thesis titled "Performance Improvement In Model Prediction Control Using Soft Computing Techniques" on 5-9-2017 at St Peters Engg College.
4. **Dr.D.Thenmozhi, Asso.Prof./CSE** and **Mr. B.Senthil Kumar, AP/CSE** handled the Practical sessions on "NLP Stack using NLTK", "Simple NN and CNN using Keras" at TIER-2017, SSNCE.
5. **Ms.K.Madheswari, AP/CSE,** successfully submitted her thesis under the guidance of **Prof.Dr.N. Venkateswaran, Prof./CSE** on September 9, 2017.
6. **Dr. Suresh J, Asso.Prof./CSE,** served as PhD Viva Voce Examiner for Scholar Ms. N. Rajathi (Anna University) for the thesis titled "Certain Investigations on Application of Soft Computing Techniques for Sensor Data Processing in Precision Agriculture Applications" at PSG College of Technology, Coimbatore.

WORKSHOPS ATTENDED

1. **Dr. K.Vallidevi and Ms.R.Priyadharsini** attended faculty development Program on the topic “Digital and its Transformation” conducted by CTS held on 23rd Sep 2017 at Tambaram, MEPZ.
2. **Dr. B. Bharathi** attended The 4th Workshop on Text analysis and Information Extraction & Retrieval (TIER-2017).
3. **Dr. Chitra Babu, Dr. R.S. Milton, Dr. T. T, Mirnalinee, Dr. R. Kanchana, Dr. D. V. V. Prasad, Dr. J. Suresh, Dr. J. Bhuvana and Dr. D. Thenmozhi** attended the workshop on "Effective Implementation of Autonomous System" conducted by Dr.S. Bhaskar of TCE.

PAPER REVIEWS

1. **Dr. R. Kanchana, Asso.Prof/CSE**, reviewed four research papers as a TPC Member of 3rd International Conference on Next Generation Computing Technologies NGCT 2017 organized by School of Computer Science and Engineering, University of Petroleum and Energy Studies, Dehradun, India. She also reviewed a research paper as a TPC member of IEEE international Conference on Soft Computing and its Engineering Applications icSoftComp2017, organized by Charotar University of Science and Technology (CHARUSAT), Changa, Anand, India. Dr. R. Kanchana reviewed four research papers as a TPC Member of the Second International Conference on Intelligent Information Technologies (ICIIT 2017) organized by Anna University, Chennai during 20-22 Dec 2017.
2. **Dr.S.Saraswathi, Asso.Prof./CSE**, reviewed a paper titled "Virtual Protocol Network in Wireless Sensor Network" for IEEE International Conference on Internet of Things, Embedded Systems and Communications (IINTEC).
3. **Dr. S. Kavitha, Asso.Prof./CSE** reviewed a research paper of IEEE International Conference on Soft Computing and its Engineering Applications icSoftComp2017, organized by Charotar University of Science and Technology (CHARUSAT), Changa, Gujrat, India.
4. **Dr.D.Venkata Vara Prasad, Prof./CSE**, reviewed the following papers for International Journal of Intelligent Engineering and Systems:
   a. Semantic Based Security Platform For Iot Data
   b. An approach to detect thyroid abnormalities from ultrasound image using support vector machine."

5. **Dr. T. T. Mirnalinee, Prof./CSE**, reviewed four research papers as a TPC Member of the Second International Conference on Intelligent Information Technologies (ICIIT 2017) organized by CEG, Anna University, Chennai.
6. **Dr.Shomona Gracia Jacob, Asso.Prof./CSE**, reviewed a research manuscript titled "Blurred Image Restoration Using Knife-Edge Function and Optimal Window Wiener Filtering" on invitation from Plos One (IF:3.75).

INDUSTRIAL CONSULTANCY

1. **Dr. Chitra Babu, Dr. T. T. Mirnalinee, Dr. P. Mirunalini, Ms. R. Priyadhardhini**, had a project meeting with Dr. Rajsekar Manokaran of ***Vimana Technologies*** along with the students Avinash and Keshav on August 10, 2017.
2. **Dr. Chitra Babu, Dr. T. T. Mirnalinee, Dr. D. Thenmozhi, Dr. V. S. Felix Enigo, Dr. B. Bharathi and Dr. S. Kavitha** had a project discussion with Mr. Merlin and his team at ***Caterpillar.***
3. **Dr. Chitra Babu, Dr. T. T. Mirnalinee, Dr. Thenmozhi, Dr. Felix Enigo, Dr. S. Kavitha and Dr. B. Bharathi** had a discussion with ***Caterpillar*** team, Mr. C. Merlin, Mr. G. Vishnu, Ms. K. Chitra, Ms. C. Jahnavi and Mr.N. Prakash regarding the progress of ongoing collaboration project along with the students Kalaivani, Harshini. S, Srinethe S , Sruthi Sree R M.
4. **Dr. Chitra Babu, Dr. T. T. Mirnalinee, Dr. B. Prabhavathy** had a discussion with Mr. Saravanan Rajamanickam and Mr. Kishore of ***Caterpillar India Private Limited*** in view of organizing an innovation event.
5. **Dr. T. T. Mirnalinee, Mr. Shahul Hamead, Dr. J. Bhuvana, Mr. V. Balasubramaniam** visited ***TATA ELXSI*** for discussing the progress on the ongoing collaboration project titled, "Green networking" and " Security for V2V communication".
6. **Vidya R, Priya Lakshmi T,Suryakanth, Kaushik S and Varun Suresh** visited ***Intellect Design Arena Ltd***, Chennai for discussing the project Digital Banking with the technical team of Intellect design Arena Ltd.

EXTERNAL INTERACTION

1. **Dr. Chitra Babu, Prof. & Head/CSE** attended the workshop on framing the State Board Computer science syllabus for higher secondary classes at SRM University. She also made a presentation on "Quality CS Syllabus for TN based on inputs from other boards in India as well as across the World".
2. **Dr. Chitra Babu** also participated in the Inaugural function of ACM India Celebrations of Women in Computing (AICWiC) 2017. She also moderated the panel discussion on "Road ahead for Women in Computing Research" where Prof. Hema Murthy (IIT Madras), Ms. Vaijayanthi (IBM), Dr. Arati Dixit (PVPIT, SPPU) and Ms. Thilagah (Cognizant) participated as panelists.
3. **Dr.Shomona Gracia Jacob, Asso.Prof./CSE** attended the Review/Monitoring Meeting and successfully presented the progress of her ongoing DST-SERB funded project titled " Investigation on the effects of gene and protein mutants in the Onset of Neuro-Degenerative Brain Disorders: A Computational Study'. The meeting was held at BVRIT Engineering College for Women, Hyderabad on 22nd August, 2017.

EXTERNAL RECOGNITION

1. **Dr. Chitra Babu** has been nominated as a sub-committee member to frame the Computer Science curriculum and syllabi for the Tamilnadu state board higher secondary classes. She attended a sub-committee meeting at IMSc on 23rd August 2017.
2. **Dr. S. Kavitha, Asso.Prof./CSE,** received Supervisor Recognition from Anna University, Chennai to guide Ph.D/M.S. Research scholars.

MoU Signed

An MoU has been signed on 15th September, with **ACI Automation private limited**, Chennai for research collaboration between the department of CSE and ACI.

An MOU was signed on 27th September, between **Intellect Design Arena Limited**, Chennai and SSN College of Engineering.

Sanctioned Proposals

1. The proposal that was submitted by **Dr. Chitra Babu** to AICTE for conducting a National Seminar on "Convergence of IoT, Big Data Analytics and Cloud Computing for Smart Governance" has been sanctioned.
2. The proposal submitted by **Dr C Aravindan**, and **MLRG members**, to AICTE for conducting a two-week FDP on "Deep Learning for Image and Text Analysis --- Principles, Techniques and Challenges" has been sanctioned.

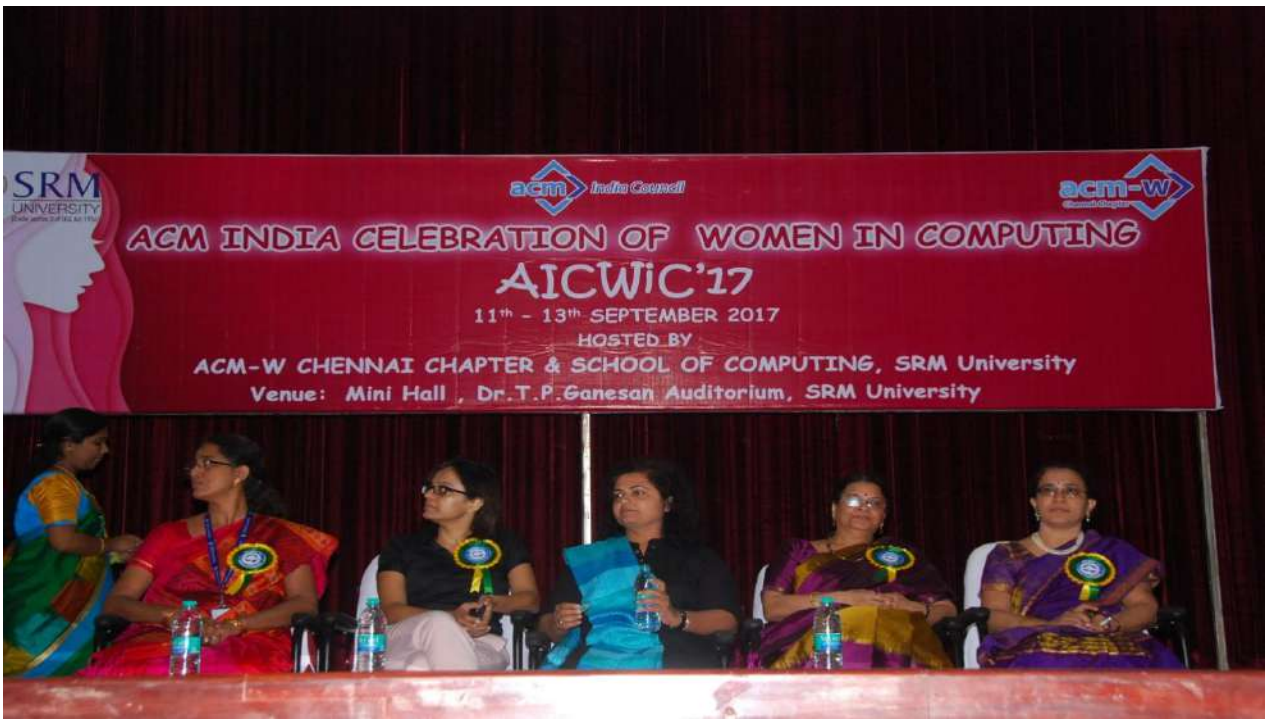
Talks Delivered

1. **Dr. R S Milton, Prof./CSE,** gave a talk on Mathematics for Data Science in St Ann's College for Women, Hyderabad in a one day Workshop on "Applications of Mathematics towards Data Science".

2. **Dr. S.Saraswathi, Asso.Prof./CSE,** delivered guest lecture on “Cyber Forensics” at KCG college of Technology to the students of BE (CSE) and ME (CSE).

Report on ACM India Celebrations on Women in Computing (AICWiC) Organized by ACM-W Chennai Professional Chapter

The ACM India Celebrations of Women in Computing (AICWiC '2017) main event started with the inaugural function on 12th September. Dr. Revathi Venkatraman, Chair, ACM-W Chennai Professional Chapter welcomed the gathering. Dr. Arati Dixit, Dr. Gargi Dasgupta, Dr. Sheila Anand and Dr. Chitra Babu offered felicitations. After the inauguration, Dr. Arati Dixit delivered a talk on "Dawn of Women in Computing: From the lens of Turing Awards". She briefly highlighted the work of pioneering women in computing such as Ada Augusta and Grace Murray Hopper. Then, she further delved on the inspiring work of Turing award winning women, Fran Allen, Barbara Liskov and elaborated on the work of Shafi Goldwasser who received the Turing award jointly with Sylvio Michali for the invention of Zero knowledge proof in cryptography.



Dr. Revathi Venkatraman, Chair, ACM-W Chennai Professional chapter, Dr. Gargi Dasgupta, Senior Manager and Researcher, IBM Research Lab, India, Dr. Arati M. Dixit, Chair, ACM-W IndiaDr. Sheila Anand, Past Chair, ACM-W India. Dr. Chitra Babu, Secretary, ACM-W Chennai Professional Chapter (L – R)

Following that, Dr. Gargi Dasgupta from IBM India Research Labs delivered a special address on "Cognitive Technologies and their Applications". Cognitive computing involves simulation of human thought processes by a computer model. She elaborated on the education vertical, how intelligent tutoring systems have been designed to make learning more engaging. Some of the features provided are predicting the students who are apparently at risk and guiding the individual students towards successful careers. She also talked about cognitive fashion which uses natural language understanding and multi-modal conversation systems. It was very interesting to hear about Watson Health system that provides early diagnosis to identify treatment options and how sensitive patient data is securely stored in cloud. Lastly, she also talked about improving customer service by providing persona-based support experience.

Prof. Tracy Camp from Colorado School of Mines gave an interesting talk on “Implementing a Wireless Geophysical Sensor Network”, via skype. She elaborated on Intelligent Geosystems which are natural or engineered earth systems enabled to sense their environment and adapt to meet their objective. It is an interdisciplinary research that spans across the areas of Geophysics, Mathematics, Civil (geological, environmental), Mechanical, Electrical and Computer science. She talked about Compressive sampling which will help in collecting the seismic data on resource-constrained wireless sensor motes. She concluded her talk with an amusing quote by Heinrich Hertz that “I do not think that the wireless waves I have discovered will have any practical application”.

After lunch, there was a panel discussion on “Road ahead for women in computing research”. The panelists were Prof. Hema Murthy from the Department of CSE, IIT Madras, Dr. Arati Dixit from Pune University, Ms. Thilagah from Cognizant and Ms. Vaijayanthi from IBM. The panel was moderated by Dr. Chitra Babu. It was a very passionate discussion of issues that are very specific in women’s career and how to overcome them. Prof. Hema emphasized how women should fight for their rights, exploit the available opportunities and get rid of the emotional baggage. Ms. Vaijayanthi and Ms. Thilagah opined on the significance of constant reskilling, staying relevant, long-term sustenance and on having a suitable mentor. Dr. Arati also narrated her personal experiences and mentioned that women should take their due credit, should not give in to the impostor syndrome. The audience raised a lot of queries to the panelists and overall, everyone appreciated that it was a very useful and lively panel discussion.

Dr.Chitra Babu, HoD/CSE

Vice- Chair, ACM India Chennai Professional Chapter

Secretary, ACM-W

iSIGCSE Faculty Summit
Jointly organized by ACM India Chennai Professional Chapter

As part of the ACM India Celebrations of Women in Computing (AICWiC '2017), a Faculty Summit was organized jointly by iSIGCSE and ACM India Chennai Professional Chapter on September 13, 2017 at SRM University from 9:30 am to 3:00 pm.

The summit had more than 50 faculty participants from various universities including the largest Tamilnadu state university namely Anna University, deemed universities such as Sathyabama, Crescent, VIT, SRM, Hindusthan, Bharath and SPPU, Pune. Seven faculty members from one of the leading affiliated colleges to Anna University namely SSN College of Engineering also participated. Representatives from IT industries such as Cognizant, TCS, IBM and caterpillar also had registered for the summit.

Prof. Madhavan Mukund, President, ACM India and ***Mr. Venkatesh, Chair of the ACM India Education Committee*** as well as iSIGCSE gave the opening remarks that set the context for the subsequent talks. Dr. Arati Dixit elaborated on the salient features of ACM CS 2013 guidelines for preparing the curriculum and syllabi for undergraduate computer science and Engineering discipline. ***Dr. Abhijat Vichare, Secretary, iSIGCSE*** highlighted what is going to come as part of CC 2020 and also showed how Operating Systems course has been designed based on the guidelines provided by ACM CS 2013.

After the tea break, ***Prof. Abhiram Ranade from IIT Madras*** illustrated how an Introductory programming course can be designed with C++ by using stimulating graphical examples to keep up the students' interest. This was followed by a session in which all the industry participants expressed their suggestions on how the curriculum and pedagogy can be relooked at to make the graduates more industry-ready. It was mentioned that increased significance should be given to laboratory sessions. Further, more opportunities should be created for the students to work on real world problems. In addition, students should be advised to have a strong social presence such as having a github profile, blog etc.

Dr. Viraj Kumar, Vice-Chair, iSIGCSE gave an interesting interactive session on how to avoid potential pitfalls while trying to set assessment questions with the necessary knowledge levels and some useful tips for meaningfully balancing between the need to comply with accreditation agencies such as NBA and the ground reality. This session raised lot of questions and comments from the audience.

After lunch break, Dr. Viraj Kumar briefed the Microsoft's Massively Empowered Classrooms platform and how it has been planned by ACM to augment that for the purpose of assessment by faculty. He circulated a questionnaire for the participants to get their views on how this can be done.

The participants gave positive feedback on the summit and felt that more time could have been allotted for open discussion and brainstorming strategies for pedagogy as well as assessment.

Dr.Chitra Babu, HoD/CSE

Vice- Chair, ACM India Chennai Professional Chapter

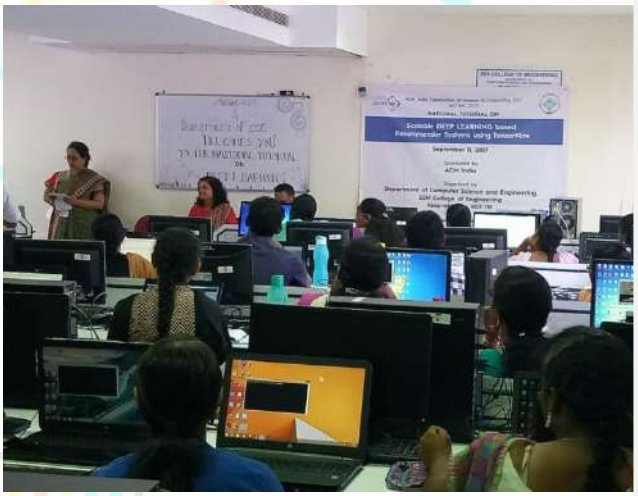
Secretary, ACM-W

ACM INDIA SPONSERED

NATIONAL TUTORIAL ON "SCALABLE DEEP LEARNING BASED RECOMMENDER SYSTEMS USING TENSORFLOW"

"**Scalable Deep Learning based Recommender Systems Using TensorFlow**"sponsored by ACM India as part of the ACM India Celebrations of Women in Computing (AICWiC '2017) was organized by the Department of Computer Science and Engineering on September 11, 2017 from 9:30 am to 1:30 pm. The workshop was co-ordinated by Dr.Chitra Babu, Prof. & Head, Dept. of CSE, SSN College of Engineering and Vice-Chair, ACM India Professional Chennai Chapter along with Dr.B.Prabavathy, Dr.B.Bharathi and Dr.Shomona Gracia Jacob, Asso.Profs./CSE, SSNCE.

The tutorial had an online registration that witnessed more than 72 entries. Only the first 46 registrations could be accommodated owing to the requirement of space and time available to train the participants during the hands-on sessions. The speakers at the tutorial were Dr.Vijay Agneeswaran, Senior Director of Technology and Head of data sciences team at Sapient Razorfish in India and Mr.Abishek Kumar, Manager, Data Science, Sapient Razorfish. All the systems in the laboratory were well-equipped as the required software was installed for the hands-on sessions



Dr.Chitra Babu introduced the special guest Dr.Arati M. Dixit, Associate Professor of Computer Engineering, PVPIT, SP Pune University and ACM Senior Member, Member of ACM India's ESP-Eminent Speaker Program, Founding Vice-Chairperson of ACM iSIGCSE and Chairperson of ACM Pune Professional Chapter who inaugurated the tutorial. She introduced the participants to the various spheres of ACM and encouraged the students and faculty to actively contribute to ACM activities. This was followed by a direct delve into the tutorial which comprised of a brief introduction to deep learning followed by the hands-on sessions.

The participants gave very good feedback on the tutorial and felt that more time could have been allotted for interaction and discussion with the speakers. On the whole, it was an enlightening experience that enabled the participants to get introduced and set up the basic software environment to further explore their interests in deep learning frameworks and algorithms.

Dr.Shomona Gracia Jacob,
Asso.Prof./CSE

ACM-Women (ACM-W) Chapter Summit - 2017

The ACM-W Chapter Summit was held as part of the All India Celebration of Women in Computing on 11-09-2017.The discussion was held to throw light on various events that are taking place all over India under ACM-W. More specifically, the speakers wanted to share with us, the vast collection of activities that an ACM-W student local chapter could possibly do.

The discussion took place in an informal setting, although some of the office bearers of the ACM-W guided the discussion. The first to speak to us was **Dr. Arati Dixit**, Chair, ACM-W, India. She spoke about status of women in computing, and how the percentage sadly decreases in a pyramid-like fashion from beginner to senior positions in corporate India.

She briefed us on the development of ACM-W in professional and student chapters. She then began to elaborate on AICWiC (ACM-W India Celebration of Women in Computing) where Indian women from various corporate organizations and colleges gather to celebrate their achievements and encourage more women and girls to pursue computing. The celebrations last from 1 to 5 days and they are conducted at national, regional and chapter levels.

They include a variety of technical, non-technical events, performances and parties. Some of her examples included panel discussions, workshops, coding events and paper presentation. Other non technical examples were Mehndi festivals, pizza parties, plays and games.

She talked about UPES, Dehradun's AICWiC'17 that had been awarded runner-up for the best of its kind in 2017. Incidentally the chair of ACM-W student local chapter at UPES was also present. She was our next speaker.

Ms. Gunjan Lal, is fresh out of graduation and is currently a Dev-Ops Engineer at 'To The New' in Noida. Her main objective was to tell us what she had done differently at the AICWiC while she was at UPES to make it worthy of such recognition. She spoke about the student pipeline of board members in ACM-W at her college. Her illustration neatly described how responsibilities had been assigned among the 70 members of the group.She listed some of the events she had organised and how she had collaborated with other chapters at her college to invite sponsors and participants. She also spoke about her experience on the blogging team and how their efforts were distributed in updating all social media accounts as well as their yearly magazine -Void.

Initiatives:

1. Hour Code - ACM student members could visit schools in the vicinity and volunteer to teach students programming basics for an hour. Since most schools often face shortage of teachers, and the syllabus includes more theoretical computer science than practical exercises, college students could volunteer to spend an hour every now and then to teach students.
2. ACM-ICPC practice - Having received claims that 4 years of undergraduate learning is not sufficient time to prepare for contests such as ACM ICPC, student members could offer training.
3. Freshers welcome team - Senior student members are allotted one week time with first year entrants, during which several puzzle discussions, problem solving and programming basics are learnt.
4. Mentorship- One on one time between seniors and juniors
5. Ladies only coding contests or other technical contests
6. Active involvement of all students so that there is never a lag in knowledge transfer when one batch graduates.

I believe that being part of such chapters will do us great good in terms of more participation and involvement.

Vidya R (CSE - B, Third Year).

2013 Turing Award Winner: Dr. Leslie Lamport

ACM India- Chennai Chapter had organized an ACM talk on 2013 Turing Award winner, Dr. Leslie Lamport. The talk was delivered by Dr. D. Janakiram, Professor, Computer Science at Indian Institute of Technology, Madras on 17- August -2017, at 5.00 PM.

Dr. Leslie Lamport, has made several fabulous contributions to the field of Distributed Systems, some of which include the:

1. PAXOS Algorithm
2. Bakery Algorithm for Concurrency Control
3. Logical Clock
4. Casual Ordering of Events in Distributed System
5. Consensus
6. Temporal Logic

Dr.Janakiram, chose to elaborate on the following two contributions of Dr.Leslie Lamport:

1. Logical Clock for Time Synchronization.

Distributed System is the collection of networked computers located at geographical locations and they communicate by passing messages to accomplish a single goal. As nodes in Distributed systems are spread across different locations, synchronizing and co-ordinating events becomes a nightmare. In 1978, Lamport invented the Logical Clock for ordering of events in distributed systems which later became a solution for maintaining consistency and distributed mutual exclusion. Dr. D. Janakiram explained this concept with a real time example. Janakiram Sir quoted actors in "Game of Thrones" and the messages they communicate as events in Distributed Systems. The order in which messages have to be processed was explained with event ordering. The time of receipt of a message should be greater than the time of sending of that same message.

2. PAXOS algorithm for Consistency.

Dr. Leslie Lamport invented PAXOS algorithm for reaching a consensus in part-time parliament. The set of Proposers, Acceptors and Learners are the list of actors in part-time parliament. Any actor can enter and exit from the parliament at any time which is analogous to any node participating and leaving from the distributed system. In order to reach consensus in such a dynamic network, a sequence number was introduced by Dr. Leslie Lamport. Tag a sequence number to a message that every Proposer sends. Whenever an Acceptor receives a proposal from Proposers, the sequence number has to be checked. The received sequence number should be one greater than the corresponding Acceptors' sequence number. If so, the proposal is accepted by Acceptor. Otherwise the Proposer's proposal has to be rejected by Acceptor. Finally the Proposer with majority of proposals accepted will win in the parliament. There is no fairness or priority in accepting the proposal. This simple logic solved many problems in distributed systems. For example, this could be used in Leader Election, reaching a consensus in distributed environment, Byzantine failure, maintaining consistency in distributed systems and consistent logs.

Dr.Janakiram

Dr. Shomona Gracia Jacob & Ms. Y. V. Lokeswari

Department of Computer Science and Engineering

Contributions of Donald Knuth (1974 Turing Award Winner)

By Prof. Venkatesh Raman

As part of the "5o years of Turing Award" lecture series, the 5th talk on "Contributions of the 1974 Turing Award Recipient Donald Knuth" was delivered by Prof. Venkatesh Raman on 21st September at the Ramanujan auditorium, IMSc.

Prof. Knuth received the turing award for his major contributions to the analysis of algorithms and the design of programming languages, and in particular for his contributions to "The Art of computer programming" through his well-known series of books with the same title. He managed to straddle theory and practice successfully. He is also the creator of the TeX computer typesetting system. It was very interesting and amazing to note that Knuth solved his Ph.D problem on projective planes in just a couple of hours.

One of his research highlights is the RSK Correspondence between the set of involutions on *n* elements and the set of young Tableux on *n* cells. He is also jointly credited for a fast string matching algorithm along with Morris and Pratt. He was a champion for free access. He strongly opposed to granting software patents. Prof. Knuth is obsessive about not making too many mistakes in programs, clarity and aesthetics. One of his co-authors, Fan Chung has quoted that " I thought that I was a perfectionist until I met Don Knuth".

Finally, it is worth mentioning his advice to the young researchers: Do not just do trendy stuff and get into the bandwagon. Instead follow your heart and passion.

Dr.Chitra Babu, HoD/CSE

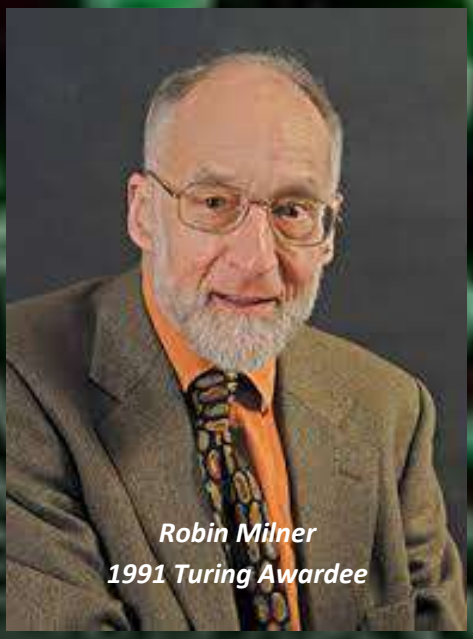
Contributions of Robin Milner (1991 Turing Award Winner)
By Prof. S. P. Suresh

As part of the "5o years of Turing Award" lecture series, the 6th talk on "Contributions of the 1991 Turing Award Recipient Robin Milner" was delivered by Prof. S. P. Suresh on 20st October at the Chennai Mathematical Institute(CMI). Robin Milner is a British computer scientist who received this award for his three distinct and complete achievements:

1. Logic of Computable Functions(LCF), the first theoretically based, yet practical tool for machine-assisted proof construction.
2. Meta Language(ML), the first language to include polymorphic type inference together with type-safe exception-handling mechanism.
3. Calculus of Communicating Systems(CCS), a general theory of concurrency.

Apart from this, he also formulated full abstraction and mapped operational semantics to denotational semantics.

It is rather ironic that Milner never studied for a Ph.D. degree. He was rather busy producing amazing and significant results. Later in 1997, he received an honorary doctorate from university of Bologna.



Robin Milner
1991 Turing Awardee

In the context of programming languages, generally, static typing guarantees type-safety since type-mismatch errors are caught by compilers. However, this mandates annotating all types explicitly, which is rather annoying and cumbersome. Type inference refers to the automatic deduction of the data type of a programming language expression during compile time, without explicit type annotation. Thus, polymorphic type inference offers both safety as well as convenience. This has become a key feature in all modern day programming languages such as C++, C#, Java, Go(Google), Swift(Apple) and Rust(Mozilla). Hindley-Damas-Milner type inference algorithm has a deep and lasting influence on programming language design.

Functional programming is the process of building software by composing pure functions, avoiding shared state, mutable data and side-effects. ML is a general purpose functional programming language which has its roots in Lisp. There exists a formal proof that a well-typed ML program will not cause run-time type errors.

Milner also worked on extending the denotational semantics to concurrent programs/systems, which was named as Calculus of Communicating Systems. The notion of observational equivalence was discussed and how concurrency and interaction brings out different behaviors for observationally equivalent systems. CCS provides compositional syntax for describing processes that interact with each other via channels. Later, Milner also developed Pi-Calculus which builds on this with more operations on channels – which turned out to be useful for modeling mobile processes.

It is astounding to see the rich legacy that he left behind which has served as foundational concepts for work carried out by several theoreticians across generations.

Dr.Chitra Babu
HoD/CSE

ACM INDIA CELEBRATION OF WOMEN IN COMPUTING – 2017
(AICWiC ' 2017)

The Lady Ada Programming Contest was organized as part of the ACM India Celebration of Women in Computing, 2017. Kirtana RN of III yr CSE B bagged the second place in this programming contest. This programming contest was held at the National level comprising of several rounds of elimination with the finals being held on 11-09-2017 at SRM University.

The Way of Life !

What is the point in all that we do-
whether you stay still or move?
What is the point in working so hard,
when all you have is a 24x7 day job?

Where is the fun in a daily routine,
when deadlines are the only things you can meet?
What do you do that sets you apart,
from the society we are now a part?
Are you someone who Monday brakes?
or are you someone who will someday make?

Are you someone who hasn't tried-they failed?
or will you follow your dreams and set sail?
Just don't be someone to ride the coattails,
that shouldn't be you — someone numb and pale.

The treasure isn't diamond and gold,
but the adventures that helped you mould.
So let your journey unfold —
whatever the weather- hot or cold.
This is how we should roll.

~Gajesh S.
III CSE - B

SSN TEACHERS'S DAY CELEBRATIONS

The management of SSN Institutions organized the Teacher's Day Celebrations to recognize the noble work of the faculty in the institution and reward their achievements. Dr. Shomona Gracia Jacob, and Dr. D. Thenmozhi received the Best Faculty Award from the Department of CSE for the academic year 2016-2017.

Dr. Shomona Gracia Jacob, receiving the Best Faculty Award

Dr. D. Thenmozhi, receiving the Best Faculty Award

Ms. S.Manisha and Dr. D. Thenmozhi receiving the prizes for Game Show

Cultural Programs

The management of SSN Institutions also organized cultural programs for faculty on August 12, 2017. Dr. D. Thenmozhi and Ms. S.Manisha from the Department of CSE were part of the team that won the third place in Game Show.

REPORT ON INVENTE

Invente 2017 was organized by all the eight engineering departments of SSN College of Engineering. The Department of Computer Science and Engineering held 8 technical events and 1 non-technical event. The number of participants for the events was a large number and there was healthy and intense competition among all the participants who came from colleges all over the city.

One of the standout features of the department's events was the decoration and facades. With the theme being "Superheroes", the walls and the surroundings of the CSE department was bedecked with superhero posters and fan paraphernalia. It was done so good that participants from other departments' events thronged to see the decorations and take pictures.

Codolympics was a competitive programming based event which had the prelims on day 1 and the finals on day 2. The prelims were a pen and paper round with questions solely from data structures and algorithms which was intended to test participants' algorithmic skills and ability to write clean code. The finals were an ACM ICPC style contest with 5 problems that had difficulty ranging from easy to medium-hard. The event saw a team from MIT walk away with top honours.

TECHATHLON tested the participants' prowess across a gamut of seven tracks including Data Structures and Algorithms, Operating Systems, Artificial Intelligence, Data Science, Ciphering, Networking and Math fundamentals. In the first round LOG'IQ', the participants were asked to choose a domain out of the 7 domains. They were given thirty multiple choice questions. In the third round, CRACK IT OPEN the participants had to script and decrypt the data from the server and then query and analyze the given dataset. This event combined elements from a gamut of aspects from computer science. The participants were given a choice in the first round which made it more interesting and unique. A team from RMK College of Engineering bagged the first place.

The SciTech Quiz was held on the first day of Invente '17, and the event saw ample participation, with around 140 people (45-50 teams of 2 or 3) taking part in the 25-question written prelims. 8 teams qualified for the finals, which was a closely contested, exciting affair. In the end, the team from IIIT-DM emerged winners, and teams from RKM Vivekananda finished 2nd and 3rd.

Cryptomania tested the participants' logical thinking. The event was held on Day-2 of Invente. It consisted of 2 rounds. The first round tested the participants with questions on puzzles and number theory. The second round primarily focused on encryption and decryption of secret text. It was conducted in a quiz format where the questions were projected to all the finalists with a time limit on every question. About 150 participants turned up and a team from St. Joseph's College of Engineering emerged as the event winners.

The Code Hunt event was intended to be a fun event in which participants were both tested on their quick problem solving and programming skills, while at the same time adding a fun element by combining it with a treasure hunt around various places of the College. The event was quite unique in that sense. The first round consisted of speed math problems along with some simple multiple-choice-questions on computer programming and data structures/algorithms. This format was quite participant-friendly and several teams registered for the event without any inhibitions. The finals were a close contest, lasting 2 hours and the event had come to an end and the winners were announced. The overall feedback was that the event was enjoyable and the questions for both prelims and finals were of very good quality.

The paper presentation event's registrations were done in advance to filter out the best innovative ideas that were to be presented on the event date. The teams presented their ideas in domains like AI, Machine Learning, IoT, Augmented Reality, Big Data Analytics and other related topics. Each team was given a maximum of 10 minutes to present their ideas, followed by a question-answer session.

The participants displayed their undying thirst for knowledge, whilst showcasing their immense interest and the amount of effort and research they had put into each of their presentations. Three best presentations were selected by the panel members and were awarded cash prizes. A total of 85 teams registered for the event.

SEQUEL was an SQL based event organised on the first day of Invente 2017. The first round was a written test which consisted of MCQ's based on all the SQL fundamentals and basic queries. The Finals were a coding round and 12 teams were selected for the second round. The round involved various queries such as cursors, triggers, procedures, functions etc.

The event 'Poster Design' took place on the second day of Invente. The aim of the event was to test the creativity of the participants and their skills on handling complex graphic-editing tools like Adobe Photoshop and Adobe Illustrator within the given time limit. There were 29 participants from several different colleges who came in 14 groups of up to 3 members. The teams could choose from one of the 3 given topics which covered various fields of poster design like advertising, social awareness and minimalist posters. Finalists were asked to design a Tourism brochure spanning 3 sides within 90 minutes. Some of the finalists diligently made a complete 6-sided brochure within the time limit. The posters made by these participants in the prelims were taken in to consideration as a tie- breaker for the first place.

The Event "Market Mania" had an overwhelming response from students of various streams from different colleges. The Preliminary round consisted of a quiz involving identification of logos and slogans of different companies. Then some of the participants who could crack the prelims entered the second round-Faulty Product AdZap. In this Event the participants had put in a lot of creativity to coverup the faults of the product and advertise it in an innovative way. The Final Round was the Business Proposal in which the participants pitched a business proposal which was an idea for a product or improving an existing product. The participants were judged based on both the rounds to decide the winners.


SSN COLLEGE OF ENGINEERING
DEPARTMENT OF CSE &
ASSOCIATION OF COMPUTER ENGINEERS
PRESENTS
CODEIT
POSTER DESIGN
SEQUEL
CRYPTOMANIA
TECHATHLON
SCI-TECH QUIZ
CODOLYMPI


WATCHMEN
BREAK YOU!

Official Release of the SSN App

Dr. Shiv Nadar, Founder, SSN Institutions addressed the Faculty and Students on 2nd August 2017 at 12.15 p.m. at Justice Pratap Singh Auditorium. Dr.Shiv Nadar officially released the SSN App created by the students of SSN. Varun R, Adhitya J and Muthu Annamalai of the Department of CSE and Karnik of ECE, received awards in recognition of their contribution towards the development of this App.

Muthu Annamalai, Varun and Adithya receiving awards from Dr. Shiv Nadar

Wishing You Sir – A Very Happy & Healthy Retired Life

Dr. K. Kasthuri, Dean, SSN College of Engineering retired from our institution after 20 years of dedicated and committed tenure. The department of CSE is very thankful for all the guidance and mentoring received in the past years and wishes Dr. K. Kasthuri Sir, all prosperity and good health in the years to come.

MY EXPERIENCE AT THE WORLD WIDE DEVELOPER CONFERENCE (APPLE)

The World Wide developer Conference of Apple happens every year. This year it happened at San Jose (CA) from June 5th to 9th. There was an opportunity for students all over the world this year to obtain registration and lodging scholarships. A candidate can develop an iOS or macOS application and submit the application to the Apple team. The team shortlisted a subset of applications and my application was one among them. I developed a Music Recommendation System which basically captures underlying notes in a musical piece and suggests the next best 10 choices based on the correlation points.

The conference environment was inspiring. There were several tech talks including latest advancements in Machine Learning, NLP native iOS apis, Augmented reality. Attendees were allowed to book appointments with Apple core engineering teams.

I had booked an appointment with Siri Research team. I interacted with the Siri engineers who actually illustrated the basic data curation techniques and the algorithms that are actually implemented for the Siri functioning. Similarly I had an opportunity to interact with iOS UI team who actually provided their valuable insights for the improvement of our application - Trackz.

On the whole, it was an engaging and enthralling experience and I encouragestudents to learn iOS and grab this rare opportunity in coming years.

MY INTERVIEW EXPERIENCE WITH APPLE INC.

I was delighted to be offered the role of Machine Learning Engineer, Proactive Intelligence at Apple's Santa Clara office. There were three rounds of interviews each of which included algorithmic challenges with varying levels of difficulty. Most challenges required Dynamic programming approach to be used. There were a number of questions based on Graph and Tree data structures. The final round of the process included questions on the machine learning algorithms that were used on the application that I had built, which was submitted to the Apple's Core Engineering team for review.

I encourage juniors to get more used to algorithmic challenges by constant practice at competitive programming platforms such as CodeChef and Codeforces.

Sricharan, IV CSE B

Did u know?

Apple is attempting to collect, analyze, and utilize sleep-related data. The sleep monitor is able to track metrics like sleep time, sleep efficiency, heart rate, respiration rate, movement, snoring, room temperature, and room humidity.

Facebook – My Experience

I applied to Facebook by using a referral from a friend who was interning at the Facebook Seattle office in August. First, I had a phone screen with an interviewer who was working in the Menlo Park office. The questions asked were coding-based with basic application of algorithms like binary search, 2 pointers etc. A week after the phone interview, my recruiter told me they would like to move forward with the onsite interviews at London. I attended the onsite interviews at London in October. It was a smooth experience since Facebook arranged the travel and accommodation. Facebook calls the day of interviews as "U-Day" or "University Day" where a bunch of candidates interview in parallel and they have other fun activities planned as well.

Prashant Mahesh, IV CSE ' B'

There were a total of 3 interviews with 2 of them being purely coding/algorithms based (similar to the phone screen), again focussing on algorithms like binary search, 2 pointers, graph search and data structures like stack, hash table etc. The questions themselves were not too complex to solve, but I believe Facebook expects accurate code which handles all corner cases. I also had the chance to interact with many engineers working in the London office, have lunch with some of them too. We also had a demo of the Oculus rift VR headset which was good fun.

The third interview was a behavioural interview which was mostly discussion about previous work experience and projects. They ask questions primarily to check if the candidate will be a good culture fit to the company. I was told about the offer last week, on Diwali which makes it special too."

My Interview Experience with Spotify!

I interviewed for the position of Machine Learning Engineer at Spotify. The interview process included two phone screen rounds, which had simple programming challenges and questions related to processing of musical metadata.

I got through the preliminary rounds which gave me an opportunity to go to their branch office at London for further face to face rounds. The interview process was completely different compared to other previous interviews that I have attended. There were six rounds in total, questions were asked in the areas of Algorithms, Data Structures and musical data analysis.

Though the level of difficulty increased with every round, I didn't feel stressful as the breaks in-between rounds were rejuvenating, personalised playlists were played in the background.
It was overall an amazing interview experience in the city of London.

Sricharan, IV CSE B

Microsoft Interview Selection Process

We got to know of Microsoft Coming a few days short of the actual selection process. In terms of academic requirements, all Microsoft demanded was to have a minimum of 7 CGPA with no standing arrears. A lot of us registered for this, and most of us candidates were led to the first round.

The first round took place within the college campus. It was the online round- where we had to tackle 3 different coding problems on cocubes platform. It is a lot like codechef, except that we cannot access main and all I/O operations are taken care of. All of us had a different combination of questions, with a lucky few having all 3 easy questions and others having somewhat more difficult questions. A total of 18 of us qualified, with candidates from ECE, CSE and IT departments.

The 18 of us went to VIT, Chennai for the next few rounds on the 12th of October. Students arrived from SRM University and both the VIT campuses as well. The selection process, which started at 8 in the morning, went on till as late as 8 p.m. We were briefed on what Microsoft does, what they have done and what they offer. Shortly after the presentation, we were all made to sit alternate to each other for the group fly round.

Gajesh S, III CSE - B

The problem given to us was this:

"You are given a singly linked list with a twist. Each node in the main list has a branch list, which can hold a maximum of 3 nodes as a branch list. Design the addition and deletion operation for the given structure, such that it optimizes the length of the main list."

Tamizh Nambi, III CSE- B

We had 40 minutes to implement this and discuss with our mentor the logic of our solution. Nearly half of us got eliminated by the end of this round.

After this, we had multiple interview rounds. 12 Microsoft Experts had come for this. Different people interviewed us, each asking questions from a different angle. Some asked questions relating to OS and Databases, some on more data structures related questions, and some asked based on the resume. Each interview lasted on average 45 minutes to an hour.

At the end, Tamizh Nambi, and I were called for a last interview, after which we were sent home.

I felt that not only subject knowledge, but also how you present it was tested. It is important to be confident with what you know, yet accept what they say- to take in information and process it however it fits. You need to raise questions no matter what they be, and accept suggestions. You need to be curious, and not give up until you achieve it.

The next day, we got the happy news of our offer.

~ S.Gajesh, III CSE B

Goldman Sachs – Interview Experience

Sundararaman V, III CSE B

The interview process conducted by the team from Goldman Sachs was intense. In total, three rounds of interview were conducted for the 4 candidates selected from the online round. The first round questions were mostly related to competitive coding and logic in order to solve the problems that were set. It was fairly difficult to come up with a solution, but he assured me it was more about the approach I take to give a solution than the solution itself. After the first round they eliminated one person. The second round was mostly about what works and projects I had done in the past.

The second round was fairly easy and also less intimidating than the previous one. He asked me basic logical questions and some questions related to database. They eliminated another person after the second round. The third round was with the VP who gave the orientation earlier that day. This round was mostly based on my resume. He asked me questions related to the skills I had in my resume. He also asked a few questions related to database and neural networks and game theory. After this round , they announced that I was selected.

Placements

S.No	Name	Company
1.	Prashant Mahesh	Direct i
2.	Varun Ranganathan D	
3.	Jagan Kumar U	Zoho

***%%$$ Just for*

- ***Why do Java developers wear glasses? Because they can't C#!***

Google Developer Student Club

The Google Developer Student Club had it's first meet on 28th September and it's second meet on 3rd October. The meets were in the form of an Android Workshop where several Android fundamentals, in addition to a few advanced topics such as working with the Firebase Real-time database were covered. The meets were organized by Varun D, Shreyas S, Tejas S, Himanshu and Aarif.

Varun D
IV CSE B

Angel Hack

Opportunities are like rough diamonds waiting to be polished. Over the year, we had a lot of opportunities coming our way and we decided to cash in on them one after another. It is true that to start a journey, we need to find the right companions and I had an opportunity to bring together an amazing set of people. From there, as a company, we did a lot of good work to make sure that we were bettering ourselves on a daily basis.

In the summer of 2017, we were once again struck up with an amazing opportunity of participating in Angel Hack, a Hackathon conducted by the prestigious Angel Hack Corporation. We enrolled as a team for the Kochi, Kerala Edition of this event with the motivation to push our journey to the next level. We decided that we are the right set of people to address an everyday problem that we came across at our internship workplace. The problem of workplace inefficiency was quite evident, yet there weren't any solid solutions. Drawing conclusions from our experience, we decided to work on Phantom K8, a Business Productivity Tool powered by an Artificially Intelligent System along with a native NLP engine.

Our two day experience at this event showed us the potential of this product and we gained more confidence when we got a chance to pitch it in front of various CEOs. In the end, the inevitable victory that we knew that Phantom K8 deserved was provided.

This victory opened the doors of Angel Hack's Hackcelarator Program, a three month incubation program to grow our idea into a reality. We constantly worked hard to meet the regular deadlines to improve ourselves as well as the product. Nowhere in this process did we feel helpless because we were supported by our parents and our personal mentors to guide us through the haze of business. Currently, we released our Minimum Viable Product and we are carrying out our corporate collaboration talks with tech giants to partner in their innovation programs.

Rithwin Siva, IV CSE B

ACM ICPC Multi-Provincial Contest 2017

The provincial contest was held on 22nd September 2017 in KCG College of Engineering. 78 teams competed in this contest which was hosted on Codechef platform. We stood first in this contest under the mentorship of Mr. N. Sujaudeen.

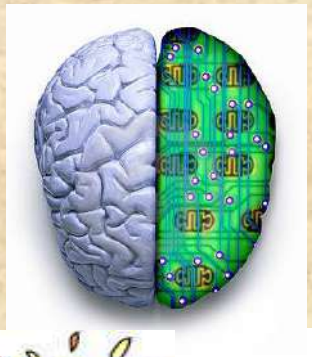
The contest started at 11:45 AM and ran for three hours. There were 6 problems to solve with difficulty levels ranging from easy to medium hard. We stood first by solving all the 6 problems with a time penalty of 1 hour and 51 minutes. Team Heuristics from the IT department stood second and the team from IIIT-DM stood third.The other team from CSE department consisting, Code_Overload came fourth.

Prize distribution and problem discussion took place after the contest. Prizes worth Rs 25,000 were distributed to the top three teams.

Roopeshwar D
IV CSE

WORKSHOP ON COMPUTATIONAL THINKING

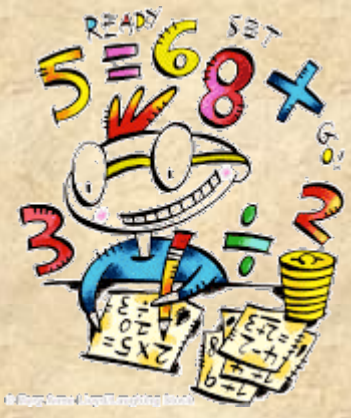
A two day workshop on "Computational Thinking" was organized by the Department of Computer Science for the first year CSE students on 28th and 29th August 2017. The first day of the workshop began with an enthusiastic talk on "Problems and the puzzle" by Dr. R. Ramanujam, Professor, Institute of Mathematical Sciences (IMSc). He briefly introduced the importance of resource sharing, solutions and algorithms through a very interesting case study of "Fair cake cutting problem". Then the first year students were then divided into two batches. The events namely, ***binary search, Jigsaw puzzles, logo quiz & connections, bitwise, puzzle arena and scratch programming*** were conducted for both the batches in parallel. These events were conducted by student volunteers from III & II years and coordinated by some faculty members.



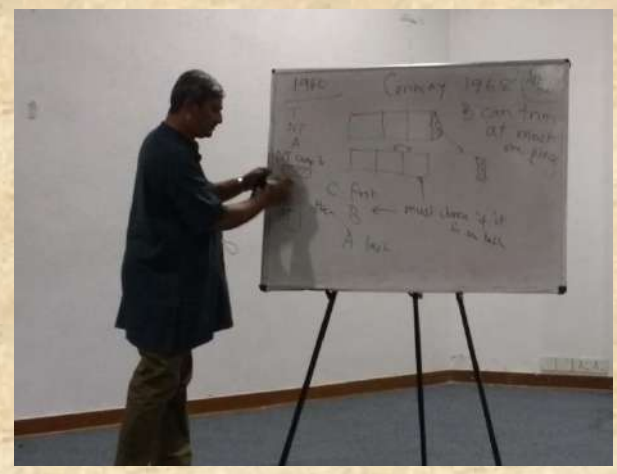
Idea of bitwise event was to learn the conversion from decimal to binary and vice versa. This was achieved by providing each student with a binary number, and asking them to convert it to its equivalent decimal number and then its corresponding alphabet. The alphabets found in a particular team were to be arranged to form a meaningful word. In puzzle arena event, each team was asked to solve set of puzzles and explain the solution. In scratch programming event, the basics of scratch programming such as rotation and linear motion were taught. Further, students were asked to solve tasks using scratch programming. Students in every team were also asked to solve jigsaw puzzles as a group activity. In logo quiz & connexions event, each team were asked to find the logos of leading IT organizations and were asked to find words based on connection concept.

The second day of the workshop had been started with an informative talk by our own Final year students Rithwin Siva, Roopeshwar, Simran Modi, Prashanth Mahesh and Sri Charan. They shared their academic experiences, various opportunities, facilities, resources and forums available in CSE department for the first year students to plan their future carrier.

Faculty Coordinators: Dr. Chitra Babu, Dr. S. Kavitha, Dr. B. Prabavathy, Mr. V. Balasubramanian & Mr. K. R. Sarath Chandran



GALLERY



Faculty Workshop on Problem Solving and Python Programming

The Department of CSE eagerly awaited the revised Anna University Regulations 2017 since faculty members were quite enthusiastic about teaching Problem Solving and Python Programming. Once the revised regulations 2017 came into effect, faculty members handling Problem solving using Python decided to have a learning and practice session to improve our expertise in the subject. Dr.R.S.Milton, Prof./CSE, who played a key role in framing the syllabus for this subject handled a five-session workshop, each session comprising of nearly 2 and a half hours.

Dr.Milton introduced us to the fundamentals of problem-solving and how Python can be very instrumental in achieving the same with greater flexibility and milder syntactic restrictions. He introduced us to the different topics in each unit. He discussed problems and the strategies to solve the same. The faculty were also informed on the various versions available to program using Python and the difference across those platforms.

The sessions were very informative and interactive, enabling faculty to clear all their doubts related to the subject, both from the theoretical and practical perspective.

Dr.Shomona Gracia Jacob,
Asso.Prof./CSE.

Workshop on Text analysis and Information Extraction and Retrieval (TIER 2017)

A workshop on Text analysis and Information Extraction and Retrieval was conducted by the MLRG (Machine Learning Research Group) of SSN. Speakers from various institutions working in this field were called to share their insights in this domain. The workshop was a 2 day programme consisting of interactive talks as well as hands on session conducted by SSN faculty.

Day 1:

Day 1 began with a talk on Information Retrieval by Dr. T.V Geetha, Professor, Dept. of CSE, Anna University. She conducted an interactive session where she discussed the challenges, techniques and future scope. She talked about the various sources of information and the modern day techniques involved in storing and retrieving them. This was followed by hands on session in python where the NLP stack using NLTK was explored.

This session focused more on the various tools and corpuses used for NLP. The next was a post lunch session conducted by Dr.C.Chandra Sekhar, Professor IIT-Madras where he gave an introduction to Deep Neural Networks and their various types. He discussed the structure and working of various networks along with their applications with a special emphasis on auto-encoders. This was followed by another hands-on session on deep neural networks. In this session the participants implemented a simple feed forward neural network using a Keras front end with a tensor flow backend.

Day 2:

Day 2 began with a talk on word embeddings by Dr. Anand Kumar.M, Assistant professor, CEN Amrita University. He discussed the concept and the need for word embeddings in detail along with its application. Next was a session on Information extraction by Dr.Rajeswari Sridhar, Assistant professor (Sr.), CSE Anna University. She also discussed one of her projects in the domain which involved machine learning for agriculture, to help farmers maximize their yield. This was followed by back to back hands on sessions, the first one on word embeddings in python using word2vec by Dr. Anand Kumar himself.

The second session was conducted by SSN faculty which was a culmination of all the topics covered in the workshop. The participants were given dataset of sentences on a given topic using which they had to classify if a given test sentence was relevant to the topic or not.

Skanda Suresh, III CSE B

29th GISFI (Global ICT Standardization Forum for India) Standardization series meeting and IEEE 5G Summit

Held at: SOA(Siksha 'O' Anusandan) University
Dates: 17 & 18 August, 2017.

Highlights of Summit:

1. President of GISFI, Dr Ramjee Prasad, Founding Director CTIF, Aalborg University, highlighted the GISFI actions and importance of Smart Cities

2. Mr Tom Sebastian, Deputy Director, Innovation Centre Denmark-India at Ministry of Foreign Affairs of Denmark, explained the happenings in Denmark (Smart City). He explained how the smart city concept is implemented in Denmark and challenges they faced.

We met him and discussed the works done in smart city group.

3. Professor Shadir Mohan from University of Arkansas, USA, gave a speech on the importance of 5G network in building a Smart city.

Panel Discussion 1: Smart City
Panel members were:
Mr Rajan Mathews, Director General COAI (Cellular Operators Association of India)
Mr Anil Prakash Secretary, Broadband India Forum
Mr Jaspreet Singh, Advisor, Ernst & Young India
Mr Rajesh Charia, CDOT.

Highlights:

Each member presented their views about the theme (5G Smart City), in terms of their work. Rajesh Charia from CDOT explained the happenings in CDOT for the past 20 years and the transition from 2G to 4G.

Jaspreet Singh, in his talk, highlighted the importance of security while building a smart city - an integrated ecosystem.

Panel Discussion 2: Network Connectivity in 5G
Panel members were:
Dr D. Manjunath, IIT Bombay
Dr Nabanita Das, ISI, Kolkata

Highlights:

Professor Dr Manjunath explained the concept of content providers - zero rating. Zero rating means - the usage of internet offered by the cellular operators is made free to the users and will be paid by the other parties.

Professor Dr, Nabanita Das, explained about the Connectivity in 5G and D2D (Device to Device Communication) via EDGE.

Panel Discussion 3: Smart City Realization
Panel Members were:
Dr Rajakumar, Director, IIT Bhubaneswar
Mr Munir Mohammad, IEEE
Dr Rishi Mohan Bhatnagar, AERIS India.
Highlights:

1. Talks are related to Introduction of IoT and how IoT can help build Smart City.
2. Dr.Rishi Mohan from Aeris, India explained about the usage IoT and connectivity using M2M (Machine-2-Machine).

Panel Discussion 4: Cloud Service Oriented Network (CSeON)
Panel Members were:
Dr. Arpan Pal, TCS, Kolkata
Dr. Vandana M Rohokale, SITS, Pune.
Highlights:

1. Talks were related to introduction to Cloud Computing and SOA.

Banquet Speech: Smart City Governance
Speaker:
Mr Vineel Krishna, IAS, CEO, Smart City, Bhubaneswar
Highlights:

1. Really useful information - Speaker explained the plans to build a smart city in Bhubaneswar. He showed and explained the roadmap.

18th August 2017

Technical Session 1: Big Data and Cloud Computing
Speakers:
Professor L.M.Patnaik,
Professor Laxmi N Bhuyan, University of California, Riverside
Dr Sumit Misra, RS Software India Ltd.
Highlights:

1. Talks were related to the introduction of Big Data (by Professor L.M. Patnaik) and Cloud Computing and Smart City.

Technical Session 2: IoT and Wireless Sensor Networks
Speakers:
Professor P. Vijay Kumar, IISc, Bangalore
Dr.Prasant Misra, TCS Research, Bangalore
Highlights:

1. Real life example related to IoT and Wireless Sensor network was explained by Professor P.Vijay Kumar - Prevention of Human-Animal Intervention - he showed the work done by his team and challenges faced.

Technical Session 3: Security and Privacy
Speakers:
Dr Sivabalan, NEC, Bangalore
Dr Bhuvan Damhe, L&T.
Highlights:

1. Talks covered the importance of security while building a smart city - preserving the privacy of users.

Dr.J.Suresh,
Asso.Prof./CSE

Faculty Development Program on "Digital and its Transformation"

Dr.K.Vallidevi and Ms.R.Priyadharsini, faculty from the department of CSE attended the FDP on "Digital and its Transformation", held on 23rd September at The MEPZ, Tambaram.

The program started with a guest Talk on "Digital" by Joshua Barnhill from USA via video conferencing. He gave an introduction to the term digital and digital transformation. He explained the importance of digitalization with an example of buying a new car in an online mode. He also explained that Digital transformation is the change associated with the application of digital technology in all aspects of human society.

The next session on "Digitalization and its Impact" was handled by Mr. Kumaravel, AVP, CTS. The outline of his talk included topics such as

- Introduction to digital transformation
  - how digitalization has transformed even school students
  - digitization Vs digitalization
- Digital natives VS Digital immigrants
  - Natives are superior in the digital world than the immigrants
    - This is true for human being, shops and companies.
- Disruptive digital technology and trends
  - Kindle has killed the traditional bookstore
  - Customer service BOTS - Washing away jobs

Digital transformation and case studies from Industry
  - Case study on Virtual reality based Neonatal care
- Omni channel programming
  - Students should be emphasized
- Augmented reality, Virtual reality and Mixed reality
  - Case studies such as OLA, UBER, AIRBNB, Facebook, Kotak.
- Barriers of digitalization
  - More Legacy system
  - Incentives for traditional business

Dr.K.Vallidevi & Ms.R.Priyadharsini

Faculty Development Programme on IoT using Thingworx

A One day faculty development programme on IoT using Thingworx was organized by KKM Soft Pvt. Ltd on 13th September, 2017. Two faculties from CSE Department, Dr. V.S. Felix Enigo and Mr. K. R. Sarath Chandran attended the FDP programme. As KKM Soft is one of the partners of PTC in India, it was organized as a free workshop to familiarize the faculties with the latest trends in the industry to develop IoT based applications.

PTC ThingWorx is the first integrated development environment/platform (IDE) for developing IoT applications.

Since it is designed specifically to cater to the needs of the Internet of Things (IoT) and the connected world, Thingworx excels in all aspects of application development that includes connectivity, data collection, data modeling and user interface development.

The FDP was conducted in three segments. The first segment was handled by Mr. Santhosh Eswaran, who gave the overview of IoT and its applications. The industrial applications of IoT for different domains were explored in this segment. The next segment was hands-on training on Thingworx IDE. Training was given to use the PTC Thingworx composer and each one of the participants were asked to create an IoT application for farming that retrieves various parameters such as temperature, humidity etc., from the sensors and displays them in the user interface. Many companies like Caterpillar, Tech Mahindra, Cognizant, Genpact, and Synapse were using ThingWorx as their development environment for IoT applications. In the last segment, demonstration on virtual reality was given by Mr. Sagar Mehta, software developer of Thingworx. KKM Soft has a well equipped VR Lab with powerful computing resources, worth 1 Crore, to achieve real time rendering of high quality graphics with advanced sensors.

Overall, this FDP gave deeper insights into IoT industrial applications and different levels of IoT application development using Thingworx environment.

Dr.VS Felix Enigo & Mr.KR Sarath Chandran

WORKSHOP ON NETWORK SIMULATOR NS3

I attended the workshop on Network Simulator (NS3) at VIT university, Chennai during 31/08/2017 – 01/09/2017. Here are few words about NS3.

The classical definition of simulation is the imitation of the operation of a real-world process or system over time. The most important simulators are those used for simulating computer networks, and the question that should be answered is regarding the need for network simulation. Even though hardware has become cheaper, it is still a luxury for researchers in countries like ours where getting funds for research is a herculean task. So instead of relying on hardware in the initial stages of research we can use simulation tools for data, and if the results are promising, we can use the actual hardware based implementation for verification.

Network simulation is the process by which a computer network is modeled by identifying, analyzing and quantifying the interaction between various network devices and software. Mathematical modeling is used to study the behavior to of a computer network rather than using actual data.

There are QualNet, NetSim, OMNeT++, etc, which also are useful network simulators. If there are so many alternative network simulators, why is the ns class the most pervasive? QualNet and NetSim are proprietary tools and fail to address the important problem of reducing research costs, whereas the ns class of simulators is free and open source software that can be freely downloaded from the Internet. OMNeT++ is free software but it is not a complete simulator; rather, it is a simulation framework. So you have to develop your own modules before simulating the network, and this may not interest many potential users. So considering all these factors, I believe ns is the best tool available for a budding researcher in the area of computer networks.

Importance of using NS3:

- Ns-3 provides features not available in ns-2, such as a implementation code execution environment (allowing users to run real implementation code in the simulator)
- Ns-3 provides a lower base level of abstraction compared with ns-2, allowing it to align better with how real systems are put together. Some limitations found in ns-2 (such as supporting multiple types of interfaces on nodes correctly) have been remedied in ns-3
- Ns-3 is actively maintained with an active, responsive user's mailing list, while ns-2 is only lightly maintained and has not seen significant development in its main code tree for over a decade.
- The knowledge of Programming in C++ or Python is enough.
- Two other tools used in conjunction with ns-3 are *Doxygen* and *Waf*. The former is a documentation generator tool. Knowing the basics of this tool will help you decode the ns-3 source files more easily. *Waf* is the build automation tool used by ns-3. A basic understanding of *Waf* is required for compiling ns-3 modules.
- The post analysis supported file formats are .xml, .tr,.pcap,.csv. DCE environment is provided which is used to simulate Linux kernel network stack.

I strongly recommend switching over to NS3 instead of NS2. Supporting modules are released then and there. It has good scope to work on problems with 4G networks.

Keep RE…. RE…RE….RE….SEARCHING……

Ms.S.V.Jansi Rani, AP/CSE

Workshop on Effective Implementation of Autonomous System

A workshop on Effective Implementation of Autonomous System was organized by the Department of ECE, SSN College of Engineering on 28th August, 2017. Dr. Baskar from Thiagarajar College of Engineering, Madurai talked on UGC guidelines (Mar 2017) for committees in an autonomous college and their roles. Then he talked about choice based credit system and its advantages from the students' point of view. The talk then focused on outcome based education (OBE) and OBE based curriculum design. The speaker quoted that APJ Abdul Kalam Technological University has come out with good curriculum which is OBE based.

Dr.R.Kanchana, Asso.Prof/CSE

Guest Lectures Organized

Guest Lecture on Big Data Analytics was organized on 03th August, 2017 for the BE – IIIrd year and M.E. Final year students. Dr.S.P.Devaraj, Senior Architect, Engineering Global Analytics, Chennai addressed the students and gave an enlightening talk on emerging trends, potential challenges, big data frameworks and applications.

Guest Lecture on Cyber Security – emerging threats to organizations was organized on 31st August, 2017 for the BE – IIIrd year and Final year students. Mr. M. Ramanathan Kumar, Head, Information Security, TCS, Chennai, introduced the audience to the realm of cyber security, the diverse threats that organizations face and the multitude of opportunities to explore and solve in the spheres of cyber security.

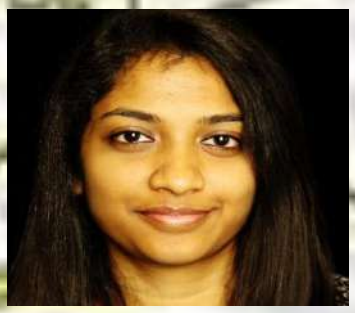
ALUMNI MATTERS!

2012-2016 Batch

The following students have bagged full-time job offers from Amazon, Seatlle , USA.

Naren T Kesh from North Carolina State Univerity

Priyanka Suresh from New York State University



Mayanka P pursuing MS at University of Florida

Priyanka Ravi at the University of California

" Hi, I'm Priyanka Ravi, pursuing my graduate studies in Computer Science at UCI. I interned in Amazon with Devices org., during the summer of 2017. I have received a return offer from them. In the meantime, I also interviewed with Microsoft and received an offer to work with the Azure Marketplace portal team. I have decided to go with Amazon! "

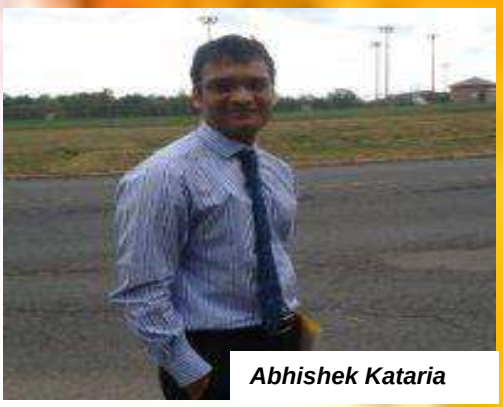
Vishal Ramasamy, pursuing MS at North Carolina State University, has received a job offer from Corning Inc. New York, USA.

Ms.KeerthanaIndukuri , 2008-12 batch, BE (CSE) student has begun her own startup @ Hyderabad.

This is an article on her online shopping store!

ALUMNI CORNER

This article is a continuation of my previous news-letter article from Smriti, Volume 3 Issue 2.



Abhishek Kataria

I saw the first actual winter of my life when the temperatures were hitting -20℃. It was a unique experience staying in a snow covered place for months, walking to campus on icy roads, wearing multiple layers of jackets and hoping the sun would be out for a few more hours each day. This semester was no less challenging just like the weather. I took Computational Geometry, Databases and Natural Language Processing for this semester.

Computational Geometry was an advanced algorithms course that involved solving interesting problems like Convex Hull, Ham sandwich, etc. The exams were supposed to be taken from home and were pretty challenging. Databases and NLP were predominantly project oriented courses. For the database course, everyone was given Discogs music database (50 million songs and 7 million artists across 180 countries) and we were asked to build a music web application on top of it. We built a powerful search music engine, player, recommendation system along with analytics tool. You can see the demo here. We got the "Best Analytics" award for the project.

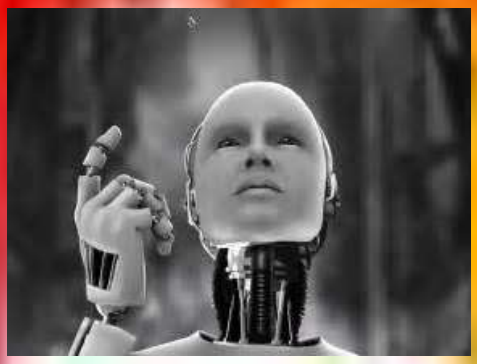
Twitter is never a good place to understand why a topic is trending, so for NLP class we generated multiple summaries for Twitter trending topics. This involved text processing on the tweet, applying LDA topic modeling and generating summary of the topic using Information Retrieval techniques. You can find some condensed summarized tweets here.

Internships are a highlight of one's academic career. They give you to explore, learn and find interests. And it can't get better than working at Amazon, Seattle. I interned for Amazon Fulfillment team where I developed a mathematical model to estimate the number of people working in Amazon Fulfillment Centers. I would also like to add that Seattle is the most beautiful place to visit during summers in the country.

The university system allows you to audit courses before taking them. So you can audit every course offered for 2 weeks and decide if you want to take it. I had a tough time deciding the courses to be taken this semester. In the end, the effort to decide on courses was worthwhile as I ended up taking Robotic Manipulation and Computer Security.

Robotic Manipulation was one of the best courses I took in my program. The reason for taking this course was the professor. I took Artificial Intelligence with him earlier and knew no subject would be hard or uninteresting if I get an opportunity to learn from him again. The course involved learning math behind the robotic manipulation - forward/inverse kinematics and jacobians, planning and computer vision. There were enough assignments to get our concepts right. The best part of the course was to work with

Baxter (a 7 degree of freedom robot to perform day to-day tasks) to compete in object picking competition. We had to manipulate Baxter to detect objects from the camera on baxter's arm and process the image and convert it into robot's dimension.



We then performed manipulation query, generate plans and pick objects. We won the "first place" in the competition among 12 teams that participated. You can find our competition video here. The computer security course was simply fantastic involving reading lots of research papers and exams. The exams dealt with questions whose solutions were ideas from multiple papers/topics. I would be happy to go back and review all those papers again.

My final semester was the most light in terms of coursework as I was looking for a full-time job post graduation, so I picked Web technology and Computer Networks. For networks course, I developed an android application for getting cheap/fast taxi in comparison to the competitors (i.e Uber and Lyft) and now Google Maps does that for you. I participated in PennApps , one of the most renowned hackathons in the country organized by University of Pennsylvania. We won the "Best Financial Hack" award. The idea was to help people invest and save money everyday. I was the Treasurer for Computer Science Graduate Science Society for the entire academic year. We organized coffee hours every week, lunch socials, game nights and tech talks. These events helped graduate students discuss about research and courses. "Teach & you learn better", so I continued my passion for teaching for all four semesters. I taught around 200 students in this tenure. Graduation ceremony is a matter of pride and honor in the US. I am definitely one of the luckiest, as President of the USA at that time Dr. Barack Obama was the chief guest for the ceremony. The ceremony was special as I was part of the 250th graduation ceremony at the 8th oldest college in country. I would like to thank my guide Dr. Chitra Babu for guiding me all these years in addition to other faculty and non-teaching staff at SSN for all their motivation and support.

It's been a year since I started working for Square, San Francisco, California. The company is around 8 years old co-founded and led by Jack Dorsey, who is also the CEO and co-founder of Twitter. Square is a point of sale, peer-to-peer financial services, merchant services aggregator and mobile payment company. I am a Software Engineer in Platform Engineering under Infrastructure Services team. We work in automating the entire lifecycle management of host at the datacenter. In my 1 year of tenure at Square, I have worked on various number of products deep down in stack such as imaging hosts, repositories and inventory management. The work life balance is fantastic with great people to work with and some amazing events to be a part of.

I already maxed out my word limit for the article, so I will put an end to it for now. You can reach out to me at abhishekkataria27@gmail.com.

Abhishek Kataria, 2010 – 2014

INDUSTRIAL VISIT TO NATIONAL INSTITUTE OF OCEAN TECHNOLOGY

The second year students of computer science and engineering department visited NIOT on the 22nd of August as a part of their industrial visit.

Shortly after arriving, a presentation on the technology used for harnessing ocean wealth in a non harmful way was conducted. It included a detailed explanation on topics like desalination, marine biotechnology, deep sea technology and ocean electronic.

Dr. A Ganesh Kumar spoke about the discovery of new drugs from deep sea micro organisms. This was followed by Vijaya Raghavan who gave the students insights on bio data analysis and indispensable role of computational algorithm. The third speaker spoke of the different types of microalgae and their usefulness. Finally, Dr. Limna Mol interacted with students on topics of Biofouling and ballast water.

We were then taken to National data buoy programme lab. They were given insights on how tsunamis were predicted using sensor technology. We later visited the Acoustic test facility lab and learnt about the various communication and navigation techniques. We then visited deep sea technology and ocean mining lab where they demonstrated on working with the hyper baric chamber.

We found this visit purposeful on the basis of understanding the use of computational algorithm in analysis of data.

~P R. Nandhinee.

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