



CSE Newsletter

# SMRITI

Memory Archives...



# Sneak Peak

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# HOD's DESK



**Dr. Chitra Babu**

I am very pleased to look back and take stock of the achievements of the department during the past three months. Hearty congratulations to Raghuraman, Kanchana, Shomona and Felix on receiving their doctoral degree. I look forward to their active contributions to the department's research ecosystem. I gratefully acknowledge the efforts of Prof. Milton, Rajalakshmi and Senthil kumar in organizing a workshop on R language – a trendy tool in the world of analytics. Felix, Beulah and Sujaudeen organized a workshop on Android sensor programming which was again a happening topic. Our vibrant ACM student chapter organized several events during the semester including the very first talk in India under the newly launched ACM Eminent Speaker Programme, by Prof. Madhavan Mukund. I urge them to conduct more such events to benefit the student community.

My compliments to the office bearers of the Association of Computer Engineers for the innovative aspects that were introduced such as event registration through mobile application and the event code-the-bot in the annual technical symposium PARADIGM.

Appreciating the department's efforts in adopting the Massively Empowered Classrooms initiative in the DAA course, Microsoft Research labs has recognized our college as a MEC community partner. I am extremely delighted to see that our III year student G. Siddarth has been selected for an internship at Microsoft Research Labs based on the scores in the Final MEC exam and telephonic interview. Congratulations Siddarth. I also commend all the students who have won prizes in IEEE zonal contests in the Android track as well as in the star innovator robotics workshop.

It is wonderful to see that for a second consecutive year, the coveted Amazon placement is bagged only by our students. Hearty congratulations to P.Vignesh for cracking the Amazon interview. I also congratulate all the other students who have received excellent job offers from various companies.

It is a proud moment for the entire department that there are 24 university ranks bagged by our 2014 batch students which is the highest number of ranks obtained among all branches. Our first year students Prashanth Mahesh and Roopeshwar have qualified to enter into the prestigious ACM ICPC on-site regionals. My sincere wishes for them to excel in that too. My appreciations to the final year student Megha Umesha who came in the top 10 selected to participate in the Lady Ada programming contest conducted by ACM-W.

I am so glad that our alumni, Tushar Arora and Iccha Sethi have shared their professional experiences. I would like to hear more from our alumni.

Let us put all our enthusiasm and efforts in scaling greater heights.

# RESEARCH CONGRATULATIONS!!

**Dr.G.Raghuraman**, successfully defended his thesis entitled "*Content Based Image Retrieval in Medical Image Databases*" under the supervision of **Dr.K.L.Shunmuganathan, Professor & Head, Department of CSE, R.M.K.Engineering College**, RSM Nagar Kavaraipettai and was recommended for the award of the Ph.D degree in the Faculty of Information and Communication Engineering. The Public Viva-Voce Examination was conducted on 22-08-2014 (Friday) in the CSE Seminar Hall, Department of Computer Science and Engineering, RMK Engineering College. Nearly 60 members comprising of Teaching Faculty, PG and Research Scholars witnessed the proceedings.



**Dr.R.Kanchana**, successfully defended her thesis entitled "*Modeling Reliable Transactions in a Service Oriented Environment*" under the supervision of **Dr.Chitra Babu, Professor & Head, Department of CSE, SSN College of Engineering**, Kalavakkam and was recommended for the award of the Ph.D degree in the Faculty of Information and Communication Engineering. The Public Viva-Voce Examination was conducted on 03-09-2014 (Wednesday) in the Seminar Hall, Department of Computer Science and Engineering, SSN College of Engineering. Nearly 75 members comprising of Teaching Faculty, PG and Research Scholars witnessed the proceedings.



# RESEARCH CONGRATULATIONS!!

**Dr.Shomona Gracia Jacob**, successfully defended her thesis entitled "*Discovery of Novel Oncogenic Patterns using Hybrid Feature Selection and Rule Mining*" on 15-10-2014 (Wednesday) under the supervision of **Dr.R.Geetha Ramani, Associate Professor, Department of IST, Anna University ( CEG Campus)** and was recommended for the award of the Ph.D Degree in the Faculty of Information and Communication Engineering. The Public Viva-Voce Examination was conducted at the Conference Hall, Department of Information Science and Technology, College of Engineering, Guindy, Anna University, Chennai – 25. Nearly 75 members witnessed the Viva-Voce proceedings comprising of engineers from TCS and IBM, Teaching faculty and Research Scholars.



**Dr.V.S.Felix Enigo**, successfully defended her thesis entitled "*Concurrent Query Optimization in Wireless Sensor Networks*" under the supervision of **Dr.V.Ramachandran, Professor, Department of IST, College of Engineering, Guindy, Anna University** and was recommended for the award of the Ph.D degree in the Faculty of Information and Communication Engineering. The Public Ph.D Viva-Voce Examination was conducted on 20-10-2014 (Monday) in the Conference Hall, Department of Information Science and Technology, College of Engineering, Anna University. Nearly 70 members comprising of Teaching Faculty, PG and Research Scholars witnessed the proceedings.



## Guest Lectures Delivered

**26 September 2014** -- **Ms.Shomona Gracia Jacob** delivered a lecture on "**Data Mining Techniques and its Application to Biological Data**" at the Workshop on Data Mining and its Biological Applications, organized by the Centre for Bioinformatics, Pondicherry University.

**5 August 2014** -- **D.Venkata vara prasad** delivered a lecture on "**MIPS implementation –Building datapath – Control Implementation scheme, pipelining**" in SA Engineering College.

## Paper publications

1. **Beulah** along with **J. Rajeswari, R. Revathi and S. Ramya** published a research paper titled "**Security Enhanced Group Key Agreement for Multicast in MANETs**" in International Journal of Futuristic Trends in Engineering and Technology Vol. 1 Iss. 7, pp: 4 – 7. ISSN: 2348-5264 (Print), ISSN: 2348-4071 (Online)

2. **B. Bharathi, Dr. T. Nagarajan,** "**Speaker verification using speaker-specific-text**", in WSEAS Transactions on Signal Processing", E-ISSN: 2224-3488, Vol.10, July 2014, pp. 320-330.

3. **Kanchana Rajaram and Chitra Babu, Arun Adiththan,** "**Tx-FAITH: A Transactional Framework for Failure Tolerant Execution of Hierarchical Long-running Transactions in Business Applications**", Journal of Web Services Research (JWSR), IGI Global, August 2014 .

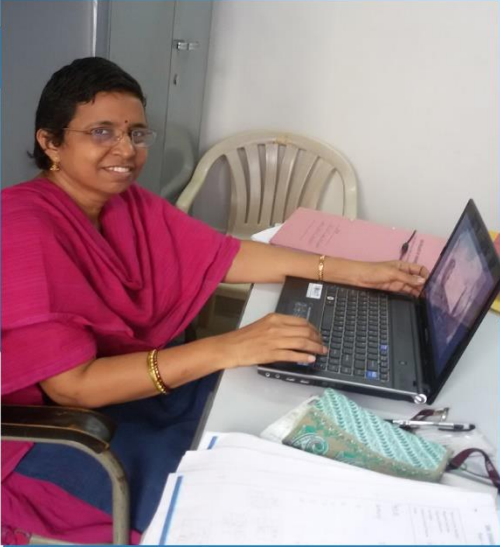
4. **Megha Vora, T.T.Mirnalinee,** "**Small World Particle Swarm Optimizer for Real World Parameter Optimization**", Advances in Intelligent and Soft Computing.

5. **P.Arjun, T.T.Mirnalinee, S.Sindhuja, G.Bharathi Raja** "**Affine Invariant Shape Descriptor using Object Area Normalization**", Springer. Lecture Notes in Electrical Engineering ISSN: 18761100.

6. **Harisankar Haridas, Sriram Kailasam, and Janakiram Dharanipragada,** "**Cloudy Knapsack Problems: an Optimization Model for Distributed Cloud-assisted Systems,**" accepted in the 14th International IEEE Conference on Peer-to-Peer Computing (P2P'14), London, England.

7. **Sanjana S, Shomona G Jacob,** **Data Mining to help Aphasic Quadriplegic and Coma Patients,** International Journal of Science and Research, Vol.3 No.9, pp.121-125, 2014.

# A Road Ahead – in Research



Dr. Chamundeswari  
Arumugam

The project proposal for SSN internal funding, for the project titled *"MULTIOBJECTIVE OPTIMIZATION TECHNIQUES TO IMPROVE THE AUTOMATION OF TEST DATA GENERATION IN SBST"* was submitted on 13th August 2014 and presented to research committee members on 8th September 2014. After evaluation, this project was approved on 16th October 2014 with financial support of 1.80 lakh, for the duration of two years. This work combines the two research areas, Artificial Intelligence and Software Engineering.

Software Testing plays a vital role in software development lifecycle in order to test and find faults in Software Engineering. Search-Based Software Testing (SBST) technique represents one of the most explored techniques in software testing. Search-based optimization received much recent attention in solving the problem of structural testing using branch coverage criteria to automate the test data generation. Hybrid memetic algorithm that combines the Evolutionary Algorithm, Genetic and Hill Climbing has been explored to improve the intensity and diversity of the search space to generate test data. This work attempts to extend earlier works by applying multi-objectives simultaneously, instead of a single objective on a single run to obtain efficiency and effectiveness results, using multi-objective evolutionary optimization algorithm such as Genetic and Particle Swarm Optimization. This optimization algorithm uses trade-off techniques to achieve the best compromise between computation effort and branch coverage concurrently on a single run to generate test data results. Subsequently, the parameter tuning aids in analyzing the performance and robustness of the evolutionary algorithm.

**Dr. Chamundeswari Arumugam**  
Professor, CSE

## Best teacher award details

**1. Ms. B. Bharathi** bagged the **Best Teacher Award** for CSE Dept. during Teachers' Day celebrations.

**2. Mr. K. R. Sarath chandran** bagged the **Best Teacher Award** for CSE Dept. during Teachers' Day celebrations.



## Teacher's day event

**Dr. S. Sheerazuddin, Mr. Senthil velan and V. Balasubramanian**  
- runner in the staff quiz competition.



**Dr. Chitra Babu, Dr. R.S. Milton and Dr. T. T. Mirnalinee** visited the *Polaris Design Center*, which is the world's largest design center for designing software solutions for financial institutions. The key philosophy behind the Polaris 8012 facility is applying design thinking for providing innovative solutions. *The objective of the visit was to understand the focus areas of Polaris, to identify common areas of interest and discuss the possible ways in which the department of CSE, SSN, can engage in collaboration with Polaris.* **Mr Rajesh Kuppuswamy, Chief Design Officer and CTO of Polaris** gave a guided tour of the design center explaining the philosophy of design thinking through interesting real-life business scenarios. Based on the discussions, it has been decided that a dedicated "Design Thinking" workshop can be scheduled for the faculty members of CSE at Polaris during December. *The areas of common interest also have been identified for active continued collaboration.*



**Dr. R.S.Milton, Mr. Rajesh Kuppuswamy, Dr. Chitra Babu and Dr. T.T. Mirnalinee**

**MICROSOFT has recognised our college as a MEC Community partner**

**Microsoft has recognized the following faculty members as " MEC Champion Faculty" for their help and assistance in creating MEC( Massively Empowered Classroom) awareness and driving adoption at the institute.**



**Dr.Chitra Babu, Ms.S. Kavitha and Mr.V.Balasubramanian (from right to left)**

# MIPS implementation



**Dr. D.Venkata Vara Prasad**  
Professor

## **Xiaomi moves into third place in global smartphone war**

**China's Xiaomi Inc has become the world's third-largest smartphone vendor just three years after first hitting the market, trailing only Samsung Electronics Co Ltd and Apple Inc, according to a new industry study.**

**Dr. D.Venkata Vara Prasad** delivered a lecture on "MIPS implementation – building datapath – Control Implementation scheme, pipelining" on 5th August 2014 at SA Engineering College, Poonamallee High Road, Avadi, Chennai. The lecture was focussed towards equipping the students of the Computer Science and Engineering and Information Technology Streams to face the newly revised Computer Architecture syllabus with a refined idea of the basic concepts in hardware design. The talk introduced the students to the basic implementation of MIPS. This was followed by the concepts in Computer Architecture that involved building the datapath, pipelining concepts and implementation of control schemes. The talk is believed to have motivated the students to face the subject with more interest and enabled the students to focus on the important aspects of the hardware involved in computer architecture design.

# “ Data Mining Application in Biological Data”

The Centre for Bioinformatics had invited Ms. Shomona Gracia Jacob, Assistant Professor - Department of CSE, to deliver a lecture on the Basic concepts of Data Mining and the possible applications to Biological data. The audience comprised of teaching faculty, Research scholars and Post-Graduate students from the Computational Biology, Computer Science and Bioinformatics streams.

The forenoon session covered a presentation on the 'Introduction to Data Mining and Knowledge Discovery' followed by the phases in data mining. This was followed by some real-time applications of data mining to genomic data and the challenging issues in the recent research field of Computational Oncogenomics.

The afternoon session included a demo on the most widely used data mining tools 'WEKA' and 'TANAGRA'.



**Ms. Shomona Gracia Jacob**

(Assistant Professor - CSE)

Real time gene expression and proteomic data were used to expose the students to the application of the data mining phases in pattern discovery and pattern interpretation.

Many research scholars and students raised doubts on the authenticity of the biological data, the manner in which research articles are to be written on issues relating to biological data and the possible tools to analyze biological data. It was a very interactive session and the enthusiasm of the students was overwhelming. It was a great experience interacting with the faculty and research scholars pursuing studies in such Interdisciplinary areas of research and I look forward to many more such opportunities. I sincerely thank the Management of SSN Institutions and The HOD-CSE for having given me this opportunity.

**Ms. ShomonaGracia Jacob**  
(Assistant Professor - CSE)



# R WORKSHOP...



A one day Workshop on Data Analytics using R was conducted by Dr. R. S. Milton, Mr. B. Senthilkumar and Ms. S. Rajalakshmi on September 26, 2014. 53 participants (25 Faculty members & Research Scholars and 28 Students) from various colleges have participated in it. The day had 3 sessions, with hands-on in parallel with the lectures. The participants gained working experience in R studio.

The following resource persons shared their knowledge on R:

1. Mr. J. Suresh, CSE, SSNCE delivered a lecture on "Introduction to R Programming". He gave the introduction to R programming and numerous examples for the participants to work on. This provided hands-on experience in the basic commands of R, and in the creation and manipulation of arrays.
2. Dr. Sourish Das, CMI gave a talk on "Statistical Analysis using R". He explained how predictive analysis can be done using R programming. Beginning with a few data sets, he analyzed them by finding mean, median, max and min. Then he proceeded to find the correlation between them, plotted them on a frequency graph to analyze whether they are linearly separable or not.
3. Mr. Arunkumar, Caterpillar gave a brief idea on "Data Analytics using R". He explained the concepts of plotting correlations and text mining using R packages. The topics discussed were text analysis and sentimental analysis of the text. Using data from English translation of 'kural's, he also discussed how to create word clouds.



# Android Sensor Programming Workshop



On September 13th and 14th, a workshop on Android-Sensor Programming was organised by **Ms.Felix Enigo, Mr.N.Sujaudeen and Ms.A.Beulah**

The first day introduced the attendees to general Android Programming. The speakers were SSN Alumni from Zoho, and they understood the needs and problems of the students easily. They guided us through the basics of XML and Java programming needed to develop Android apps. Even as the speakers worked on their laptops, the students could follow their moves and see the results on their own workspaces. The speakers and their helpers were constantly supervising to ensure that we did not run into any problems on our laptops. Because of their patience and diligence, we succeeded in developing a few simple, handy apps and interface pages.

The day came to an end with a fluster of activity. We received tips, advice, jokes, and follow-up activities from the Alumni. We were very grateful to them for taking the time off to share what they knew with us, and spark our already existing interest into a full flame.

We returned the next day, with yet more software and doubled excitement, for the second day of the workshop. We were pleasantly surprised to see a line of speakers on the dais. The speakers were from Trimble, and were here to share their experiences and knowledge on Sensor Programming.

The works of the speakers were closely tied with Android Wear, which involves smart watches, and other similar appliances. The morning consisted of introductions to different applications of Android Wear, and the headway Trimble was making in these industries. We learnt about the uses of sensors and Android Wear in agriculture – to warn farmers of changing weather, provide harvest advice, update pest and pesticide statistics, and in travel- so that users on the go, need not refer to their mobiles to receive notifications, but directly receive them on Wear devices, like watches.

The afternoon was our chance to get our hands dirty, and try out programming the sensors in our Android devices. We developed some simple apps to use the sensors in our mobiles, and watched with excitement as they worked. The speakers gave us pointers on problems we might face while programming sensors, and rookie mistakes that we should be careful to avoid when programming with sensors and Android Wear.

They gave us a follow-up activity- to develop an app that reduces the brightness of the phone, when a bright light falls upon its light sensor. We couldn't wait to start developing this app, and were discussing how best to go about it.

The day came to an end with thanking the speakers for their time and presence. This marked the end of the two-day workshop, which was an amazing experience for all those who attended. It proved to be the perfect introduction to the world of Sensor Programming, and we are grateful that we got a chance to listen and work with the people at the Workshop.



# "Content Based Image Retrieval in Medical Image Databases"

My research addresses the challenges by developing an efficient image retrieval system using a compact set of discrete orthogonal moments.

Moment based feature descriptors have evolved into a powerful tool for image analysis applications. Image moments and their functions have been employed as features in many image processing applications, namely, pattern recognition, image classification, object identification and shape analysis. Moments with continuous orthogonal base set such as Legendre, Zernike, pseudo-Zernike and generalized pseudo-Zernike polynomials can be used to represent image with redundancy information.

The experiments are conducted using IRMA, FERET and Yale B image databases. In the first set of experiments, the selected orders of discrete orthogonal moments were extracted from every database image and the query image. K nearest neighbour classifier is used to retrieve the most relevant 'k' number of images from the database. In the second set of experiments, the results were improved further by incorporating user input into the retrieval process. The interactive genetic algorithm employed in this research receives the user chosen relevant image and its chromosome is utilized in the crossover operation with other chromosomes. The new offspring's thus generated will be more relevant to the user requirement.

I extend my heartfelt and profound gratitude to my supervisor Dr. K.L. Shunmugathan, for providing vital, excellent, formative, constructive, inspirational thoughts and ideas for my research work. I am grateful to our Chairman Padma Bhushan Dr. Shiv Nadar and President Ms. Kala Vijayakumar for providing me an opportunity to carry out my research work. I express my heart felt gratitude to the Principal Dr. S. Salivahanan, for giving me an active support. I thank my HOD Dr. Chitra Babu who has provided me a pleasurable working environment to complete my work successfully. I would particularly like to thank Dr. J.P. Ananth, Professor DMI College of Engineering, who has been my driving force. Special thanks to my doctoral committee members and the examiners who has evaluated my thesis. I am thankful to all my colleagues and students for accommodating me in my various moods. The encouragement and support of my parents Mr. V. Gopalsamy and Mrs. G. Mariammal, my younger brother Mr. G. Venkatesh Babu, my wife Mrs. S. Gayathri Devi and my son Master G.R. Dheeran, is unparalleled that helped me to pursue my research, as I had prayed and aimed at.

- Dr. G. Raghuraman



## Modeling Reliable Transactions in a Service Oriented Environment

### Abstract

With the emergence of Service Oriented Computing, business organizations adopt new ways of carrying out businesses. Web service composition has become a promising approach to meet the user demands, whenever a single service by itself cannot fulfill the needs. In view of frequent failures in the internet environment where the composed services are executed, reliability of execution must be ensured to achieve consistent termination. Existing web service transaction models do not consider interoperable transactions and lack the ability to create advanced transactional frameworks to orchestrate cross-organizational heterogeneous transactions of collaborating business domains. Hence, a novel transactional framework, namely Tx-FAITH (Transactional Framework for FAILURE Tolerant execution of Hierarchical transactions across organizational boundaries) has been proposed. Tx-FAITH addresses the following research issues:

- Extraction of the transactional requirements from the business policies
- Transaction aware dynamic web service selection based on the requirements
- Coordination of hierarchically composed workflows by executing the selected services in a failure tolerant manner

The performance of Tx-FAITH was assessed and compared with existing frameworks. It is suitable for service oriented business and e-Governance applications wherein business policies and user requirements frequently change. The major advantages of Tx-FAITH are as follows:

- Enables external interruption of transactions to adapt to changes in requirements
- Enables flexible specification of requirements as and when a service is composed
- Enables integration of different types of services such as SOAP based and RESTful services.

All the major contributions of this research have been published in five international journals that include journals with impact factors 1.43 and 0.469 and four international conferences.



-Dr. R.Kanchana

# ACM REPORT



**Prof. Madhavan Mukund,**  
Vice-President of ACM  
India Council  
and  
Dean of CMI

This is the third year of the SSN ACM Student Chapter. With the support of our HOD Dr. Chitra Babu, the able guidance of our Chapter Faculty Sponsor Mr. Sujaudeen N and the cooperation of our chapter members & students, we were able to organize many events successfully for our students during this working semester. The events were held with the ACM's motto of advancing computing as a science and profession.

A workshop on "C++ Programming" was held on 2nd August 2014. It was conducted for the benefit of the lateral entry students of second year B.E. in order to bridge the gap between the curricula of their diploma and their current degree. The students actively participated in the workshop. The students of third and fourth year volunteered to teach the students the basic foundations of C++ programming.

On 30th August 2014, an online programming contest - "Code From Home" was conducted for the first, second and third years of CSE & IT. The contest saw enthusiastic participation of students with 117 registrations across all years. The participants were exposed to challenging programming problems along the lines of ACM ICPC contest. The motive of the contest was to give our students an experience of competitive programming and encourage them to participate in programming contests. Vivek Nagaraju of third year IT emerged as the winner of the contest followed by Prashanth Mahesh of first year CSE and Sudharshan R on third year CSE as runners-up.

In order to commemorate the 'Software Freedom Day' a hands-on workshop on "Hadoop" was conducted on 20 th September 2014. The workshop was open for third and final years of B.E. and first year M.E. students. Mr. Harishankar G and Mr. Aravind Ram N, SSN Alumni of the 2010-2015 batch handled the workshop in an outstanding manner. The participants understood the working of Hadoop and were given the feel of the open source software.

A talk as a part of 'ACM Eminent Speaker Programme' was organized on 24 th September 2014. Prof. Madhavan Mukund, Vice-President of ACM India council and Dean of CMI, Chennai delivered the talk. His talk was on the topic 'Efficient Processing of Range Queries' which was very informative for the participants who were enthralled by his lecture. The participants were Heads of the department, Professors, Researchers and students from various institutions in and around the city. Prof. Mukund interacted with the students and gave them many innovative ideas and useful tips for cracking programming contests.



All of these events were a grand success and we hope to organize more of such events for the benefit of our students and to encourage the spirit of computing.

# PARADIGM-2k14

**Paradigm**, our National Level Technical Symposium had a major success this year. Conducted on the **5th of September 2014**, this year's edition saw **3000 on-day and 2532 online registrations- 5532 registrations** from colleges all around Tamil Nadu. The occasion was inaugurated by **Vice-President of Ramco systems, Mr. V.S Sundar Raman**. The department's annual magazine **Exampler** was released by the Chief Guest. Registrations were done using the bar-code system, for the first time ever, minimizing the paperwork. **'Transformers and Algorithms'** was the theme this year. Decoration and all events were centered around this theme. The events conducted this year included Paper Pioneers, Open Programming, Code Wars, Code Hunt, Informals and Technical Quiz. Our pioneer event that received overwhelming response this year was Code The Bot, wherein participants could create their own bots and give it commands.

Other key features of this edition included live-tweeting, live display of results and speaking bots. For the first time in the history of Paradigm, an Overall Trophy was presented to the college with maximum points. This tradition is to be carried forward the forthe coming years. **The first Overall Trophy was bagged by College of Engineering, Guindy.**



# "Neuro Science"

-Dr. Ashutosh Mohan

Excited were the students of CSE 3rd year, when the group mail read that we were about to have a guest lecture on a fun topic the following day. So we moved to the mini auditorium at about 10am on a Thursday morning with much anticipation. Then came the guest lecturer, without wasting a single moment. He seemed to fit in as 'one among us'.

For the first few minutes, he gave an account of the different ways in which his lecture might be interpreted by the students. And he proved to know the fad too, by incorporating a recent meme in this part.

He gave a brief description about different scientists and researchers who have contributed to the field of neuroscience. The findings of these great researchers were truly astonishing. To think that so many factors govern the process of our everyday thinking, speaking, walking etc. Was truly enlightening for all of us.

He gave us a notion on how electricity is generated from living tissues , starting from galvanic experiments. He described the structure of neuronal cells and how the nerve impulses are created by passing of these electric charges from one dendrite to another axon at the synapse point. In the midst of all this , he also quoted , "Don't misconstrue that science is only till your 8th grade . Just because you all are engineers doesn't mean your have to eschew away from the aspects of science".

What made it more engaging was the guest lecturer inserting details on his research experience here and there in a funny way. His love for science was very evident with each incident he quoted. He said, 'Research if you love science, not as a glory hunter'. Then with each slide he walked us through the details of neural networks, nerve synapses, etc.

Amidst all this, questions were thrown from the audience regarding many topics such as dreams and memory. Answering all these, he then moved on to explain the neuronal imaging through FMRI, which can serve as a portrayal of the brain's functionality. Here he told us about gamma oscillations and how they can be mapped to specific activity centers in the brain.

He also said experiments have been conducted, where these imagings have been developed under various usage situations of the brain, such as speaking, listening, solving maths. And he said, "Solving maths has been proven to consume comparatively more glucose".

We would have loved to hear more from him, but the guest lecture came to an end at 12 pm. We thank the organisers for a fun guest lecture which gave us a better insight into neuroscience. It has once again kindled the flair towards science that we used to have in our school days.

**S.Sanjana**  
**3rd Year**



# The Need for Formal Proofs

## Inside the issue:

### E-mail

The guest lecturer started out with a very good example - the mail! It is something we all have used, keep using and cannot stop using. But isn't it common message to say, "I just checked my mail?" . Maybe right, it can be agreed that you have checked mail, but how is it exactly your mail? When it isn't stored in your system but in some servers very far away from you, in places of the earth that you may not even be aware of, how is it 'your mail'?

### Not always Cryptanalysis ...

When we look back at the history of security breaches, cryptanalysis is something the attackers resort to as a very last step. Let us look at this with an example of storing passwords in the mail server's database. Your password is stored using what I would call "one-way encryption", this is called a one-way function, or a cryptographically secure hash function. Basically, "one-way encryption" is an encryption method in which it is easy to encode stuff, but very difficult to decrypt. For example, a typical one-way encryption function might have the following characteristics: It takes 1 microsecond to compute the encrypted form from a password, but is estimated to take 2000 years if you want to figure out the password from the encrypted form.



**Prof. Ramanujam**

### "Google details Android 5.0 Lollipop's major security features"

The company says that it will now encrypt users data by default. While this is not a new feature, but until now it was optional. With Lollipop, the encryption mechanism will get enabled during the activation process. This feature, among many things, will disallow even Google from unlocking your phone, even at the request of law enforcement.

## **Why do we use a double lock for our house?**

To protect it. And when is it better than a single lock in offering protection? It is when someone forcefully tries to break through your house. Same way, when someone tries all the username-password combinations, the chances of getting both of them right is much less than getting any one right. Sometimes both the username and password are stored in combinations in an encrypted way. Use a special character in between the username and the password and encrypt them together, as in, abc : pass

## **The Hotel Room**

These days the old keys of hotel rooms are replaced with electronic cards or keys that are battery operated! These cards have a pair of identification keys say (key1, key2) and when the card is inserted, both of these are read. It should be noted that both the reader on the room door and also inside the room do not communicate with the hotel reception under any instance. So how does it authenticate the card? The first key - key1 happens to be the one pertaining to the previous user. This is what lets the person in. But immediately, this value will be replaced with the value of key2 . Now if the person leaves the room and enters the next time, the key pair will be (key2, key3). What is the need for formal proof here? We do need such concepts to study about the various issues that can arise even in very simple security schemes like this one.

## **Same base theory**

For all these ages people have used different systems ranging from those which were the size of a room to the small hand held powerful devices we have today. Computation spans across so many sectors. And internet also plays a major part in it. When we say internet connects us, there might be unnecessary elements of threat to us somewhere along the course of this connection. This has been the case always. Whether it be the age—old computers or the iPad and the MacBook we have today, the base theory is the same. The basis in encryption and security is the same and formal proofs add strength to it. If we don't feel secure, we can't feel safe. If we don't feel safe, then we get to that point where we doubt our own existence.

## **Thank you!**

We thank the HOD of the CSE Department for providing us with this enlightening guest lecture. It has really brought to light essential and vital information that will add to our knowledge and make us better computer engineers in the coming future! We will contribute to the betterment of human kind, not because our job entitles us to do so, but because we love doing it.



## Ready, Steady, Go

Is this an article about racing? No, not at all. It is about an open source language "Go", created at Google that is fast becoming the newest rage in town. The language was designed by a team in Google that has our familiar names of Ken Thompson and Rob Pike from UNIX, along with large number of contributors from the open source community. Go aims to combine the safety and performance of statically typed, compiled languages such as C++ and Java with the expressiveness and convenience of dynamically typed interpreted languages such as Python, Ruby, Erlang and Javascript. Go is an Object Oriented(OO) language with C-like syntax, but it does not have the abstraction of class. It does not support inheritance. However, reuse is facilitated through embedding, which is analogous to the concept of delegation in prototype-based OO languages. Go has interfaces comprising of sets of methods that are abstract representations of behavior.

Go language has rich support for concurrency using goroutines and channels. A goroutine is a lightweight thread of execution that is fully managed by the Go language runtime. Channels provide a way for two goroutines to communicate with each other and synchronize their execution. Go uses pointers, but unlike C it does not allow pointer arithmetic and subsequently advocates memory safety. It supports automatic garbage collection.

Thoughtworks seem to be using Golang widely for building applications. In fact, they have recently built a framework, called EMBD that provides the hardware abstraction layer for doing embedded programming on supported platforms such as Raspberry Pi and Beaglebone Black. More information can be found in <http://golang.org>  
Students, Happy Going!

**-Dr. Chitra Babu**

# IEEE Workshop

## -Android Track

### Tech News

#### Android One facing tough competition from Android devices

Just over a month after Google launched smartphones under the Android One initiative in partnership with local handset makers Micromax, Karbonn and Spice, trade watchers suggest that sales haven't been encouraging. However, the companies contest the claim, even as they start offering the devices through offline retailers.

On 27th and 28th of Aug, 2014, IEEE Student Activities Committee conducted a Training Workshop at Sathyabama University, which was attended by students from CSE. There were different tracks involved, one of which was Android Programming.

The workshop marked the beginning of a month-long online internship for the participating teams. The teams were guided and trained in the respective tracks, and were progressively evaluated. The internship included a series of tasks that needed to be completed efficiently, to complete the internship.

The Android track involved developing an application that would be useful to the society. After the internship, IEEE conducted the Zonal Contest to evaluate the final results of the internship. The teams' Android applications were presented to the contest judges.

Both teams that participated from CSE secured prizes. **The first place was given to Arvind.M, Dinesh Raj.G and Brindha Priyadharshini.R, CSE A 3rd year, and was rewarded with 10,000/- cash prize for the app 'Bloodonator'.** The app aims to provide speedy relief to accident victims by locating nearby bloodbanks and nearest available viable donors.



**ARVIND M**



**DINESH RAJ.G**



**BRINDHA R**

The second place was secured by the team of R.Divya Brindha and Aakanksha Prasad, CSE-A 3rd year, for their app 'The Chennai Transport App'. The handy Android app gives details of all the bus routes in Chennai, the intermediate stops and the relevant bus fares. The app can take bus numbers and provide routes, or pull up bus numbers based on the required routes.



**AAKANKSHA PRASAD**



**DIVYA BRINDHA**

The workshop, the internship and the contest were a wonderful learning opportunity. We gained valuable insight on what it really takes to program using Android, and we would like to thank IEEE and Lambda Edulabs for organising the event.

# Meals on Wheels!!!!

-IEEE Workshop



This robot (shown in the above picture) can be operated in two modes using a wireless remote. In the first mode (the autonomous mode) the robot follows a particular path (Line Follower), reaches the destination, serves food and retraces its path.

We students of CSE 3rd year participated in the STAR INNOVATOR ROBOTICS Workshop 2014, an online internship and zonal level contest organized by IEEE, INDIA SAC & LAMBDA EDULABS,2014 and **secured first position** in the contest. I belonged to a team of three- **R. Aswin Kumar, S. Vidhyalakshmi, and myself, S. Jayashree**, and we were rewarded with a cash prize of **Rs.10,000**. The workshop was very useful and we learnt how to make robots using an Arduino Board. We had both theory and hands on sessions, both of which were very interactive and interesting. We were provided with a robotics kit and learnt the assembling and programming of the robot in an effective manner. We also completed the online internship where we were asked to finish certain tasks related to our project.

In this fast moving world, robots can replace humans in providing reliable waitressing service in restaurants and hotels. Friendly and attentive waiters are a key factor in the running of a successful restaurant. There is a need for the food to be delivered in a fast and efficient manner. So we as a team of three, designed a SERVBOT to make work much easier. **The robot was designed to accomplish the task of serving the food to people in restaurants in a systematic manner. It is an ARDUINO based mobility robot which typically replaces the server in a restaurant.**



ASHWIN KUMAR



JAYASHREE



VIDHYA LAKSHIMI

This robot can be operated in two modes using a wireless remote. In the first mode (the autonomous mode) the robot follows a particular path (Line Follower), reaches the destination, serves food and retraces its path. The second mode is the manually controlled mode where the user controls the SERVBOT. The robot also manoeuvres its way along a safer path avoiding any obstacles (Obstacle Avoider) in the real world and is completely autonomous. This avoidance of obstacles was done with the help of MPOS (Multi Purpose Optical Sensors) which were interfaced with the robot. We were appreciated by the judge for our creativity and presentation of our project.

# The Gateway to Amazon



**Vignesh.P**

IV CSE 'B'



Amazon – The Heart throb of every engineering graduate who wants to make it BiG in life and here's the account of one such person Vignesh.P – IV CSE 'B' who experienced the Golden Moment of his life when he knew he was the only one selected by the Amazon recruiters !

Amazon's Interview Process consisted of 5 rounds. The first round was a technical aptitude and coding round for one and a half hours and the next 4 rounds were technical interviews.

Their main focus was on Data Structures and Operating Systems and the Interviewee's ability to write efficient code. More than an interview it was a huge learning experience. It felt more like discussion with the interviewer to come up with ideas to solve a problem efficiently. The interviewers were more than happy to help in case we got stuck anywhere. Few Sample questions were questions regarding the projects done by us & ways to optimize them.

Some of the programs included

- (i) Implementing the floodfill algorithm used in Paint.
- (ii) Coming up with an efficient data structure to reduce the load on their product pages.
- (iii) Designing an Efficient algorithm to find the closest 100 points to the origin given a "million" points.
- (iv) Suggesting a efficient scheduling algorithm for a set of processes.

There were also a few theory questions on threads, deadlocks etc. The preparation that were done was brushing through a few OS concepts and taking part in a few programming contests to get into the habit of thinking about new scenarios.

The one thing in my resume that impressed them was my participation in ACM , ICPCs,NLPCs etc. Programming contests give us a chance to face new scenarios in a time constrained environment and enhance our ability to think and come up with optimal solutions .The panel that had come also mentioned ways to improve the coding culture in our college and encourage students to participate in a lot of programming contests.

To all juniors reading this article my advise would be to make the most out of the opportunites one gets in the college.

Learn for the fun of it.

Understand and learn the concepts that are taught during the course of the BE programme. There are a lot of sites like GeeksForGeeks that'll help in preparation but dont completely rely on those sites.

Make sure you practise to Think. That would be more than enough than spending a month or two in front of your books preparing for placements. Also dont lose hope if you dont get selected in a company. Everything in this world happens for a reason.

**Trust God but lock your car ;)**

**Vignesh P  
IV – CSE 'B'**

# Placement Summary

Company	CSE -UG	ME-CSE	ME-SE
Amazon	1		
Zoho Corporation	10		
Mu Sigma	9		
Ascendant Technology	3		
Success Factors	1		
Latent View Analytical	3	1	
Lister Technology	1		
Fidelity India, Bangalore	4		
Polaris FT	8		
Thoughtwokrks Technology	1		
Accenture Technology	10		
Cognizant Technology	30	11	8
Infosys Technology	3	8	8
Wipro Technology	2		
L&T Infotech	1		1



# Placement Summary

Company	CSE -UG	ME-CSE	ME-SE
Verizon	1		
Multicoreware	2		
Tata Communications	2		
Temenos	4		
<b>total</b>	<b>97</b>	<b>20</b>	<b>17</b>

# Anna University

## Rank Holders

### UG Rank Holders 2014

VIGNESH A C	7
DEEPIKA N	11
MANASVINI S	12
LAKSHMI E	21
UTHRA V	21
GAYATHRI V	22
VARSHA VENKATESH	22
ABHISHEK KATARIA R	22
SHEERAJA R	28
SNEHA S	30
PALUKURTHI BHAVISHYA	36
JANAKI S	37
RAMANATHAN N	37
RAHUL S	39
SRI VARDHINI C S	40
RAJESWARI J	41
ADITHYA SESHADRI	43
KRISHNA ANANTHI T	43
SRIDHAR SOUMYA	44
JEEVITHA S	45
ARAVIND RAM N	46
SRUTHY S	47
MAHATI KUMAR	48
RITHI RAMJI	49

**"Maximum number of University Ranks Across All Departments -UG"**

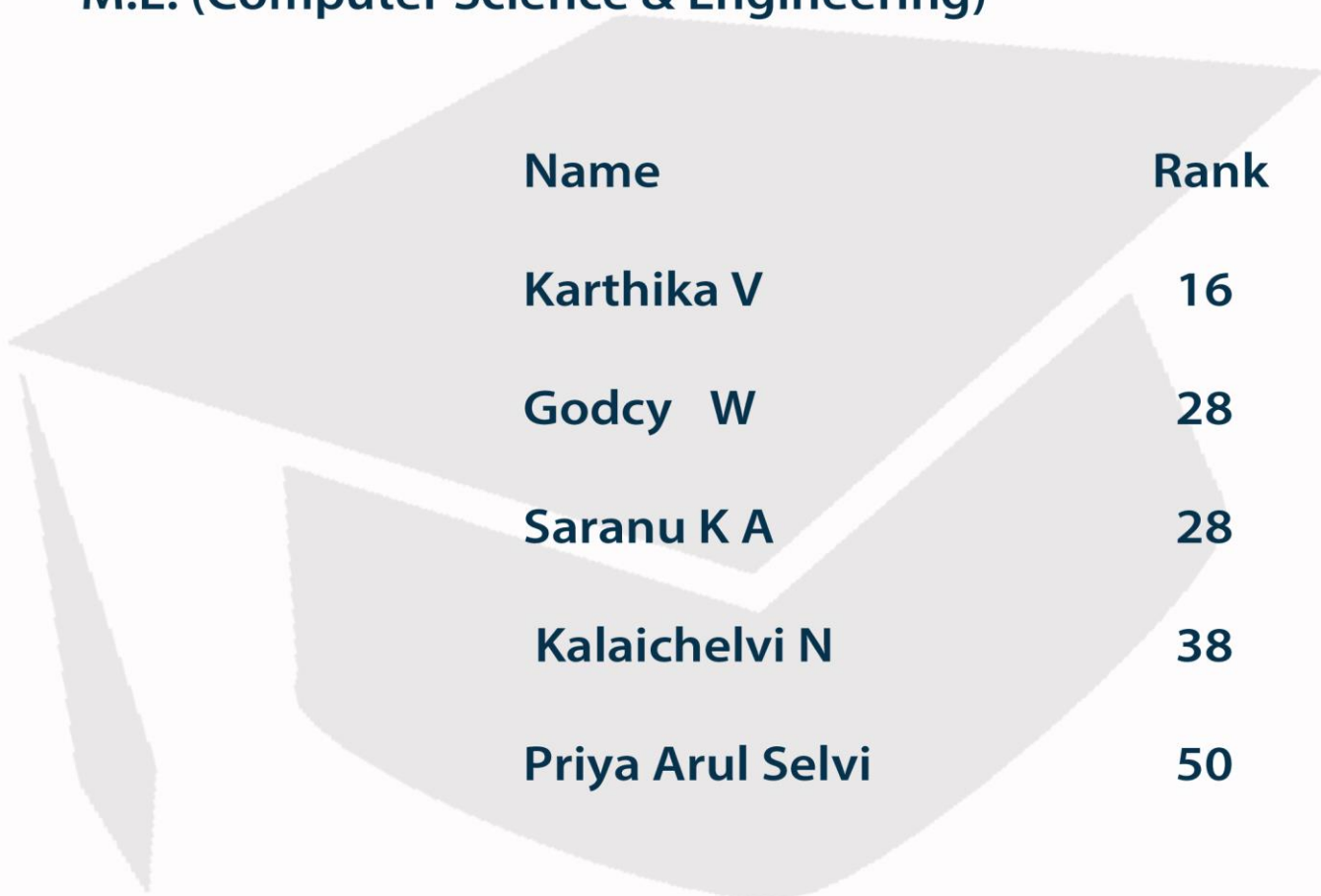
**CSE with 24 University Ranks**

# Anna University

## Rank Holders

PG Rank Holders 2014

### M.E. (Computer Science & Engineering)



Name	Rank
Karthika V	16
Godcy W	28
Saranu K A	28
Kalaichelvi N	38
Priya Arul Selvi	50

### M.E.(Software Engineering)

Vaishnavi P	10
-------------	----

# LIST OF SCHOLARSHIP AWARDEES

## ME FIRST YEAR

S.No.	Name of the student	Branch	Scholarship Status
1	Sriram K	CSE	Excellent

## ME SECOND YEAR

S.No.	Name of the student	Branch	Scholarship Status
1	Maheswari S	CSE	Full
2	Karthika VT	CSE	Full

## WALK-IN-WALK-OUT SCHOLARSHIPS

### B.E./B.Tech. THIRD YEAR

S.No.	Name of the student	Branch	Scholarship Status
1	Manpreet Thakur	CSE	WIWO
2	Mukundram M	CSE	WIWO

### B.E./B.Tech. FINAL YEAR

S.No.	Name of the student	Branch	Scholarship Status
1	Prashanthi S	CSE	WIWO

## RURAL SCHOOL TOPPERS SCHOLARSHIP

### B.E./B.Tech. FIRST YEAR

S.No.	Name	Branch	Scholarship Status
1	Davidraj M	CSE	RURAL
2	Ananthi R	CSE	RURAL
3	Deiva M	CSE	RURAL
4	Panneerselvam P	CSE	RURAL

### B.E./B.Tech. THIRD YEAR

S.No.	Name of the student	Branch	Scholarship Status
1	Pushpa A	CSE	RURAL
2	Vinoth Kumar T M	CSE	RURAL
3	Mahendran K	CSE	RURAL
4	Anandhi A	CSE	RURAL

### B.E./B.Tech. FINAL YEAR

S.No.	Name of the student	Branch	Scholarship Status
1	Saravanan I	CSE	RURAL
2	Sherin Farzana H	CSE	RURAL
3	Sasikala P	CSE	RURAL
4	Bhuvaneswari N	CSE	RURAL
5	Ashok B	CSE	RURAL

### B.E./B.Tech. CSE BRANCH

S.No.	Name of the student	Branch	Scholarship Status
1	Dodda Saisuma	CSE	Outstanding
2	Kunthipuram Manoja	CSE	Outstanding
3	Aravind S	CSE	Excellent
4	Gowtham S	CSE	Excellent
5	Dharshini Devi S	CSE	( 3 Outstanding /7)
6	Dhivya Bharathy T	CSE	
7	Aparna A	CSE	
8	Sounderyan B	CSE	
9	Shanthini S	CSE	
10	Nishanth Krishna J	CSE	
11	Mathuvanthi S	CSE	
12	Rakshitha V S	CSE	Full
13	Spurthy S	CSE	Full
14	Vijay V	CSE	Waiver
15	Parinitha G K	CSE	Waiver
16	Vignesh G	CSE	Waiver
17	Janani R	CSE	Waiver
18	Mohana Priya K	CSE	Full
19	Sai Sravanthi A	CSE	Full
20	Sanjana S	CSE	Waiver
21	Sruthi V	CSE	Waiver
22	Jayashree S	CSE	Waiver

23	Naveen H	CSE	Waiver
24	Neela Niranjani V	CSE	Full
25	Saravanan I	CSE	Full
26	Venkatraghavan S	CSE	Waiver
27	Mohameddashique A	CSE	Waiver
28	Preethika P	CSE	Waiver
29	Aparna A	CSE	Waiver

### MERIT-CUM-MEANS SCHOLARSHIPS SECOND YEAR

S.No.	Name of the student	Branch	Scholarship Status
1	Dasaradhan R	CSE	Waiver
2	Murugeswari I	CSE	Waiver

### THIRD YEAR

S.No.	Name of the student	Branch	Scholarship Status
1	Jayashri M	CSE	Full
2	Mohana Priya S	CSE	Full

### FINAL YEAR

S.No.	Name of the student	Branch	Scholarship Status
1	Hemavathy J	CSE	Full
2	Divya S	CSE	Waiver
3	Romatha S	CSE	Waiver
4	Megavarnam B S	CSE	Waiver
5	Kabilan S	CSE	Waiver

### SPORTS SCHOLARSHIPS

S.No.	Name of the student	Branch	Scholarship Status
1	Karthik.E	CSE/IV	Half (fw)
2	Sharanya Srikanth	CSE / I	Full
3	Sv.Arun Thaneermalai	CSE / I	Rs.15000/-

### Classical Solo & Instrumental Scholarship

S.No.	Name of the student	Branch	Scholarship Status
1	Nandini V	III/CSE	Instrumental Music 45000

### ALUMNI SCHOLARSHIPS

1	Muthu Annamalai C T	I, CSE	25000
2	Suriya G	I, CSE	25000

# TECHNICAL ACHEIVEMENTS

1. Siddharth G of 3rd year has been selected for Microsoft Research Labs Internship
2. Prashanth Mahesh(1st year CSE) Roopeshwar(1st year CSE) and Vivek Nagaraju(IT 3rd year) under the guidance of N.Sujaudeen participated in ACM ICPC preliminary online round and they finished 69th of the 1500 teams in the Amrita site regionals.
3. Infosys Aspiration 2020, a national programming contest-Three teams from our college in which two teams are from computer science department have been qualified for final rounds from 8802 teams all over India. Team 1 name-Prashant(1st year),Team2-Satish and Srinivas(third year) who are from our department.
4. Megha Umesha was selected among the top 10 in the ACM-W 1st National Level Lady Ada Programming Contest for Girls conducted by ACM-W India, Oracle Academy and ACM-Goa.
5. Aishwarya Sreenivasan was awarded the 2nd place in a Debugging contest – Ubuggers held by Hindustan College on 20.9.2014.
6. Ruban.B of 3rd year won first prize in debugging contest conducted by CSE department of SRR Engineering college and has won 2nd prize in logo designing contest held at REC.
7. Sriranjitha Raguraman and Nandini V of 3rd year was awarded the 1st place in coding contest –cryptex held by SVCE.
8. Siddhaarth.S, Seshathiri .R and Revanth.K of 3rd year won first place in Quiz in SVCE symposium.
9. Swaathikka , Sai Shrvanathi of 3rd year won first place in paper presentation in RMK Engineering college.
10. Mukund Ram of 3rd year won 2nd prize in Star Innovator contest under Robotics track .
11. Sanjana S of 3rd year won 1st prize in paper presentation in SVCE.
12. Aswin kumar R and Abishek R of 3rd year won 3rd place in coding contest at St.-Joseph college

# SPORTS

## Acheivements

### SSN TROPHY (26.08.2014 – 28.08.2014)

1.Aishwarya Sreenivasan and Samiya Nasim came 3rd in the Tennis event that was a part of SSN Trophy 2K14.



2.Karthik E came 2nd in Squash, SSN Trophy held by SSNCE.



3.Mayanka P and Priyanka R came 4th in Basketball, SSN Trophy.



4.Shashaank S was the winner of Chess, SSN Trophy.





## What is the fun way of coding?

Just read on...

My name is **Tushar**, I graduated from SSN in 2011 (back when it had no trees and I had hair on my head). I worked for a year after SSN @Infosys before doing my Masters in Entertainment Technology. (Yes entertainment technology, no its not the circus, yes it involves programming).

You know that game which your mom and dad play on their phones? Candy Crush Saga ? addicting game right?

This game is based on a simple program we all learnt in our data structure lab. In crude terms, it is similar to the program where you remove repeating characters in a string. Example: "aaaabbbbcccd" , output = "ad". This game is worth 8 Billion dollars, one simple program from your labs + chocolate photos. What an idea! Cool stuff isn't it?



**Tushar**



//

This game is based on a simple program we all learnt in our data structure lab.

//

You all might have played on Sony Playstation? XBox? A while back, I was working on a game which needed an input manager. Essentially, I had 10 buttons, I was supposed to manage every permutation of button presses and handle them in an optimized manner.

```
if(button 1)
{
  if( button 2)
  else if (button 3)
  {
    cout <<"too many variables, save memory";
  }
}
```

Microprocessors and digital signals, this is one topic which always flew over my head in SSN. But basics of this subject was the key to the above problem. Bit wise operations and storage! If button0 & button3 are pressed and we use bit positions to mark this value.

During my last semester @SSN I had the chance to work with Milton Sir on an (Artificial Intelligence) AI project. My teammates and I loved football , we wanted to make a football game, so we tried to find out CSE topics which help in making games. AI is a big part of it. Long story short, we found an application of AI and then had fun making the game. This mantra has helped me a lot and I am currently applying it at Facebook.

So what is the fun way of coding? Simple, understand the applications of what you do and nothing will stop you from having fun. You all are being trained to be rockstar programmers and millionaires, go get your money!

P.S if you are making games or anything weird, feel free to ping me.

**- Tushar Arora**

**(Batch 2007- 2011)**

**website : [tushar22arora.com](http://tushar22arora.com)**

**linkedin: [www.linkedin.com/in/tushar22arora/](http://www.linkedin.com/in/tushar22arora/)**

# Working in OpenStack, open source cloud computing project



**Iccha Sethi**  
Batch 2006-2010

OpenStack is considered as the operating system of the cloud[1]. Being open source, many view it as the linux of operating systems. OpenStack began as joint project between Rackspace and NASA, four years ago in 2010 and my tryst with OpenStack began in 2012 when I joined Rackspace.

## Why OpenStack?

Imagine if you had ABC mobile provider and you were told that you could never switch to any other mobile provider without great difficulty or losing all your data. That is the curse of propriety software in the cloud computing world. Open source projects like OpenStack make it possible so that you can switch between multiple cloud providers easily since the infrastructure is similar. Since its inception in 2010, OpenStack has had many companies contributing to it and adopting it like RedHat, Dell, CISCO, IBM, HP, etc.



## What is the workflow working in open source?

At the end of the day, most companies who have invested developers in OpenStack have their own deployment of OpenStack and have customers (internal or external) using it and based on their needs feature requests crop up. For example, Rackspace wanted me to work on a feature to share images between users. I should submit a feature spec or a blueprint [2] in the OpenStack community outlining the need for the feature, the use cases, the API calls, any database migrations, etc[3]. Adding any new feature must not break the existing API contract. The community as a whole looks at the blueprint and gives feedback. If another company wanted this feature as well, they would add in their use cases as well and ensure that this blueprint addresses them. Once the blueprint is approved, I can start working on it – either individually or with any member of the project.

### *Challenges working in open source:*

In any open source project the timeline is not entirely within your control. Every step requires consensus with the open source community – blueprints and code reviews. If you have a product which relies on open source project, you need to have flexible deadlines. Also, having communication skills is extremely important because you are interacting with individuals from all over the world, constantly communicating over IRC [4], or emails to bounce off ideas or ask questions if needed.

[1] <https://www.openstack.org/>

[2] <https://blueprints.launchpad.net/glance/+spec/glance-api-v2-image-sharing>

[3] <https://wiki.openstack.org/wiki/Glance-api-v2-image-sharing>

[4] <https://wiki.openstack.org/wiki/IRC>

### **Resources on contributing to OpenStack:**

- [https://wiki.openstack.org/wiki/How\\_To\\_Contribute](https://wiki.openstack.org/wiki/How_To_Contribute)
- <https://www.youtube.com/watch?v=DX9NYMZgj80>

**-Iccha Sethi**

# MEET OUR MEET TEAM

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