

AUG  
2014

# BUFFERED READER v1.0

A BIANNUAL MAGAZINE OF CSE DEPARTMENT

## THE CSE TALE

17 years of our glorious history

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## IN CONVERSATION WITH

Anurag Anand,  
B.Tech 2007  
Customer XPs

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## BIG DATA AND CLOUD COMPUTING

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IEEE Senior Member,  
Department of Computer Science and Engineering.

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When you stare  
into the void, the  
void stares back.  
But if you cast into  
the void, you get a  
type conversion  
error.



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Prof. D.C. Panigrahi

## FROM DIRECTOR'S DESK

**I**t gives me immense pleasure to learn that the Department of Computer Science and Engineering has come up with the first edition of its bi-annual magazine, *BufferedReader*. I am sure that *BufferedReader* would, in a most efficient manner, delineate the activities of the department and exhibit the exuberant talent of young minds.

Our goal at Indian School of Mines is to constantly nurture and develop the personality of young and dynamic minds who would shape the future technological landscape of India. The Department of Computer Science and Engineering has always been instrumental towards achieving this goal.

I take this opportunity to congratulate the editorial team of *BufferedReader* for their sincere and dedicated team efforts and hard work. I also congratulate the authors who have contributed by their thought process to make this edition a success.

I would look forward to the subsequent editions of the magazine.

D. C. Panigrahi

Dr. Chiranjeev Kumar

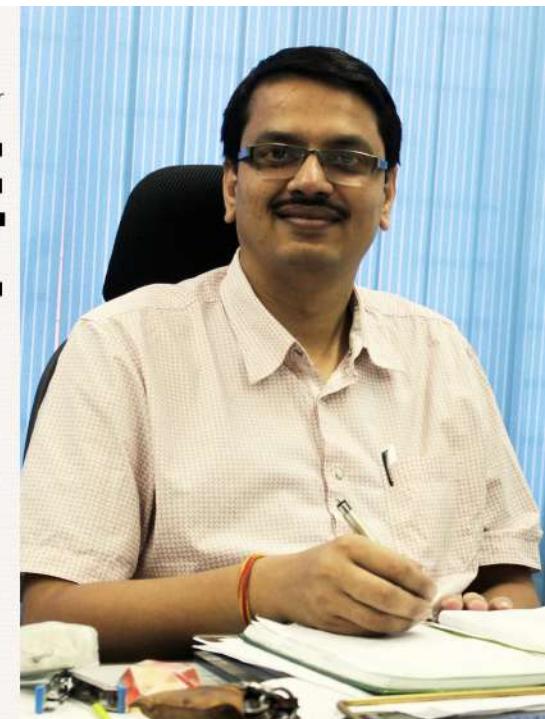
## FROM THE HEAD OF DEPARTMENT

**“**We have come up a long way, and there is for sure a much longer way to go.

**T**he Editorial Board of the Department of Computer Science and Engineering has come up with the first edition of the departmental magazine, *BufferedReader*. The name of the magazine was coined by the Class of 2014 and will always remain as a souvenir of their journey at ISM. The effort my students have put into the successful creation of the magazine, under the mentorship of my learned faculty colleagues, is commendable. I hope you will enjoy reading about the exciting things that have been happening in the Department of Computer Science & Engineering. *BufferedReader* also gives an insight into the initiatives taken by the department in order to inculcate superior virtues in the students and encourage them to reach for the stars.

It is good to see that today's generation has not lost its literary roots, despite the perpetual efforts of e-Technology to extinguish the flames of the written word. *BufferedReader* is an exceptional proof that the literary flame is burning bright within our students. They have proved that the literary prowess can go hand in hand with technical mastery, thus enabling accomplishment of the department's goal of all-round development of students.

Academics has always been our top most priority. Our motive is to produce high quality Computer Science and Engineering professionals, adaptable to the changing environment, with all-round managerial capabilities and commitment to the society. Our department has produced hundreds of professionals and has established a name for itself in the country and abroad. Our students have consistently excelled in the highly competitive industrial environment. I attribute this success to the winning combina-



tion of a dedicated faculty that works hard at imparting quality education, a well-planned syllabus and last but not the least, our students. With all the activities taking place in the department, the face of the department has changed considerably. From a number of co-curricular activities to new course offerings, the environment continues to grow and evolve.

My sincere thanks to all my faculty colleagues and my students who have contributed significantly to the success of the department and also in coming up with this edition of *BufferedReader*. I believe our *BufferedWriters* would continue to Buffer the information for Readers in future as well.

I hope we all enjoy the first edition of the magazine.

Chiranjeev Kumar

# THE EDITORIAL

The first edition of *BufferedReader* has been a product of hopes, expectations and hard work. Produced under the banner of CSES, the Computer Science & Engineering Society, *BufferedReader* is aimed at showcasing the past, present and the future of this Department.

There are many people to be thankful of, but foremost is our HoD, Dr. Chiranjeev Kumar. The magazine has been his brain-child. From recruiting us to the editorial team to finding a motive for the magazine to steering us in the right direction, the credit for the existence of *BufferedReader* goes to him.

We didn't have much to begin with. Just a publishing date and two very enthusiastic faculty advisors, Dr. Sukomal Pal and Ms. Shweta R. Malwe. Their involvement has been pivotal right from the beginning.

We see this magazine as a source for the freshers to get acquainted with their department. This idea led to the decision of including columns from our alumnus. We have planned to include two articles in every issue of the magazine, picking an older and newer alumnus from our prodigious past. For the current issue, we are honored with the words of Mr. Sakshi Gopal of 2014 batch and Mr. Anurag Anand of 2007 batch. Every issue will see a technical article from one faculty member. Prof. Prasanta K. Jana, former HoD, has contributed to this issue.

The magazine further goes on to highlight the departmental news, discussing the recent advancements. In every alternate issue, there will be a column dedicated to the recent graduates and post graduates of the department. This issue contains the memories of our 2014 batch. Besides an insight into the department, the purpose is also to talk about the rumblings of Computer Science outside ISM. As part of

which, we have a column on Tech Milestones discussing major industrial events of past 6 months. Current issue also contains a column on alternate Job Opportunity for CSEians in the field of Cyber Law.

Lastly, but not in any way the least, we have our cover story. The maiden issue portrays the story of Department of Computer Science & Engineering at ISM. There couldn't be a better way to begin than to shed light on the immense development that CSE at ISM has witnessed.

We are grateful to the contributors who decided to share with us their thoughts, arts and writings. The limitation of space didn't let us include all the articles. *BufferedReader* counts on all the members of the society to develop it with their contribution, and we look forward to see much more of them in the editions to come.

Making this magazine has been a momentous experience for us. In the issues to come, we hope to involve more technical elements from outside ISM. From the Industrial view of CSE at ISM to exclusive columns by masters of industry, the hope for future is promising.

We take this moment to thank you, our reader, for taking time out for us. We hope you find the magazine informational, educational and a fun read. And we hope you find this piece of labour worth your time and effort.

What it is, is just a beginning of vibrant times to come for this Department. This wheel, that has been set in motion, will never stop, for this path of growth is endless. The end is out of question, and the beginning has happened. We can proudly say that we were there when it began and it was us who pushed that little green button that read *Begin*.

"It's been quite some time, things have changed a lot", are the words of Prof. Amares Chattopadhyay, as he tries to recollect things much distant. "How did it all start?" is the question prompting the response from the person who has been the very first Head of the Department of Computer Science and Engineering at Indian School of Mines, Dhanbad. The story of the department begins all the way back in the year of 1997 from the very first discussion between Prof. D. K. Paul, the then Director of Indian School of Mines and Prof. Chattopadhyay, the erstwhile Head of the Department of

Applied Mathematics. Prof. Chattopadhyay, by then, had been a part of the ISM fraternity for around two decades as a faculty in the Applied Mathematics department. He had also been contributing towards Computer Technology in the institute, teaching subjects like Computer Organisation, Operating Systems and Programming Languages to post-graduate students of M.Tech in Computer Application. This course had been in place since 1988, but it was in 1997 when the need of a department offering B.Tech in Computer Science and Engineering surfaced.

ISM was already supreme in the

Hind K. Geel, B.Tech 2015

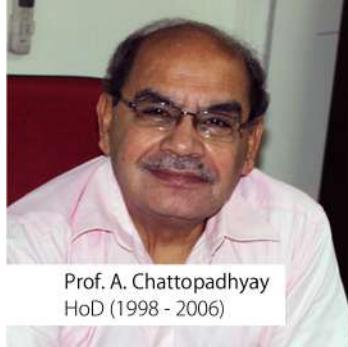
Mohit Srivastava, B.Tech 2015

## THE CSE TALE

Earth Science disciplines. The idea was to develop ISM into a full-fledged international-level technical institute, which was much easier said than done. With Prof. Chattopadhyay in mind, the Director sketched plans for a Computer Science & Engineering Department in the institute.

The planning went into fruition one fine morning when Prof. Chattopadhyay was presented the charge as the Head of the Department of Computer Science and Engineering. The session 1998-99 marked the beginning of the department, with two professors, both from Applied Mathematics discipline - Prof. Chattopadhyay himself and Late Dr. Manatosh Chakraborty. The infrastructure consisted of two classrooms, one office room and three faculty chambers. A humble start in comparison with the current state of proceedings. "The most encouraging part was the response from the students", recalls Prof. Chattopadhyay with a glow in his eyes and smile on his face as he rejoices his days that led to everything the CSE department is today. There were countless struggles in the beginning. One of the more prominent being the decision upon a course structure that would





Prof. A. Chattopadhyay  
HoD (1998 - 2006)

the decision upon a course structure that would stand at par with the IITs. The task was carried out in 1997 in association with some eminent professors from IIT Kanpur, IIT Kharagpur and ISI, Kolkata.

Until 1999, the teaching staff at the department included the HoD himself, Dr. Chakraborty along with a number of visiting professors from reputed institutes like IIT-Kharagpur; ISI, Kolkata; Shibpur BE College (presently known as IIEST, Shibpur) etc. "The students were very good, so attentive, it was a joy seeing them, so enthusiastic, even on weekends, when we invited visiting professors," says the recently retired maestro, in his chamber, happy to finally get some time off for his own research. It's not wrong to say that things were significantly different for this department at the beginning of the new millennium, at the time of its infancy with only two dedicated Computer Science Professors - Prof. G. P. Biswas who joined the department in 1999, and Prof. Prasanta K. Jana, who joined in late 2000. Both of them would later head the department, Prof. Biswas taking the reins from Prof. Chattopadhyay and Prof. Jana succeeding him.

The growth of this department has been very organic. The first few years were spent in ensuring its survival followed by an infrastructural spike in the year 2003 when the department shifted from its home in a corner of the Heritage Building of ISM to its current location. With that in place, the Department then grew in strength of its family members

from three full-time Computer Science faculty in 2004 (the other two being from Applied Mathematics), to 16 as we speak. A natural growth doesn't stop at survival; it then strengthens and ensures a successful future. Currently, the department is further undergoing infrastructural growth. Another floor is being built on the Departmental Building as well as on the adjoining Management Building. The two would be connected together via a corridor.

### Faculty Members

#### Professors

Prof. G. P. Biswas  
Prof. P. K. Jana

#### Associate Professors

Dr. Chiranjeev Kumar  
Dr. S. Mukhopadhyay  
Dr. Haider Banka

#### Assistant Professors

Dr. Hari Om  
Dr. Sachin Tripathi  
Dr. Sukomal Pal  
Mr. Tarachand Amgoth  
Mr. Rajendra Pamula  
Mr. A. C. S. Rao  
Mr. Dharavath Ramesh  
Dr. Arup Kumar Pal  
Dr. (Mrs.) Sushila V. Maheshkar  
Ms. Shweta R. Malwe  
Ms. Tanusree Kaibartta

Computer Science and Engineering has lately been one of the most successful branches of ISM. For the past 10 years, quite admirably, the placement statistics of the department is well over 80%. But that was not always the case, at least not with the first batch. The first batch of ISM-CSE graduated in the year 2002 with a strength of 20, quite a low number compared to the present final year batch strength of 107. This year was a crucial one for both the students of first batch and the department, for fairly obvious reasons. A Computer Science Department in a mining institute was a tough sell, some say it still is. Prof. Jana recalls visiting Kolkata along with Prof. Chakraborty to invite the companies

for on-campus recruitments. He went to companies like Cognizant, TCS and PriceWaterHouseCoopers. Elsewhere, Prof. Chattopadhyay went to Gurgaon, Noida, then all the way to Hyderabad and Bangalore in the same quest. Inspite of their efforts, though, the response was lukewarm. The technical companies were a little skeptical of the young academicians from a department not well known to them. The best that our professors could do was to hand over information brochures to them. 2 out of 20 got placed on campus, though with the combined efforts of the professors and the students themselves, the off-campus results were encouraging. Both Prof. Chattopadhyay and Prof. Jana have a fondness in their remembrance of the first batch, something they accept is more than just nostalgia.

The same year Prof. Chattopadhyay took a sabbatical leave in favour of some of his research at Technical University of Vienna, Austria and University of Kaiserslautern, Germany. Consequently, the headship was passed on to Prof. S. Dey, also from Dept. of Applied Mathematics. Prof. Dey acted solely as a Head of the Department. "We, me and Prof. Biswas, would give him a list of things needed by the department and he would, most generously and dutifully, convey our concerns to the Director", recounts Prof. Jana.

Revitalized from his leave, Prof. Chattopadhyay was back to India and ISM in 2003 and took up the charge back from Prof. Dey. As opposed to his "first" term, the sce-



Prof. G. P. Biswas  
HoD (2006 - 2010)



Prof. P. K. Jana  
HoD (2010 - 2013)

as any doting father who would stop holding the bicycle from behind once the child takes control, he guided the department from its infancy to a point of stable self-sustenance.

Prof. Chattopadhyay might not be a part of the CSE family today, but his contributions to the department have been innumerable. They are very well summed up in the words of Prof. Jana when he says, "This Department has been a success story like nothing else, but it could have been possible only because it had a sound foundation built in the capable hands of Prof. Chattopadhyay."

With his departure, the mantle was taken up by Prof. G. P. Biswas and the issues of inadequate number of faculty and lack of reference material were tackled. The following years saw a significant increase in the number of students opting for Computer Science and Engineering. There were successive swift additions to the faculty, namely Dr. Hari Om, Dr. Sushanta Mukhopadhyay, Dr. Haider Banka, Mr. A.C.S. Rao, Mr. Tarachand Amgoth, Mr. Rajendra Pamula, until 2010. It was the start of the era that saw Computer Science and Engineering being counted among the leading branches of the institute. Another crucial area in which the department grew was Research. The department had started the PhD programme and the first

student to complete his doctorate was in 2009. In the years to come, the department would further award 13 PhDs.

The department projected itself on the national map as it began organizing the national conference - "Recent Advances in Information Technology" in 2007. The first edition of the conference was attended by many es-



Dr. Chiranjeev Kumar  
HoD (2013 - present)

teemed professors from eminent institutes like IIT-Kharagpur, IIT-Guwahati and likewise. The conference was scheduled to be organised every 2 years, and the second National RAIT conference at ISM was organised in 2009.

International conference on Recent Advances in Information Technology, 2012



Prof. P. K. Jana, in November 2010, stepped up as the head of the department taking the baton from Prof. Biswas. When Prof. Jana joined the department in 2000, it was soon after completing his PhD. "I couldn't join the department immediately, I still had to finish up the semester's course at BIT Mesra," says Prof. Jana who has been an integral part of the department with an R&D project and three years of Headship under his name.

During his headship, Prof. Jana advocated the expansion of the department on the grounds that it was in a dire need of space. He proposed multiple plans related to the extension of the department, prepared blueprints to show the space allocation issue, and even sketched the possible solutions, which currently are being implemented. There were significant

#### Research Publications



additions to the faculty under his headship. As many as six new faculty members joined the expanding CSE family including Dr. Sukomal Pal, Mr. Dharavath Ramesh, Dr. Arup Kumar Pal, Dr. (Mrs.) Sushila V. Madeshkar, Ms. Shweta R. Malwe and Ms. Tanusree Kaibartta.

The year of 2011 marked the foundation of Computer Science & Engineering Society, with Prof. Jana acting as the founding president. The CSES was set up with a purpose to develop the environment of Computer Science in the institute as well as the department, by organising invited talks, technical seminars, industry exposure etc. "Dr. S. Laik the then Dean of Student Welfare, helped us greatly in getting through



Software Laboratory II, started in the year 2013

the intricacies of founding the society", recollects Prof. Jana.

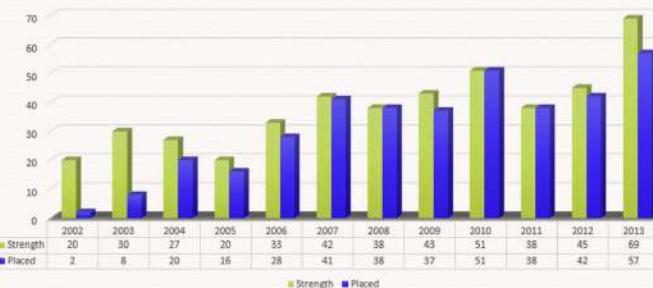
Through this period, the placement statistics kept on improving with the batches of 2010 and 2011 registering 100% on-campus placements. The leaders of the industry took notice of the department and likes of Samsung, Microsoft, Yahoo, started visiting the institute. 2013 saw one of the best placement stories of ISM when Rachna Nandan secured a job at the Palo Alto headquarters of Facebook. This is just one of many testaments of the tremendous development of CSE at ISM, though arguably one of the most telling. At present, the number of companies visiting the campus has increased. The department has a long way to go on this front. As even the most prolific batches would fall short in comparison with prominent IITs. But, the times are changing. The face of any department is its students and how they perform. The students who come to ISM are choosing CSE. The

best JEE rank to choose ISM has chosen CSE, a matter of pride for the department. More so as the recent Branch Change, which happens at the beginning of 2nd year of a B.Tech course, has resulted in 27 toppers of different branches of ISM opting for CSE.

Among the many instances of the growth of this department, the biennial technical conference - RAIT, was upgraded from national level to an international one. The first International Conference on Recent Advances in Information Technology was held in early 2012 and was attended by the leaders of computer science field from all over the world. The second edition of the international conference was organised fairly recently in spring 2014.

With over a decade of experience at ISM under his belt, Prof. Jana has seen it all. More importantly, he has devoted himself to the department in ways more than one. As an instance,

Strength and Placement Statistics of B.Tech batches over the years



S.No.	Name	Area of Research	Present Affiliation
1	Dr. Sachin Tripathi	Internet Application	Assistant Professor in Indian School of Mines , Dhanbad
2	Dr. Dheeresh K. Mallick	Algorithms Design	Associate Professor in Birla Institute of Technology, Mesra
3	Dr. Keny T. Lucas	Algorithms Design	Principal, Xavier Institute of Polytechnic , Ranchi
4	Dr. Arup Kumar Pal	Image Processing	Assistant Professor in Indian School of Mines , Dhanbad
5	Dr. Sudhanush Kumar Jha	Algorithms Design	Assistant Professor in National Institute of Technology, Jamshedpur
6	Dr. Mou Dasgupta	Computer Network	Assistant Professor in National Institute of Technology, Raipur
7	Dr. Sanjay Kumar Biswash	Wireless Networks	Postdoctoral Researcher at San Diego State University
8	Dr. SK Hafizul Islam	Information and Network Security	Assistant Professor in BITS Pilani
9	Dr. Damodar Reddy Edla	Algorithms Design	Assistant Professor in National Institute of Technology, Goa
10	Dr. Prem Nath	Computer Network	Patent Officer at Govt. of India, Kolkata
11	Dr. Mantosh Biswas	Image Processing	Assistant Professor in National Institute of Technology, Kurukshetra
12	Dr. Mahua Banerjee	Software Engineering	Professor in Xavier Institute of Social Service, Ranchi
13	Dr. Sangram Ray	Information and Network Security	Assistant Professor in National Institute of Technology, Sikkim

PhDs awarded from 2009 to 2014

the first batch was led by him, he recalls, for Industrial Training, something which both Prof. Chattopadhyay and Prof. Jana believed and still do, is of foremost importance for an engineer. "Lack of such experience can only produce bookworms", says Prof. Chattopadhyay.

In 2013, after a glorious headship, Prof. P. K. Jana retired from his duty as an HoD. He counts the introduction of reference materials for the benefit of students as one of his prominent contribution as the head.

Dr. Chiranjeev Kumar followed Prof. Jana, taking over the charge at the end of 2013. He believes in practical education and has been devoting most of his managerial powers to ensure that the students don't have anything to long for, for their rightful education. With the expansion of three of the most frequently used labs of the department he knows what he is doing. Today, it comes as a relief against the stifling of small and overflowing labs but this was not always the case. As department grew from less than 100 students in 2002 to its current strength of more than 400, the once abundant lab space became scarce. Not only the labs but

the department itself became constrained. The space constraint is highlighted even more with the ever increasing count of faculty members. The faculty count clocks at 16 as we speak and both Prof. Jana and Dr. Kumar believe that the department needs more.

The new HoD believes that the strength of any academic department lies in its students, and ours is no exception. With time, Department of CSE at ISM has grown on to be counted among the most popular of the institute and a significant credit

#### International Collaboration

The department has recently signed a Memorandum of Understanding (MoU) with the University of Tunis and The Director of the National High Engineering School of Tunis (ENTIS). The major highlights of the MoU include exchange of students and teachers, development of joint courses, collaborative research, exchange of research information, organisation of joint academic and scientific activities such as courses, conferences, lectures, etc.

goes to the students. On the flip side, Dr. Kumar asserts, "The weakness of this department is also the students. I see bright and energetic students joining the department in their first year but they lose their fervour. I see students not living up to their potential which needs improvement". As a matter of fact, the department is doing its part to ensure that students get to reap the most out of their calibre. "As HoD, my objective is to develop the department so that it could provide the best infrastructure to the students as per their expectations" reasons Dr. Kumar, "I believe the only reason why a student does not live up to his potential is due to a lack of platform. I also understand that the coding culture in our department needs to be more enthusiastic."

Asked about how he feels about his new role, the visionary says, "I'm very happy to have been given this opportunity. I had many plans when I came here in 2005 and I feel happy to be given this chance. It's my time to shape up the department."

Mohit Srivastava, B.Tech 2015

# THE INTERNS' EXPERIENCES

One of the most incredible times of a student's life is his/her Internship - a chance to taste the dream job, to meet the leaders of your world, to experience how exactly the organizations function, and most importantly to be a part of something extraordinary. Those times don't come very often in one's college life. I had the opportunity to ask some of the final year students of CSE who completed their internships this summer at the most amazing places for engineers in India, to share their experience and with us.

## How did you get interested In Computer Science?



I had no background of Computer Science until I reached ISM. But I loved mathematics and logic. My teachers at my coaching institute in Kota told me that Computer Science is closely associated with mathematics. That's the major reason I chose Computer Science as my subject of study.

When you see the amazing applications of Computer Science around you, it surely seems interesting. And I had also taken up Informatics Practices as a subject during 11th and 12th standard, so I had some idea of what would I have to do if I take up Computer Science as my field of study. So, I opted for this branch.



Ankita Yadav, B.Tech 2015

A *BufferedWriter* herself, the only one in the batch to earn an internship at Microsoft.



Hitesh Sharma, B.Tech 2015

One of the 7 students to get a Pre Placement Offer after his internship at Samsung R&D Institute, Bangalore.

## What were your initial thoughts when you came to know that you were going to your respective companies?



I was glad to know that I was selected for internship at Samsung and was very enthusiastic to have a taste of corporate world.



I had heard a lot of good things about Microsoft. So, I was pretty excited! Since the whole selection process took really long, I had a sense of relief too that I had finally achieved it!



I was looking forward to my first industry experience. I was eager to know how computer science fundamentals could be applied to real-world applications.



I was excited that I was going to be a part of international work culture. I was pretty sure that we will be working in a core networking field and my expectations were met.



## What were the projects that you were assigned? Give us a high level description.



My project was Differential Encoding for Web Based Services. My task was to design and implement a client server communication in which client requests for a latest version of a file from server. Server computes a compact

and invertible encoding of the latest version of said file compared to an older version of the same. This encoding, called delta file, is done using the VCDIFF data format. Client reconstructs the latest version of the file using the received delta file and the older version that it has.

I was an SDE intern at Microsoft. My team was concerned with the development of a Bing app named Health and Fitness. My project required me to enhance the GPS tracker of this app. The tasks included plotting path based on GPS accuracy, displaying splits on the map, adding fastest and slowest splits in the splits table.



I was assigned a project on Carbon Testing. Carbon is a testing platform developed by Amazon primarily for UI tests. My team was working on Product Customization which allows users and customers to customize products that are sold at Amazon and develop their own designs. They had prepared an interface to assist Amazon customers with product customization features thereby increasing the variety of products being sold at Amazon. My task was to prepare a set of automated test cases to check the entire functionality of the UI. I authored the test plan and coded all the necessary positive and negative test cases. Coding was mostly done in Java alongwith Graphite API. I was also assigned the task of preparing automated and manual tests for Question and Answers on the UI.



Shashank Kumar Tiwary, B.Tech 2015  
One of the two interns at Arista Networks, Bangalore



## What was the best part about working with your team, and your manager?

The best part was that I never felt like an intern there. At Microsoft, they treat interns like full time employees (but of course, you have got lesser work than them!). They listened to my ideas and discussed them thoroughly. Being an intern, you can ask as many questions as you want. They would patiently entertain all your queries. My manager was a really hard working person, so he was an inspiration.



I was working on a project named Reservation of ACL Entries and in-place replacement of ACL. It was something related to routing of packets from one network to another network. ACLs are Access Control Lists which consist of certain set of actions/rules to decide whether to drop or permit a packet. The rules of ACLs are loaded onto a TCAM memory which is embedded in routing switch. My task was to add a reserve keyword in ACL to allow the addition of rules once the ACLs are loaded onto TCAM memory.



Gourav Pathak, B.Tech 2015  
The first ISMite to get a Pre-Placement Offer at Amazon.com after working as an Intern at the Hyderabad office.





I got acquainted with synchronised team working and learned the importance of sharing responsibilities and proper knowledge flow among team members. Managers at Arista were amicable and had clarity in direction. The work culture at Arista was very nurturing and the employees were very frank and straight forward in their know-how.

## What's something you've accomplished during your internship that you're most proud of? Or something you're looking forward to working on?



While doing my project, I realized that the theoretical subject Software Engineering which I mugged up for the exam is so important in software development. I did my project phase wise exactly as software life cycle. Starting with requirement gathering, then design, then implementation and finally testing. Doing the project in such an organized way was really a good learning experience.

Well, I was lucky enough because I had to start my project from scratch. Amazon has a huge code base and wide range of tools that are difficult to master in a period of 2 months. The Carbon Platform which I was working on was extremely new to me as well as to Amazon (It was built just around 9 months ago). None of my team mates had previous experience of this platform. So it was my task to give them a deep-dive on this testing platform. It was quite interesting to guide engineers who had been working there for quite some time. During my internship period, I came across a very interesting project which was to design a search engine for the Customizable products. It would require a great deal of analytical power and programming skills to complete that project. I am looking forward to provide my inputs on it.

## What is your favourite part of the offices you worked at?



Phoenix building of Samsung is wonderful. Cubicles and meeting rooms are well organized, making environment quite enjoyable. The Cafeteria of the 4th floor at Phoenix is the best I like at Bangalore office and wish I'd get a cubical at 4th floor next year.

I liked to play with fellow interns. Foosball and pool were new to me, so I enjoyed it. And I also liked the concept of Mother's room where you can go and sleep to take break from your work.



My favourite part of the Amazon office was the pool table and Xbox gaming centre. We used to chill out at these places during evening.

Happy hours, which serves as an interaction period for employees and are basically treats given by some employees which is conducted on each Friday.

## What is your dream job, and city if any?



Google, Mountain View.



My dream job is to work with companies like Google, Quora or Facebook. I am not quite into open source programming or web designing and development. I am more fascinated to work where elements of competitive programming, mathematics and algorithmic development and optimization are involved.



My dream job would be working for a company which has a good work culture, where the job is exciting, rewarding and the future growth prospects are strong.

I don't have a dream job as of now. To begin my career I would like to join a company where I can get a good project to work on and learn as much as I can.



Ankita Yadav, B.Tech 2015

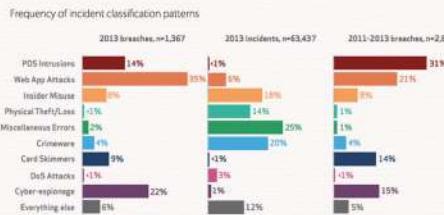
# THE ROAD LESS TAKEN

## Cyber Law

**W**hat am I going to do after I graduate in Computer Science and Engineering? As common this question is, so is the answer – become a software engineer! But is that all we can do? Certainly not! We have lots of options lined up after graduation. The most popular ones are MBA, IAS and more.

Why not become a Cyber lawyer? With the drastic increase in the number of cyber-crimes committed in the country over the recent times, the field of cyber law in India is gaining immense popularity, as there is a huge demand for skillful cyber lawyers in India today. According to National Crime Records Data for 2012, cyber-crime cases in Kolkata have shown an increase of 1033.3% in 2012 compared to 2011 [TNN, June 26, 2014] and similar is the case with other cities.

The report compiled by Verizon's security arm every year for the last decade, finds that 97 percent of crimes fall into nine categories of security breaches, including point of sales intrusions, web page attacks, cyber espionage, insider misuse, card skimmers, DoS attacks, crime-ware, miscellaneous errors and physical theft. The figure below shows the frequency of incident classification patterns.



At present, there are several unresolved cases and different types of cyber-crimes in India, the most popular ones being hacking into personal accounts and funds, the spread of virus, stalking and cyber wars, cyber terrorism, cyber credit card frauds and morphing.

Cyber law is an area of law which represents all the legal issues regarding the Internet, and governs all aspects of

the Internet and cyberspace, along with dealing in legal cases regarding software patents, net banking etc. Cyber lawyers conduct regular investigations on the major cyber-crimes that are prevalent across the Internet. With the increase in cyber-crimes against individuals, organizations and the government via the Internet today, there is a growing need for strict cyber laws in the society.

For those interested in opting for a career in cyber law after graduation, there are various diploma courses available. Having a diploma will fetch you a job but won't allow you to practice as an advocate in the courts. One first needs to have an LL.B degree and then can specialize in Cyber laws.

Several premier law universities in India such as NALSAR, Hyderabad; Amity Law School; Symbiosis Society's Law College, Pune; Asian School of Cyber Law; Indian Law Institute, New Delhi and several other colleges offer post-graduate and diploma courses in cyber-crime laws. Students who would want to get an insight into the actual work could do so by working as an intern, which would enable them to gather some valuable information and experience in the field of cyber laws.

Experts suggest that some of the skills required to become a good cyber lawyer are good observational, practical and analytical skills. Tech savvy and an in depth knowledge in computers and software are a must too. It is extremely important for a cyber-lawyer to be well read, and well updated with the current happenings in the field of technology and cyber crimes. The job profile of a cyber-lawyer is interesting as well as challenging, all thanks to the anonymous nature of the Internet which makes the tracing of cyber criminals all the more difficult.

Coming to the pay scale, in tier 1 law firms, the actual salary may range between 10-15 lacs per annum. In tier 2 law firms, the salary may range between 5-10 lacs per annum. Working with reputed law firms could get you a rewarding pay. The remuneration demanded by cyber lawyers vary with respect to one's experience and skills.

As a cyber-lawyer, the career opportunities are tremendous and it is definitely a lucrative career option. After a Masters in Cyber law, you could work as a cyber-consultant, research assistant, or advisor in some of the leading law firms, banks, and in corporate organizations. A diploma in cyber laws is considered an added advantage in the field of information technology. The requirement for professional cyber lawyers will continue to grow, as there will always be a need to tackle crimes on the Internet.

# BIG DATA AND CLOUD COMPUTING

A Conjoined field of Current Research

## Preface

There is a tremendous growth of Information and Communication Technology (ICT) and many fields are emerging with the help of ICT. However, big data and cloud computing are conjoined as the most important area of study which has taken the top position of the current research in the Gartner cycle. There is lot to say about the topic, however, in this small article, I have little scope to discuss all the issues and I have thought of restricting to an overview of big data, its importance, its relationship with cloud, big data initiative and some challenges.

## Big Data and Big Data problem

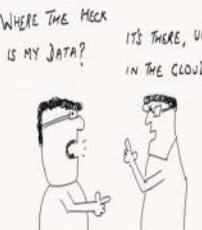
With remarkable growth of social media, Internet of Things (IOT) and multimedia, there is an explosion in generation of massive volume of data. For examples, around 267 million transactions are made per day in Wal-Mart's 6000 stores worldwide, above 3 billion pieces of content are generated on Facebook every day, a large synoptic survey telescope can record 30 trillion bytes of image data in a single day, 32 petabytes of climate observation data is conserved in the NASA Center, FICO's falcon credit card fraud detection system manages over 2.1 billion valid accounts around the world. We refer here such massive volume of data as big data which is structured, semi-structured or fully unstructured in nature. But how can we define and characterize big data? Well, it is defined as a collection of very huge data sets with a great diversity of types so that it becomes difficult to process by using state-of-art data processing approaches or traditional data processing platforms. It is characterized by high-volume, high-velocity, high-variety, and high-veracity generally known as 4Vs. Volume indicates the size of the data set, velocity is the speed of data in and out, variety means the range of data types and sources and veracity indicates uncertainty of data. Big data is transforming healthcare, science, engineering, finance, business, and eventually, the society and drawing enormous attention from academia, government, business and industry. We are in the era of data-intensive computation which has been shifted from compute-intensive applications. There is an urgency to analyze this massive amount of data to discover certain knowledge for the benefits to the society, business people and industry. For instance, processing big data to infer, reserving informative patterns and knowledge can provide the public sector a chance to improve productivity and higher levels of efficiency and effectiveness. European's public sector could potentially reduce expenditure of administrative activities by 15–20



percent, increasing 223 billion to 446 billion values, or even more. This estimate is under efficiency gains and a reduction in the difference between actual and potential aggregate of tax revenue. These functionalities can speed up year productivity growth by up to 0.5 percentage points over the next decade. However, the major challenge for researchers and practitioners is how to analyze the data with the traditional models, platforms and computing paradigms. It is right to say that big data will revolutionize many fields, including business, scientific research, public administration, and so on.

## Cloud computing and Big Data

Cloud computing has become one of the most significant technologies which is best suited to solve big data problem. The advantages of cloud computing include virtualized resources, parallel processing, security, and data service integration with scalable data storage. Cloud computing not only delivers applications and services over the Internet, it has also been extended to infrastructure as a service (e.g., Amazon EC2), and platform as a service (such as Google AppEngine and Microsoft Azure). Another advantage of cloud is its storage technology which provides a possible tool for storing big data. Cloud storage has good extensibility and scalability in storing information. Cloud computing provides the underlying engine through the use of Hadoop, a class of distributed data-processing platforms. Big data evaluation is driven by fast-growing cloud-based applications developed using virtualized technologies. Therefore, cloud computing not only provides facilities for the computation and processing of big data but also serves as a service model.



## A Big Data platform

Hadoop is an open-source from Apache project written in Java that provides the distributed processing platform for large datasets across clusters of commodity. Hadoop has two primary components, namely, HDFS and MapReduce programming framework. HDFS and MapReduce are closely related to each other and co-deployed to produce a single cluster. HDFS is a distributed file system designed to run on top of the local file systems of the cluster nodes and to store extremely large files suitable for streaming data access. HDFS is highly fault tolerant and can scale up to thousands of machines, each offering local computation and storage. On the other hand, MapReduce is a simplified programming model for processing large number of datasets pioneered by Google for data intensive applications. The MapReduce model is adopted through open-source Hadoop implementation, which was popularized by Yahoo.

MapReduce allows an inexperienced programmer to develop parallel programs and create a program capable of using computers in a cloud. Map/Reduce works in divide and conquer approach. In terms of Hadoop cluster, there are two kinds of nodes, master nodes and worker nodes. The master node takes a complex problem as input, divides it into smaller sub-problems, and distributes them to worker nodes in Map step. In the Reduce step, the answers of all the sub-problems are collected in the master node which combines them to form an output as a solution of the entire problem. Apart from the MapReduce framework, several other current open-source Apache projects are related to the Hadoop ecosystem. Hive, Hbase, Mahout, Pig, Zookeeper, Spark, and Avro are quite a few popular names among them.

## Big Data Initiative

Wal-Mart recently collaborated with Hewlett Packard to establish a data warehouse which has a capability to store 4 petabytes of data, tracing every purchase record from their point-of-sale terminals for competitiveness. There are almost 3 terabytes of data collected by the US Library of Congress for public administration. The Obama administration announced the Big Data research and development initiative in 2012 to investigate important problems faced by the government by making use of big data. The initiative was constitutive of 84 different Big Data programs involving six departments. The similar thing also happened in Europe.

## Big Data challenges and research

Solving big data problems on a cloud environment is not trivial or straightforward as there are many challenges such as availability of a service (e.g., network links/bandwidth), data confidentiality (security risks), energy (data centres consume huge power), parallelization application, visualization and so on. Many scientific fields including astronomy, meteorology, social computing, bio-informatics and computational biology have already become highly data-driven as they generate large volume of data with various types. How to probe knowledge from the data produced by large-scale scientific simulation is certainly a big data problem for which the answer is still unsatisfactory and unknown. For developing big data techniques and tools, there is a need to involve a number of disciplines, including statistics, data mining, machine learning, neural networks, social network analysis, signal processing, pattern recognition, optimization methods and visualization approaches. There is lot of research scope to use such techniques in the environment of cloud computing. An enormous scope is also there to improve Map-Reduce or its application to solve big data problem over clouds. We need join our hands to carry out very significant research to make big data and cloud computing really an emerging field of computer science.

## WORDS FROM FACULTY

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The one exclusive sign of thorough knowledge is the power of teaching.

Aristotle

The pillars of any department would definitely be its faculties who have not just nurtured and groomed young minds, but have also played a vital role in shaping their futures. The *BufferedWriters* decided to visit the faculty chambers one fine afternoon to interact with the faculty members and share their experiences with the student community.

For most of our faculties, their experience at ISM has been exhilarating, while for some it is a mixed one. "My hometown is Dhanbad. It's a little co-incidental how it all fell together, but I am really happy it did. It couldn't have been a better chance for me to be back to my hometown", says Chiranjeev Sir. Haider Banka Sir, who is now one amongst the senior most faculties, believes that ISM has a salubrious environment and has stored within itself a lot many opportunities to be explored. "Well for me, certainly, the best day was when I got my job at ISM", remarks Tarachand Sir. "ISM has provided all of us with an opportunity to grow and develop", believes Rajendra Sir. "The department is good. In terms of conferences and workshops we're doing really well", says Sushila Maheshkar Ma'am who is the first female faculty member of the department.

"The first interesting thing was the campus, the two fields seemed very interesting to me", says Sukomal Pal Sir. "So are you very much into sports, Sir?" we asked to which he smiles and says, "I love sports. The kind of sports infrastructure we have at ISM is certainly commendable". "Research has been given importance at ISM. And without research an institute is not focussed", adds Arup Sir. Tanusree Ma'am couldn't agree more. "Especially for research the environment at ISM is very good", she says.

"The students at all the levels are good but I like the undergraduates more", says Rao Sir. "Computer Science stu-



dents are no doubt the best", says Ramesh Sir who seems very proud of his students. At the same time he emphasizes that the students should focus on channelizing their thoughts in the right direction. Hari Om Sir & Tarachand Sir assert that the students should maintain a decent GPA and take their projects seriously so that they don't face any difficulty during placements. P. K. Jana Sir is of the opinion that one faculty should take up only one subject and try to achieve excellence in the same. He is backed by Chiranjeev Sir who believes that teaching more than two subjects dilutes the effort.

It is a lesser known fact amongst the student community that Shweta Ma'am has been a student at ISM before joining the department as a faculty member. "As a student you must have vouched for your friends by faking a proxy. So now when someone does the same in your class, how do you react?" we asked Shweta Ma'am. She smiles. No wait, she laughs and then she says, "I believe that the students need to be warned once before any action is taken against them."

Well certainly, our faculties are doyens of their respective fields. So the *BufferedWriters* asked what according to them could be the next big thing in the software industry. "There is a huge scope for inter-disciplinary research, particularly at ISM, given the technical prowess of the Earth

Science Departments. This would bring entire ISM under one roof as far as research is concerned", says Haider Banka Sir. Sachin Tripathi Sir believed that the next emerging area in the IT sector is the development of secure e-commerce applications especially for group-ware communication among heterogeneous devices. "We're moving towards wearable computing. We have seen Google Glass, Samsung Watch etc. Since things are getting smaller and smaller, the algorithms governing them should be designed in a time and space efficient manner", adds Sukomal Sir. "Cloud computing would take the responsibility to merge the multi-disciplinary areas of engineering and science", said Ramesh Sir. "Much research is being done in Big Data and Cloud Imaging. So in next few years, these would definitely boom up", added Sushila Ma'am. While Tarachand Sir believed that the next big thing in the IT sector would be evolutionary networks, Arup Sir asserted upon the need to secure the internet based applications, specifically, those concerned with e-commerce. "People are moving towards Hadoop. So how the Big Data will be handled in near future will be a topic of important concern", said Rao Sir.

Much good work has been done in ISM in recent years, but there is always a scope for improvement. When we asked our faculties what changes they would like to bring about in ISM, their responses somewhat overlapped with what

the student community cogitates. While some believed that ISM should be an IIT, others highlighted the need to upgrade the infrastructure so as to make ourselves more adept to compete with our counterparts in other good institutions. "As a Computer Science faculty I believe that we should take up the initiative to make ISM a completely Wi-Fi enabled campus", added one of our faculties. Many faculties appreciated the good work that has been done in the department in recent months. "Infrastructure wise the department has strengthened but now it will be equally important to maintain the standard", says one of our faculties. Some faculties also highlighted the dire need to upgrade the hostels. They believe that the annual intake has increased drastically in past few years, consequently making it necessary to build more hostels. Biometric attendance system for students is one major change which our faculties would like to see in upcoming years. The class size has increased significantly, making the current system of taking attendance cumbersome and time consuming, they believe. "Facilities like access to Computer Centre and Library should be made available to students round the clock", added one of our faculties.



# TECH MILESTONES

Janmajai Rastogi  
Ashay Sinha

Researchers at the Georgia Institute of Technology have paired a small humanoid robot with an Android tablet, enabling children to easily program the robot to play Angry Birds. The robot observes how the child plays the game and then mimics the movements, celebrates when it scores points, and even adjusts its playing strategy.



University of York researchers have developed Facelock, a password system based on the psychology of facial recognition they say could make conventional passwords obsolete. Humans can recognize familiar faces across a wide range of images even when the image quality is poor. Facelock exploits this psychological effect to create a new type of authentication system.



The success of D, a programming language some see as the successor to C++, has surprised even its creators. D is now being used and its development is supported by Facebook. D seeks to blend the speed and power of languages like C++ and Java with the ease of use of interpreted languages like Ruby and PHP.



Apple's recently announced Swift programming language has several features that are likely to give it a leg up. The new language is fast, seeking to balance the speed and power of compiled and interpreted languages. It also includes a feature called Playground, which enables coders to see the changes they make to their software implemented in real time as they alter the code.

A million users, excluding developers, will be able to access Apple's new operating system in beta version. OS X Yosemite will be available to the first million who seek to download it. Apple says the new release in public beta will give users the opportunity to report bugs and other issues to Apple ahead of the OS X Yosemite official release date.

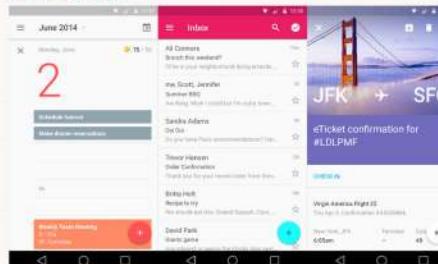


**H**E**L**I**X** **B**U**L**A  
**T**H**E**S**C**I**N**E**C**LOD  
THE SCIENCE CLOUD

The European Union's HELIX NEBULA (HNx) project, completed in May, offers a cloud platform that will enable research collaboration among scientists by allowing users to easily buy, use, and manage cloud services. The platform will enable researchers to outsource computing storage needs to remote facilities in the cloud, making data accessible to other scientists.

The Google I/O 2014 was exactly like we expected and brought us a lot of cool stuff, stuff which was enough to generate tons of discussions. Since the event is now a part of the past, we decided to make a short top and talk a bit about some of the most important moments of this year's show. Let's begin, shall we?

## Android L



By far the most expected moment of I/O 2014. Google took everybody by surprise with the name of the operating system, as all the rumours were pointing to another name inspired by a dessert – Lollipop, to be more specific – but they made things simpler, calling it just L. With a fresh new flat look, improved search functions, better battery life and interactive notifications, Android L is available just for developers right now, while the final version will be released this fall.

## Android Wear



Announced a few weeks ago, the operating system designed especially for wearables, Android Wear made its first public appearance on LG and Motorola's smartwatches, G Watch and Moto 360. Also, Samsung surprised us by releasing an Android Wear device too, the Gear Live. All of them will be sold for price between \$199 and \$249.

## GOOGLE I/O 2014

### Android TV



android TV™

The new software runs on your TV or third-party set-top box and it's basically a combination between Chromecast and Apple TV, using voice search and allowing you even to play games on it, using auxiliary controllers. And yeah, you can go for multiplayer too, directly on your TV, while your friends play the game on their phones. It's going to run on Sony and Sharp TVs for the beginning, but we're definitely sure that other big brands are going to adopt it too.

### Android Auto

android auto

Google is almost everywhere and until the end of the year it will be in your car too, if you're driving a Dodge, Chevrolet, Chrysler, Audi or a Bentley. Android Auto is going to be accessed through your car's dashboard and let you use apps like Spotify, Songza or Pandora. Of course, voice search is going to be included too and it should support touchscreen controls too, but only when your car is stopped. Ok Google, I'll definitely let you control my car.



The banquet hall at Hotel Premiere Inn was swarming with people mingling and the entrance of corridor leading up to it bore a screen which read "Welcome ISM-CSE Alumni."

Among the people were Dr. Chiranjeev Kumar, the Head of Department of Computer Science & Engineering at ISM Dhanbad and a beaming crowd of more than 80 students both new and old. The city was Bangalore, The date was 14th June, 2014 and the event was an Interaction Programme with Alumni organised by the Computer Science & Engineering Society (CSES) of ISM.

In the words of Dr. Chiranjeev Kumar himself, if there is one thing that the Department of CSE lacks and yearns, it is a sense of integrity, a family. As such, the industrial reach at the time of placement season, the true barometer of any academic department in India, gets limited, so does an expert counsel to the students when post-graduation world looms close. From a meagre 10% on-campus placement of the

Hind K. Geel, B.Tech 2015

# RENDEZVOUS

An interaction programme with our alumni

first batch in 2002 to more than 80% in recent times, the Computer Science students of ISM rise and shine and at places countless. So why is it that the students drift away?

The city of Bangalore houses more Computer Science Engineers than any other city in India. The pre-final year students were, as a member of the society, given the charge of handling successful organisation of the event, from venue to invitations. Little did they know that the Alumni would be so supportive. They knew that an Alumnus from Pontiac, Michigan or from Tokyo, Japan would have a hard time showing up but what they didn't know was that people from Kolkata and Mumbai would show up. It was nothing short of overwhelming.

In the short span of time, of all the Alumni they tried to contact, more than 100 responded and around 50 of them agreed on coming. This number might stand low in front of the total Alumni strength, but to begin locating all of them from their years-old mail-ids and nothing else was no easy task. With the venue decided and the date set, Dr. Chiranjeev Kumar flew in to the city of Bangalore along with Mr. Tarachand Amgoth, Assistant Professor of the department.

The banquet hall was swarmed with more than 80 people ranging from the grads of 2006 to current students. All the gleeful faces mingled and talked about their Alma mater. But as was the plan from the very first thought into the organisation of

the event, it was not only about having a cup of tea with the Alumni. More than anything it was about ensuring the development of the department with an integral role of the Alumni. Beginning with some photographs of the department and highlighting some infrastructural changes to it, swiftly and eventually Dr. Kumar came onto the role of Alumni to the department.

The first slide to the initiation read "Help us and yourself". For he knew that the former students can benefit themselves from being associated with a department which has its roots at places and industries as diverse as it comes. The ensuing session was more than a presentation; it was a panel discussion. The agenda, front and centre, was to make the Alumni a part of CSE-Society and to plant the seed for a perpetual engine of growth driven not only by the students and faculty of the department but also by the Alumni.

The participation from Alumni was remarkable. Dr. Kumar would roll one proposal after another and the former students would suggest changes as they believed apt.

## Alumni Affairs Team

It was decided that a committee will be formed to spearhead on the matters of Alumni Association to the department. It would comprise of:

- HoD as the President,
- An Alumnus as Vice-President,
- Two Faculty In-Charges,
- One Student Representative from UG & PG batches each.

The attendants reacted in affirmative unison. They believed that a hierarchy will have to be set up, and that a point-of-contact is necessary from Alumnus's point of view. They also believed that, it would be much more efficient if more than one Alumnus be a part of the team.

Further, the discussion led to the conclusion that every batch of the Alumni needs to have a point-of-contact of its own, so that the flow of

information is systematically easy.

The Alumni Affairs Team is in its initial stages of working, with a view to put the crucial missing cog, that of Alumni, in this mega machinery.

## Mentoring Alumni

The proposal was that the Alumni should take under their care one student each year, whom they would groom from inception to launching into a successful post-graduation life. The idea is for the Alumni to be an Industry mentor to students. Of all, this proposal received the most discussion and most applause.

role would range from mentoring students to helping the department sign MoU(s); from being a guest speaker on an invited talk to being part of BoCS (Board of Course Studies) for deciding more industry friendly subjects for students to being the event sponsors of Society-events.

In detail and steadily, all the points were taken up, discussed and concluded with necessary changes. The Alumni were asked to be a part of the CSES not only in speaking but also through registration, something they were most happy to do. It was



left onto them to come up with a registration fees as they deemed fit.

It was never a struggle as some thought. The one very small, but relevant, need of the hour was the initiative which the HoD took. What ensued on the night was a mere beginning of what is to come along with the more glorious days for the department. But it was important because every journey begins with a single Step.

Suggestions from former CSEians ranged from categorizing student allotment on the basis of common interests of a student and an alumnus to whether or not the task should be enforced on all the Alumni.

The Alumni were successful in convincing Dr. Kumar that any pairing between a student and an alumnus will have to be based on their common interests.

Lastly, everyone opined that besides a one-to-one correspondence, students should have a platform to contact any alumnus and vice versa.

## Miscellaneous Proposals & Suggestions

The role of alumni is prominent in the bright future that HoD has planned for the department. Their



Saurav Kothari, B.Tech 2015

# ADIEU

Fare thee well in thy travels, and may by fate we meet again.

**I**t was that time of the year again, the time of goodbyes and farewells, every journey comes to an end, and so did this, a journey spanning a few years on the calendar, and a lifetime in the minds.

The Computer Science and Engineering Department of ISM Dhanbad celebrated its Annual Farewell Program for the 2014 batch on the 4th of May, 2014 at Penman Auditorium. Like always, it started off on a happy and chirpy mood and gradually descended to a sea of nostalgia and emotions. The invitations had been sent out a day in advance and the final years were all ready - dressed up in formals - for though they call it farewell, it's actually a night to get together and at this time of the year, nothing excites them more than that.

The Pre-Final Years decided to make this a grand event from the very beginning and reached the final year hostel with a dhol and the entire hostel was echoing with the sound of the beat. Final years were gathering around and

everyone started dancing. It was a sight to behold and cherish. Very soon everyone had gathered and it looked nothing short of a procession, a grand one at that with hundreds of students dancing their way to Penman. Passers-by stopped to look at the merriment for in that moment, everyone was dancing with no care in the world. Placements, internship, companies... everything took a backseat and they just let themselves loose.

Penman was all lighted up for the occasion. Shubham Chauhan & Prachi Chauhan of B.Tech 2nd Year and Gaurav Singh & Jyoti of M.Tech 1st Year took responsibility of hosting the event. The evening started off with a song for the almighty which was beautifully sung by the girls of 3rd Year. Then Abhishek from 1st year performed a breathtaking solo dance. The final years were being called between performances to collect their mementos and answer the prank questions that had been exclusively made for them. The questions put some of them in really awkward positions and the scene that followed used to be



hilarious. The saga of performances continued with Utsav Kumar's solo song, Rishabh Kumar's comic mime and a dance by Tripti. Satya Yadav with Saurav Kothari on the guitar gave a performance that set the mood of nostalgia to its zenith.

As the program came to an end, we had our Professors come up and speak about their experiences with the 2014 batch and also share some words of wisdom for them as they were about to step out into a different world. Deepika Ma'am and Vijay Tripathi Sir were awarded the titles of Miss Farewell and Mr. Farewell respectively. The vote of thanks marked the end of the evening and everyone proceeded to dinner in the GJLT Dome. People mingled, clicked pictures and no one wanted to leave as something of this sort was never going to happen again.

It was the night that everyone was looking forward to and dreading simultaneously. For everyone knows that parting ways is unavoidable, but we prefer to live in our state of delusion of not accepting reality until its real enough to not be ignored and that night gave form to this thought. It reminded them that the time was near and the faces they have become so accustomed to seeing, will very soon be the faces they will long to get a glimpse of.

This overwhelming emotional outpour was not restricted to the final years alone, for they were parting ways not just with each other, but also with the department that shaped them, the faculty that taught them and the juniors that

they never ceased to love, guide and befriend. Everyone was going to miss everyone else. But it was inevitable and had to happen. With this understanding and hope for the future, everyone receded back to their hostels to mark an end to another generation of the CSE Department.



Miss Farewell, Deepika Ma'am (left) and Mr Farewell, Vijay Sir (right)

**H**ow difficult can it be to adjust to a new job after graduation? We have all the skills the job profile asks for and even more. We are young, full of energy and excitement, ready to tackle anything that is thrown at us. What could we possibly need to be aware of before joining this fast paced industry?

We asked these questions to Sakshi Gopal Sir, 2014 batch. With 2 job offers on his plate towards the end of his engineering, he had to decide between joining a company with big guns and deep pockets or a startup that would provide him the opportunity to grow like no other. He decided to opt for the latter and joined CommonFloor this July. He believes that the industry is something that none of us truly understand before we join one, and has decided to share with us some very important pointers we should take care of as we dream and prepare to be a part of it.

1. You need to update yourself day by day, hour by hour, second by second too. You must challenge all the tasks as the day you stop doing that, you stop

growing, and given the rate at which technology is evolving, you might very soon be an obsolete entity.

2. Groom your communication and aptitude skills. Professional communication, both written and verbal, hold very important positions in a job. There will be no exam at the end each term. Its how well you perform and how well you communicate that decide your progress.

3. Adjusting to a new place is a difficult and daunting task. Be prepared to struggle in the initial days, especially if there happens to be a language barrier.

4. You must learn professional etiquettes. The kind of relationship you have with your colleagues is very different from what you have with your friends in college. You must know the difference.

5. Change of attitude. There is no place for the "chalta hai" attitude in a job. Sub-standard performance is not welcome and not appreciated. Learn this before anyone has to tell you to.

6. Competitions get more serious. While in college, you only have to prove your mettle during the exams, or interviews. But in a job, you are being evaluated every day. Be prepared for this.

7. You don't get to choose your peers. Most of us live our lives being judgmental of people and being picky about who we talk to. But this behaviour is childish and cannot be continued once you join a job. You must be mature enough to respect differences and leave petty judgements aside.

8. Deadlines need to be dealt with seriously. No matter how well you think you could finish it in the last moments, always aim to complete the task in advance. There will be a lot of obstacles that will need to be handled and procrastination should not be one of them. Leave it at home.

9. Guard your reputation. I cannot stress enough on the importance of this point. It is easy to get

away with embarrassments in school/college but not in the industry. Any foolish move will become an indelible part of your record.

While this paints a grim picture of what the industry looks like, this is not the whole picture. You will be amazed by the brilliance of people you will meet and the technology you work on. You will get to build and work on things that have fascinated you since childhood. You get a chance to grow into the person you have looked up to in college. And nothing beats the satisfaction you attain when you see a product you worked on helping someone in their lives. Its our own little way of giving back to the world.

# ALUMNI PEN

Sakshi Gopal, B.Tech 2014

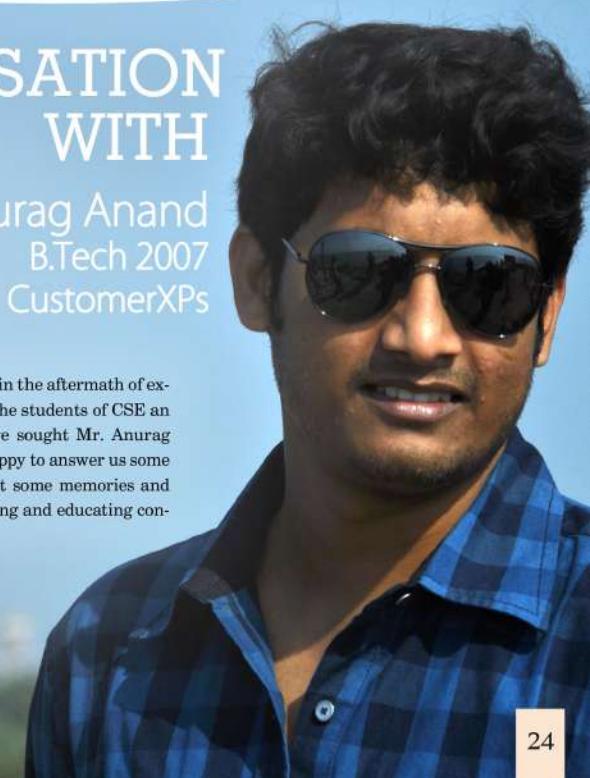
CommonFloor



## IN CONVERSATION WITH

Anurag Anand  
B.Tech 2007  
CustomerXPs

**H**ollow are the words, which do not speak in the aftermath of experience. Buffered Reader aims at providing the students of CSE an audience with their alumni. In the quest, we sought Mr. Anurag Anand of 2007 Batch. Anurag Sir was most happy to answer us some questions compiled and conjured to bring out some memories and his priceless experience. Savour the reminiscing and educating conversation after the jump.



**Q.** Over the years, how much has the opinion of people changed about ISM (especially Computer Science Engineers of ISM)? What can we do to make this change more swift and favourable?

At the time we graduated, industry had still not heard of ISM CSE. Trying to explain them of ISM, Dhanbad and CSE as connector points were plain difficult. One thing that they understood for sure was IIT JEE, and we made it a point to bring this up somewhere or the other.

I still remember one anecdote - someone asking a CSE graduate whether they make softwares for mining & associated companies only.

A lot has changed since then. 7 years put off college, I am heartened to see that our alumni are at all reputed designations. Microsoft which itself was a rarity those days is a commonality now. Its the hard work of our alumnus that has got us here.

We need to keep up the good work, get students in not just the commonalities but variety of companies in the near future. That can give us a much wider horizon to work with. Other than that, keep participating in the various contests planned around by corporates. A win, a reference gives us great leverage on a longer run time and again.

**Q.** It has been quite a while since you graduated. Having been so long in the industry, does it still matter that you are not an IITian?

Personally speaking, it did not matter even at that point of time. And after graduation, it mattered even less. Probably, the only thing that mattered was that if this conversion happens, the current lot of students will fare a little better in terms of recognition.

I would suggest keeping this conversion movement lit up but keep striving on other fronts to brand ourselves without the tag as well.

And yes, it does not matter. Students from ISM are treated different in the industry, especially companies where they sought bigger, better employees.

**Q.** List 3 things about ISM that you miss the most?

1. RD ki Kachori Sabzi. It tasted great after night outs.
2. Never ending late night discussions. Regularly led to RD ki kachori sabzi.
3. Mind blowing confluence of music and movies. Usually led to the late night discussions.

**Q.** What are some things that you see fresh hires do (or not do) that you wish they had learnt about in college?

Extreme confidence on the knowledge of a Language rather than Programming Concepts/ Algorithms. Just a few days back, I met a 2k15 cse engineer who said he knows only php.

Java is a strict no-no according to him to begin with.

Even industry does not get into the details of language constructs. Rather it keeps all this simple by sticking to logic.

In short, understand the difference between logic and ways of 'describing the logic.'

**Q.** Does it ever get boring to be a Computer Science Engineer?

Not faced it yet so far but then it's been only 7 years in practice!

**Q.** What is the one thing that you wish you had done in college but did not?

I wish I was able to explore more on the music side; the knowledge of a musical instrument would have definitely done some good.

**Q.** Does joining the industry end the prospects of further education?

None at all. In fact, many people around the country now opt for a 2-3 years of work experience followed with a higher education degree. Its quite practical and eases your parents off the burdens of this further education.

**Q.** What are some future prospects for a CSE graduate that they are not aware of while in college?

For a CSE graduate, sky is the limit. All the companies in the verticals like - FMCG, Oil & Gas, Retails, BFSI etc. have a dedicated IT practice which looks at the IT. So, it is turning out to be an industry agnostic branch of work. You know the basics and if you build upon that domain knowledge of the industry, would be a killer combination for you to land up on a job in any of the industries.

**Q.** One suggestion you would give to

- a) Students joining the college
- b) Students leaving college

For fresh students being inducted into the college, only suggestion is that it does not matter what the seniors say, you have to slog it out. The choice is yours - slog it out in the college itself with support structures or risk going out of college without a job and slog out in the real world with bare minimum support from anyone. Another suggestion is that communication is the most crucial part of you, you presentation forms an integral part. Work on it without fail.

For Students leaving college, do not underestimate yourself. You are still the best brains of the country. Do not fear to approach seniors or take chances in the real world. It's probably these chances that would set you apart in the times to come. Another thing, no job is below average or anything. It's just the work. Also, Salary and Work are two different things without a proportional mechanism of relation. Understand these finer nuances and life could be a little peaceful for you.

**Q.** As a fresh graduate what are the things that I should do right and what are the things that I should not do wrong?

As a fresh graduate rather than sticking to the right and wrong, figure out first what you really want to do. One of the quotes goes like 'In India, you turn an engineer first and then figure out what you want to do.' Figure out that you are not falling in this genre of engineers. Make sure in the first 2 years, the figuring part is done.

Then get back to the drawing board and work on what you want in life.

Harendra Khande  
M.Tech 2015

# जिन्दगी

ना जाने क्या रंग दिखाती है जिन्दगी,  
कभी हसांती है जिन्दगी, तो कभी रुलाती है  
जिन्दगी।

संभल कर चल जिन्दगी, कुछ दर्द है, जिनको  
मिटाना है,  
कुछ कर्ज है, जिनको चुकाना है,  
और कुछ अधूरे सपने हैं,  
जिनको अभी पूरा करना बाकी है जिन्दगी।

कुछ रिश्ते बन कर टूट गए हैं, कुछ जुड़ते जुड़ते  
छूट गए हैं,

उन टूटे हुए, छूटे हुए रिश्तों को अभी मिलाना  
बाकी है जिन्दगी।

मैं तो तेरी परछाई हूँ जिन्दगी, तुझसे क्या दूर मैं  
रह पाऊँगा जिन्दगी,

इन साँसों पर हक है जिनका, उनको अभी समझाना  
बाकी है जिन्दगी।

संभल कर चल जिन्दगी, कई फर्ज हैं जिनको अभी  
निभाना बाकी है जिन्दगी।

# DEPARTMENTAL HIGHLIGHTS

## Short Term Course on Data Structures and Algorithms

The short term certificate course on "Data Structures and Algorithms" was organized by the department of Computer Science & Engineering during 16-20 June, 2014. Prof. Prasanta K. Jana was the course coordinator. The inaugural function was presided over by Professor D. C. Panigrahi, the honourable Director of Indian School of Mines. A five-day programme, spanning over a total of 24 hours, the course was designed to train students, research scholars as well as faculty members in introductory level data structures and algorithms along with insights to some advanced topics of the same. The course was also aimed at exposing the participants to the Linux platform in the practical sessions of the course.



## RAIT 2014

2nd International Conference on Recent Advances in Information Technology, 2014





B.Tech Computer Science and Engineering, Class of 2014

**Prof. Ajoy Kumar Ray**  
Director of IEST Shibpur  
Delivered a Keynote address on Role of IT in Health Sector during 2nd International Conference on Recent Advances in Information Technology (RAIT-2014)

**Prof. Sukumar Nandi**  
IIT Guwahati  
Delivered an invited talk on "Detection And Mitigation of Induced Low Rate TCP-Targeted DoS Attack" during Workshop on 'Information and Network Security' under ISEA project sponsored by MIT, Govt. of India.

**Prof. R. K. Shyamsunder**  
TIFR Mumbai  
Delivered a Keynote address based on Security entity and System security during 2nd International Conference, RAIT-2014.

**Prof. S. K. Jena**  
IIT Roorkee  
Delivered an invited talk on "Privacy Preserving Data Mining" during Workshop on 'Information and Network Security' under ISEA project sponsored by MIT, Govt. of India.

## Lectures by Distinguished Guests

**Prof. Amitabha Mukerjee**  
IIT Kanpur  
Delivered an invited talk on "Structure in Unstructured Data" during Workshop on 'Information and Network Security' under ISEA project sponsored by MIT, Govt. of India.

**Prof. A. Bagchi**  
ISI Kolkata  
Delivered an invited talk on "Control Access to Semantically Enriched Digital Library Ontology" during Workshop on 'Information and Network Security' under ISEA project.

**Dr. Sugata Gangopadhyay**  
IIT Roorkee  
Talk on "Normality of Boolean functions and its impact on stream cipher cryptanalysis" during Workshop on 'Information and Network Security' under ISEA project.

**Dr. Samiran Chattopadhyay**  
Jadavpur University  
Talk on "Security in Wireless Sensor Networks" during Workshop on 'Information and Network Security' under ISEA project on 13 Mar 2014.

**Mr. Amrit Kumar**  
Senior Business Consultant, Accenture Management Consulting  
Delivered a guest lecture (under TEQIP-II) on "Ubiquitous Computing and Insights into Key Industries".

**Mr. Shubham Maheshwari**  
Senior Manager from Praptiger.com, Noida  
Delivered a guest lecture (under TEQIP-II) on "How to tie-up your Coding Goal to Business Goal?".

# STUDENT ACTIVITIES



**T**he Computer Science and Engineering Society (CSES), constituted in the year 2011, functions under the auspices of Indian School of Mines. The main objective of CSES is to promote Computer Science and Engineering awareness among students of the department by organising various technical activities like guest lectures, workshops, quizzes, excursions etc.

### QUIZ-Wiz



The Technical Quiz on 4th April, 2014 in which following team surfaced as winners:

#### First: Team 'Do Not Panic!'

1. Rajat Gupta
2. Abhinav Goyal
3. Yogendra Singh
4. Sakshi Gopal

#### Second: Team 'SPARSH'

1. Sparsh Choudhary
2. Sajid Hussain
3. Saurav Kothari
4. Aritra Gupta

#### Third: Team 'NULL'

1. Kriti Singh
2. Ashish Verma
3. Mohit Punjabi
4. Vishesh Srivastav



**T**he ACM ISM Student Chapter was established to address the needs of the ISM Dhanbad computing community. Regular coding competitions and workshops are organised by the chapter to develop healthy competitive environment among the students. The chapter serves as a dynamic hub of activity where all those who are passionate about computing come to meet, interact, and learn from one another.

### ODE De CODE 1.0



Held on 23rd February, 2014. The winners were:

#### Ist Year B.Tech:

1. Akash Jaywant Rawal
2. Kumar Gaurav
3. Varun Arya

#### IIInd Year B.Tech:

1. Majeed Siddiqui
2. Anant Kumar
3. Prayank Mathur

#### IIIrd Year B.Tech:

1. Anil Bakhta
2. Gourav Pathak
3. Karan Khullar

#### IV-V Year Combined (B.Tech+Dual Degree):

1. Vaibhav Sethi

## WEBSITE DESIGN COMPETITION



The competition was held on 31st March, 2014.

The winners were:

1. Sushil Kumar Kanjia
2. Nikhil Kumar Arya
3. Srinivas Devaki & Apoorv Chandra

## ODE De CODE 2.0



Held on 16th August, 2014. The winners were:

IIInd Year B.Tech:

1. Rajesh Kumar Sinha
2. Shubham Agarwal
3. Shreyas Nimishe

IIIrd Year B.Tech:

1. Amit Shekhar
2. Nitesh Kumar Agrawal
3. Prateek Kumar Nischal

IV-V Year Combined (B.Tech+Dual Degree):

1. Deep Sakre
2. Anil Bakhla
3. Sumit Saurabh

# CodeISM

Coding and problem solving constitute the core of the Computer Science and Engineering industry. Keeping this in mind, the department has taken its first step towards developing a sound coding aptitude and a healthy coding culture among the students by establishing a coding club. The club "CodeISM", abiding its motto of knowledge sharing, will act as a forum for discussion and exchange of ideas and experiences on various topics related to coding and problem solving among its members. From time to time, it will also arrange lectures by the best coders of the institute. It will surely bridge the gap between the theoretical knowledge and its practical application in the industry. Moreover, the club will also promote participation in various nationally and internationally renowned coding competitions.

## UPCOMING EVENTS

SEPT  
2014

Quiz  
CSE Society

OCT  
2014

Technical Quiz  
ACMISM Chapter

NOV  
2014

Coding Contest  
CSE Society

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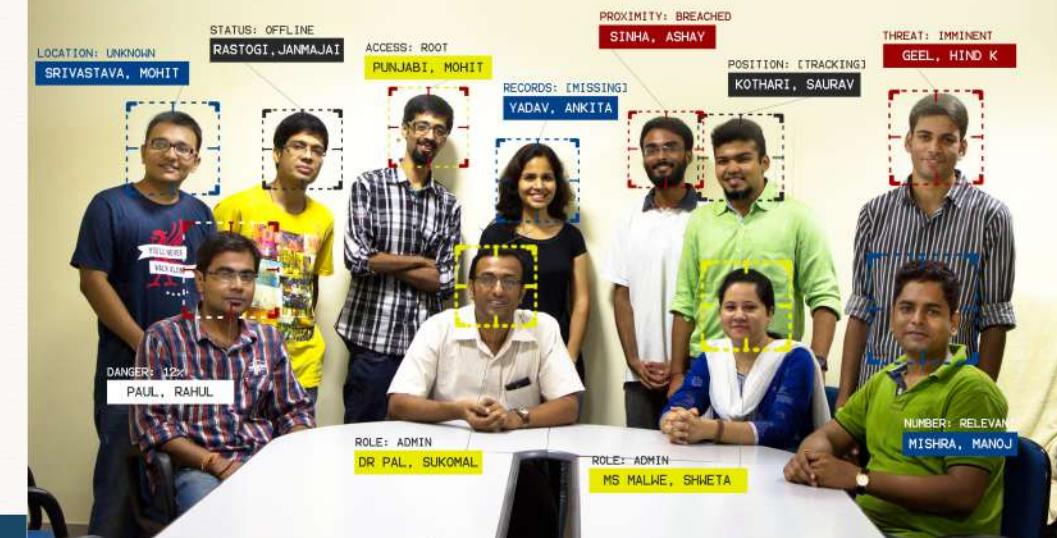
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**POWERED  
BY  
CSES**

