



INDRAPRASTHA INSTITUTE of
INFORMATION TECHNOLOGY
DELHI



2014-15

ANNUAL REPORT



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EXECUTIVE SUMMARY

Since its creation in 2008, IIT-Delhi has come a long way in a short span of seven years. With this year's admissions, our student strength is over 1100 with about 800 BTech, 200 MTech, and 100 PhD students. In the 3rd Convocation, we conferred 2 Ph.D, 81 B.Tech, 2 Dual and 61 M.Tech degrees

Our faculty strength is about 40, all of whom hold PhDs from prestigious institutions from across the world. We also have about 10 visiting faculty, who augment our regular faculty and also provide the much needed diversity of courses.

Research remains the key focus of the institute. Our faculty members and students have published over 175 papers in international journals and conference proceedings last year. Two of these papers have won the best paper awards in International Conferences, and four have received the Best Poster award. Our team of eight faculty members and twenty students are one of the winners of the Mahindra Driverless Car Challenge. Another team won the Indo-US Grant Challenge for an affordable

blood pressure monitor. One faculty member received the DST's Inspire fellowship, taking the total number of faculty with this Fellowship to six.

About 20 faculty members are involved in collaborations with over 60 external collaborators from across the world. Of these, about 10 are with industry, 15 with academics in India, and about 35 with overseas scientists.

This year 15 research proposals from our faculty were approved for funding by various agencies for a total commitment of over ₹ 4 crore. Seven of our PhD students have been selected for the TCS PhD Fellowship, taking the total number of these fellowships to 27 – probably the highest in the country. We also received 9

PhD Fellowships under the Vishvesvarya PhD scheme.

We continue with our plan to start research centres in focused areas. This summer, we started our second Research Centre in Computational Biology, which was inaugurated by the DBT secretary, Prof. K. Vijay Raghavan. We have also launched an MTech program in Computational Biology and have entered in an MOU with IGIB for collaboration for research and the MTech program.

In our R&D efforts, we remain committed to developing technologies that can be transferred for commercial exploitation or use by other organizations. This year, over two dozen new technologies and tools were developed which were transferred to various organisations. Five start-ups based on technologies and tools developed at IIT-Delhi have emerged so far.

To further innovation and entrepreneurship, the Institute has also started an Incubation Centre that

was formally inaugurated on 6th April 2015 by Mr. R. Chandrashekar, President of NASSCOM.

We earlier had received the UGC 12B accreditation, and this year the Institute also got NAAC accreditation at the A level, the highest given.

Due to our rapid growth, the current campus is already fully utilized with little scope to grow further. In fact, our student intake is now restricted due to space constraints, and we have slowed on our faculty recruitment for the same reason. For further growth, construction for the phase-II of the campus has already started. This will add another 64,000 sq. meters of building space, approximately two times the current area, which will increase our capacity for faculty and students to three times the current capacity.

In our campus, we continue to focus on effective resource utilization and have installed smart electricity meters which show energy usage in a dashboard. Last year,

we installed solar panels of 40KW capacity, which generate about 4K units of power every month. While our cost savings are small, this helps us contribute to the environment, and also reduce our energy requirement from the grid, making it available for other uses.

With respect to placements, this year again we kept up with our previous years' strong performance with placement in top companies like Microsoft, Xerox Research, Amazon, Adobe, EMC, etc. By most measures for placement- highest domestic salary offered, percentage of students placed, mean and median offers - we are probably amongst the top few in our peer group. Overall, we have had a very good year and are well on our path to becoming a globally respected and recognised institute. Though many challenges remain, we are confident of addressing them in the coming years with the support of students, faculty, administration, and other well-wishers.





INTRODUCTION

Indraprastha Institute of Information Technology, Delhi (IIIT-Delhi) was created as a State University by an Act of Delhi Government (The IIIT Delhi Act, 2007) empowering it to do research and development and grant degrees. IIIT-Delhi was officially established in June, 2008 and started its academic programs the same year. The Institute began with its first batch of 60 B.Tech students in 2008. Since then, it has come a long way, with nearly 40 faculty members specializing in diverse areas of Computer Science, and Electronics & Communications Engineering, and more than 1100 enrolled students in B.Tech, M.Tech and Ph.D. In a relatively short time, it has earned a good reputation in India and abroad for being a centre of quality education and research in IT and allied areas.

IIIT-Delhi is an autonomous Institute, with the Board (current Chairman: Mr. Kiran Karnik) fully authorized to take all important decisions, including student intake and fee structure. The Board is supported by the Academic Senate of the Institute, which is empowered to make all academic policies, and which advises the Board on starting new academic programs.



OUR MISSION & VISION

The Institute's stated mission is to be a global centre of excellence in Information Technology education, training and research. Its twin aims are:

- To carry out advanced research and development in information and software technologies, and in leveraging IT in specific domain areas.
- To train and educate, at both undergraduate and postgraduate levels, engineers of outstanding ability who can become innovators and new product creators.

The vision of the Institute is to be a world-class R&D-led institute of higher education in IT and allied areas which:

- Is globally respected for research and education
- Has thriving UG and PG education programs
- Is socially relevant, industry-facing, globally linked

A photograph of a modern university building with large glass windows and several tall, vertical, light-colored banners hanging from the upper levels. In the foreground, there is a green lawn with some plants and a white sign with a blue logo. The sign features the letters 'IITD' in a stylized font, with the 'D' being a blue circle. The text 'CAMPUS AND INFRASTRUCTURE' is overlaid on a semi-transparent grey bar across the middle of the image.

CAMPUS AND INFRASTRUCTURE

The Institute's permanent campus in Okhla became operational in August 2012, before which it was functioning from NSIT, Dwarka. The Institute currently has a builtup area of about 32000 sq. meters including lecture halls, class rooms, research labs, instruction labs, Boys' hostel, Girls' hostel, dining and student center, space for student clubs, etc. It also has a general purpose playing field, tennis courts, basketball court, volleyball court, etc.

With energy conservation at its core, smart electricity meters have been installed at the buildings in the campus to study the power consumption pattern for effective energy management and efficient utilization of electricity. . It has two functioning STPs through which the Institute recycles all its waste water and uses it for irrigation.

The Institute has a campus-wide computer network with a redundant 10 gigabit fibre backbone, 1 Gbps Internet connectivity, and LAN or Wi-Fi access throughout the campus including hostels, classrooms, and residences. All classrooms here are equipped with multimedia capability including projectors and audio systems.

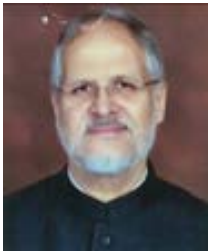
The Library and Information Center of the Institute has books in various disciplines, and subscribes to many major Digital Libraries including ACM, Elsevier, IEEE, Springer, etc. It also subscribes to tools like Ephorus, IThenticate, Turnitin. It supports inter library loan and document delivery service, and has many Kindle readers which students can take on loan for accessing online e-books and other e-resources.

Construction of Phase II of the campus has already started. This construction will add another 64000 sq. meters built up area including seminar block, research labs, faculty rooms, faculty residence, student hostels, and a sports complex. The construction is likely to take two years.



GENERAL COUNCIL

The General Council is the apex body of the Institute, chaired by Hon'ble Lt. Governor of Delhi. The current members of the General Council are:




Sh. Najeeb Jung
Hon'ble Chancellor of the University

Other Members:

- Sh. Kiran Karnik, Chairman BOG-IIIT
- Dr. Ajay Kumar, DG NIC
- Prof. Ashutosh Sharma, Secretary(DST)
- Prof Pankaj Jalote, Director, IIIT
- Smt. Punya Salila Srivastava, Secretary(TTE)
- Mr. R Chandrashekhar President, NASSCOM
- Sh R.S. Sharma, Secretary, Deity
- Dr. S Christopher, Head DRDO
- Sh. S.N.Sahai, Principal Secretary (Finance)



BOARD OF GOVERNORS



The Board is the main policy and decision making body of the Institute. The current members of the Board are:



Sh. Kiran Karnik,
*Ex-President,
NASSCOM*



Prof. Pankaj Jalote,
*Director,
IIIT-Delhi*



Sh. S. Mahalingam,
*(CFO) &
Executive Director,
TCS*



Sh. Ajai Chowdhry,
*Founder,
HCL*



Sh. P. Raj Sinha,
*Founding,Dean,
(ISB)*



Sh. S N Sahai,
*Principal Secretary,
(Fin)*



Sh. Arun Seth,
*Chairman.
Alcatel-Lucent
India Ltd*



Ms. P. S. Shrivastava,
*Secretary,
(TTE)*



Prof. Narendra Ahuja,
*Director,
ITRA*



Prof. Surendra Prasad,
*Ex-Director,
IIT Delhi*



INDRAPRASTHA INSTITUTE of
INFORMATION TECHNOLOGY
DELHI





EDUCATION

IIT-DELHI



DETAILS OF STUDENT STRENGTH

Level	Course	Batch	Admitted	Passed	Existing	Students Presently on Roll	Male	Female
B.Tech	CSE	2011	120	108	5	683	4	1
	CSE	2012	120		132		77	55
	ECE	2012	51		39		32	7
	CSE	2013	124		117		84	33
	ECE	2013	47		34		27	7
	CSE	2014	124		125		112	13
	ECE	2014	48		33		30	3
	CSE	2015	118		121		102	19
	ECE	2015	75		77		62	15
Total No. of B.Tech Students on Roll:						683	530	153
M.Tech	CSE	2013	78	57	13	215	8	5
	ECE	2013	31	26	4		3	1
	CSE	2014	55		52		31	21
	ECE	2014	40		38		19	19
	CSE	2015	63		60		30	30
	ECE	2015	39		37		15	22
	CB	2015	12		11		5	6
Total No. of M.Tech Students on Roll:						215	111	104
PhD	CSE	2010	7	1	6	92	5	1
	CSE	2011	10		8		4	4
	CSE	2012	17		14		7	7
	ECE	2012	5		2		2	0
	CSE	2013	22		18		8	10
	ECE	2013	11		8		7	1
	CSE	2014	9		7		6	1
	ECE	2014	14		10		6	4
	CB	2014	1		1		1	0
	CSE	2015	10		9		3	6
	ECE	2015	6		6		3	3
	CB	2015	3		3		2	1
Total No. of PhD Students on Roll:						92	54	38
Dual Degree	CSE	2011	3		3		1	2
Total No. of Dual Degree Students on Roll:						3	1	2
Total No. of Students on Roll:						993	696	297



THIRD CONVOCATION

The Institute conducted its 3rd convocation on August 31, 2014, at its campus in Okhla. Two Ph.D, 81 B.Tech, 2 Dual Degree and 61 M.Tech degrees were awarded to the graduating students in the presence of Chief Guest, Sh. Sunil Kant Munjal, Joint Managing Director of Hero MotoCorp Ltd., Shri Kiran Karnik, the Chairman of the institute's Board of Governors; and Prof. Pankaj Jalote, Director, IIIT-D.

	Upto 2013	Previous Year	Current Year	Total till now	8-10	CGPA 6-<8	<6	Honors
<i>BTech(CSE)</i>	105	85	108	298	45	58	5	3
<i>BTech(ECE)</i>								
<i>Mtech(CSE)</i>	54	58	62	174	40	22	-	
<i>Mtech(ECE)</i>		19	26	45	21	5	-	
<i>PhD</i>		2	3	5				
<i>Dual Degree</i>		2	4	6	4	-	-	



COURSES OFFERED

	Monsoon Semester	Average Enrollment	Winter Semester	Average Enrollment
<i>CSE</i>	33	60.63	27	52.78
<i>ECE</i>	15	29.67	15	23.8
<i>Others</i>	21	42.62	23	60.34
<i>Total</i>	69	48.42	65	48.77



SCHOLARSHIP AND ASSISTANTSHIP TO B.TECH.

BTech Students

Batch	students who got	25% waiver	50% waiver	BPL100% waiver
BTech 2011		8	2	
BTech 2012		4	1	
BTech 2013		6	2	
B.Tech 2014		9	21*	2

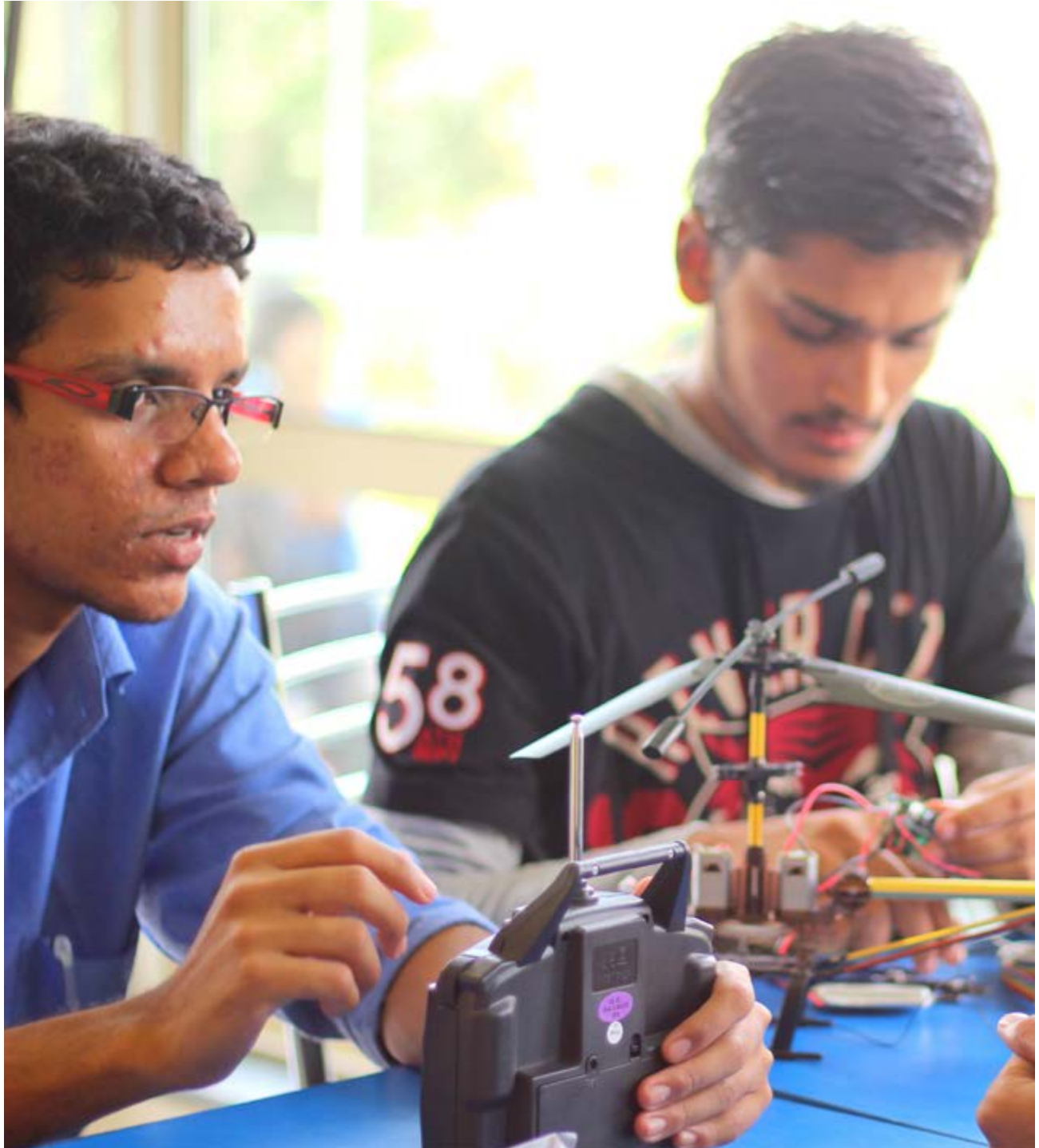
*including 5 merit based

MTech Students

Fellowship Head	2015	2014	2013	2012	2011	2010	Total
GATE Scholarship	114	90	81	50	50	50	435

Phd Students

Fellowship Head	2015	2014	2013	2012	2011	2010	Total
TCS		2	11	6	4		23
Prime Minister		1	1				2
IBM				1			1
UGC			1				1
CSIR	2	1	1				4
Projects	1	5	4	1	1		12
Visvesvaraya		9					9
Institute	13	1	7	4	1		26
Sponsored	2		1	3	2	1	9
In sixth year						5	5
Total No. of students	19	18	26	16	8	6	92



**RESEARCH, DEVELOPMENT, AND
INNOVATION**

recovery using split Bregman
 Ananya, Ankita Shukla, Angshul Majumdar

21

rs14



INDRAPRASTHA INSTITUTE of
 INFORMATION TECHNOLOGY DELHI

INTRODUCTION

PROPOSED APPROACH

OUR Contribution

Propose an algorithm for recovery of low rank matrix from its lower dimensional projections which achieves higher accuracy in shorter run time.
 Rank minimization is NP hard. So we approximate it by convex hull. Nuclear norm.
 We solve the problem of the form
 $\min \|X\|_*$
 $\text{subject to } AX = B$
 It turns out to be linear optimization and it can be solved efficiently.
 Success of our algorithm is the use of split Bregman.

Success rates

Initialization: $x^0 = 1, \lambda^0 = 0$
 $\mu = 0.001, \beta = 0.001$
 while not convergence

$$z^{k+1} = [A^T x^k + \mu] \cdot [A^T x^k + \mu]^{-1} [A^T x^k + \mu]$$

$$x^{k+1} = \text{shrink}(z^{k+1}, \mu)$$

$$\lambda^{k+1} = \lambda^k + \beta (Ax^k - b)$$
 // Update the Bregman Variable

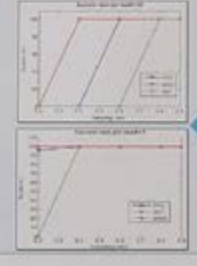
$$x^{k+1} = z^{k+1} - \beta (\lambda^{k+1} - \lambda^k)$$

OUR Algorithm

ACADEMIC RESEARCH & PUBLICATIONS

EXPERIMENTAL Setup

Experimental Setup
 We generate 20 random matrices and test our experimental results on 1000 samples. We compare against two methods: the ADMM and the proposed method.



Success rates

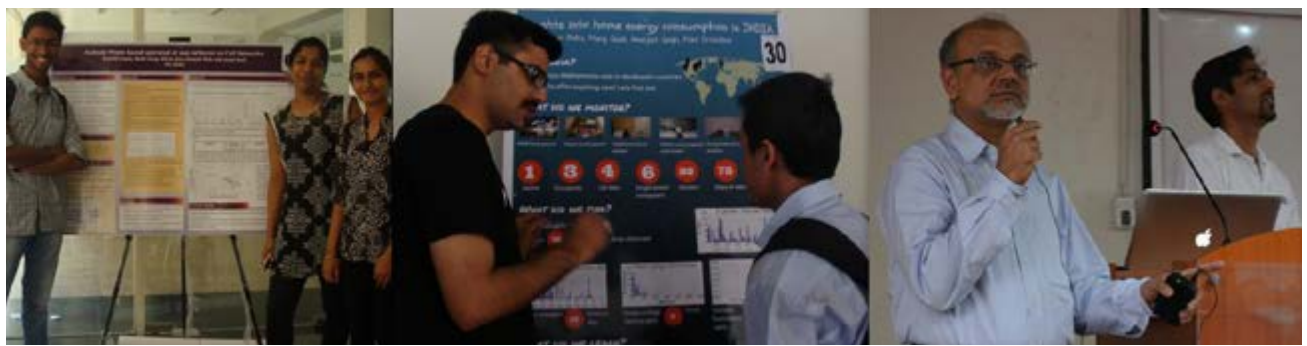
LITERATURE Reference

CONTACT Information

Details of the work can be found at <http://www.iiitd.ac.in/~ananya>



We continue to encourage our faculty and students to publish their work in top quality international avenues. The list of papers published/accepted last year is: 47 in international journals, 131 in international refereed conferences and 4 as books/ book chapters. The detailed list of publications is given in Appendix A.





TECHNOLOGIES AND TOOLS DEVELOPED & DEPLOYED

The Institute remains committed to developing technologies that can be transferred for commercial exploitation or use by other organizations. This year, 26 new technologies were developed which were transferred to 9 organizations /NGOs/ community. Five start-ups based on technologies and tools developed at IIIT-Delhi have been started. The list of technologies & tools developed & deployed is given as an Appendix B.





PATENTS

The following patents have been granted or applied for:

1. B. Powell, G. Goswami, M. Vatsa, R. Singh and A. Noore: Genetic Optimization of CAPTCHA Image Generation, United States Patent 62/081,212, 2014 (Patent submitted).
2. F. M. Ghannouchi, S. Bensmida, M. S. Hashmi, and M. Helaoui: Passive Source and Load-Pull Architecture for High Reection Factor Synthesis, US Patent Allowed (Sept. 2014), No. US8841922 B2.
3. M. A. Maktoomi, and M. S. Hashmi: Generic Tri-Band Impedance Transformation Technique for RF/Microwave Active and Passive Circuits, Components and Systems, (iBeing filed)
4. Rishiraj Saha Roy, Guna Prasaad Jeganathan, Aishwarya Padmakumar, and Ponnurangam Kumaraguru: Automated Linguistic Personalization of Ad Messages for Targeted Campaigns. Patent application number P4592-US, United States Patent Office, filed in 2014 (Patent pending).
5. Kokil Jaidka, Niyati Chhaya, Prakhar Gupta, Sajal Rustagi, Kaushik Ramachandran, Ponnurangam Kumaraguru: Tracking Changes in User-Generated Textual Content on Social Media Computing Platforms. Patent application number P5160-US, United States Patent Office, filed in 2014 (Patent pending).
6. Niyati Chhaya, Deepak Pai, Dhwanit Agarwal, Nikaash Puri, Paridhi Jain, and Ponurangam Kumaraguru: Automatic Aggregation of Online User Profiles. Patent application number P4606US01. United States Patent Office, filed in 2014 (Patent pending).
7. Systems and methods for mitigating self-induced far-end crosstalk, Pravesh Biyani, LF Alloin, S Prakriya, S Prasad, A Mahadevan - US Patent 8,644,127, 2014
8. DM-CM diversity receiver for a wireline communication system, LF Alloin, Pravesh Biyani, L Pierrugues, SM Zafaruddin. US Patent App Number: 2014011238
9. Representation Systems for Fingerprint Template Protection, filed by Dr. Donghoon Chang, Surabhi Garg and Neha Gupta. Patent Application No. (with Govt. of India) 1917/DEL/2015.



SPONSORED RESEARCH PROJECTS

The list of projects that were sanctioned last year is given in Appendix C. The summary of the projects approved last year by different funding agencies is given below:

Funding Agency	No. of Projects	Amount ('Lacs)
<i>DeitY</i>	4	287.00
<i>DRDO and Naval Research Board (NRB)</i>	1	12.90
<i>DST and INRIA</i>	1	5.15
<i>DST-INSPIRE</i>	2	70.00
<i>Indo-US S&T (DST)</i>	1	40.94
<i>Science Engineering and Research Board (SERB)-DST</i>	1	51.01
<i>Establishment of Design Innovation Centre (IIT-Delhi)</i>	1	130.00
<i>Google</i>	1	9.50
<i>Intel Corporation</i>	1	12.20
<i>Intelligence Bureau (IB)- Ministry of Home Affairs</i>	1	6.36
TOTAL	13	625.06



INCUBATION & START UPS

Research and collaborative work at IIIT-Delhi has resulted in five start-ups, all of which are currently in early stages. IIIT-D recognizes this as an opportunity to support innovation and social & technological entrepreneurship and has therefore set up an Incubation Centre at the university campus.

The Incubation Centre was formally inaugurated on 6th April, 2015 by Mr. R. Chandrashekhar, President of NASSCOM.

The objective of the Incubation Centre is to support start-ups, promote innovation in IT, and encourage unique ideas that address technology-based solutions in IT, research and entrepreneurship. The Centre will provide budding entrepreneurs essential services for a new start-up along with mentorship from academia, industry, venture capitalists and angel investors.

The five start-up ventures incubated so far are:

- **Backpack (course management):** Backpack Labs is a registered company, providing a Learning Management System. Backpack is being used at IIIT-Delhi, IIT Kanpur, IIIT Hyderabad, IIT Bombay, IIT Kharagpur, IIT Madras, IISc Bangalore and many other institutes across India. <https://www.usebackpack.com>
- **Zenatix:** Zenatix installs energy monitoring equipment such as smart meters and controllers and sets up cloud based software for real time monitoring of your energy consumption. Zenatix runs advanced analytics on the collected data and recommends energy saving measures & benchmarks energy consumptions <http://www.zenatix.com/>.
- **MeriAwaaz:** An App to help get the voice of citizens to the Government. It is currently being used by political parties in Delhi. <http://meriawaazapp.com/>
- **Wizters:** Wizters.com is an anonymous social networking service. Technology has already been transferred to a company in Delhi and they are looking at building a startup around it in the US. <http://www.wizters.com/>.
- **Find A Way:** Find A Way is a non-profit organization that acts as the grease in the works between the public and the many NGOs that are not doing so well financially due to lack of reach. It works in close collaboration with such NGOs to help their causes gain momentum using mass media initiatives. <http://findaway.in>.



EXTERNAL COLLABORATIONS

Our faculty has been collaborating with colleagues in other institutions in the country, as well as institutions across the world. Last year, 21 faculty members had at least one external collaboration. Overall, faculty is engaged in 72 external collaborations, of which 13 are with industry labs and 59 are with overseas collaboration as given in Appendix D.

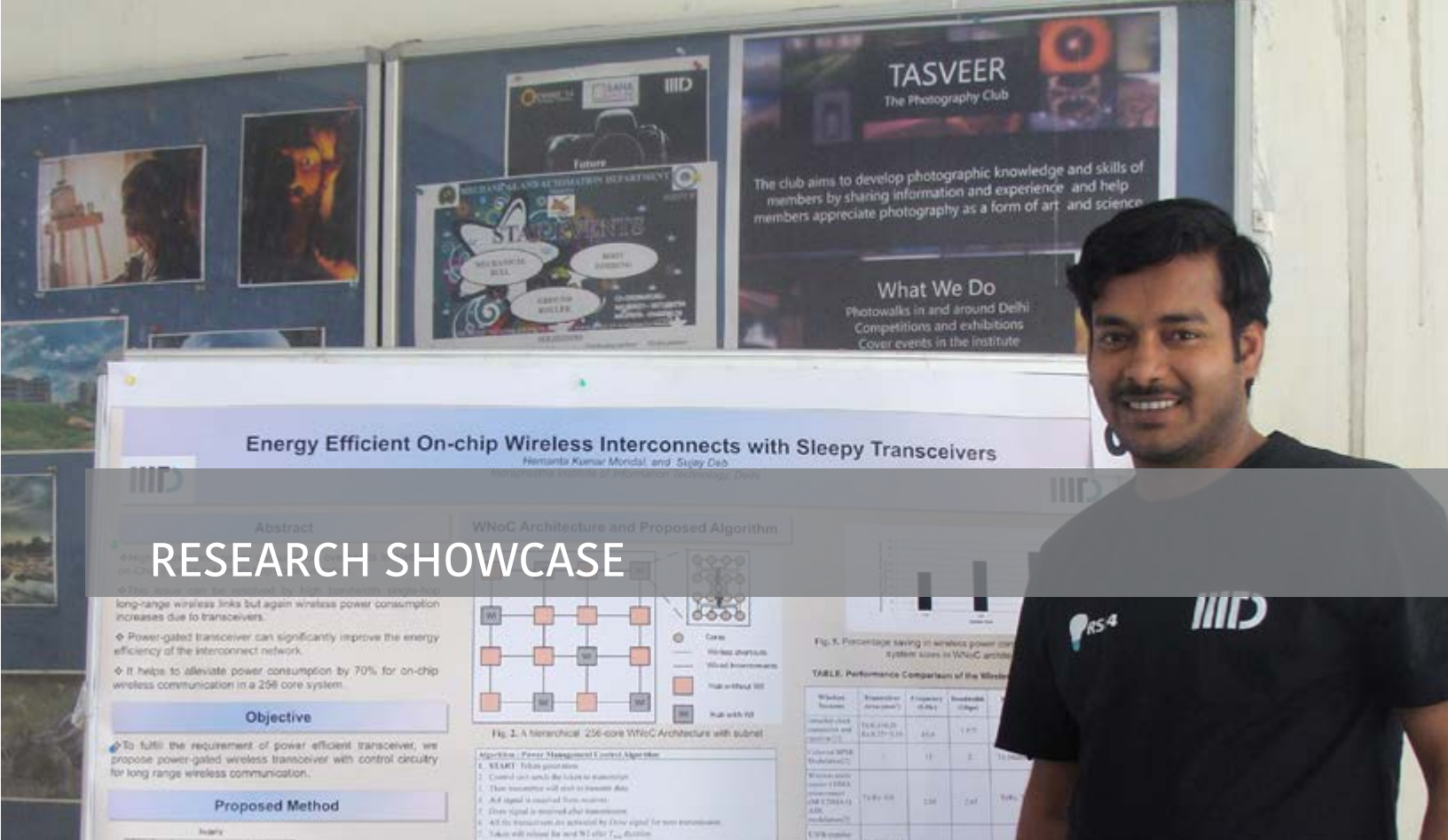




OUTREACH & PROFESSIONAL SERVICES

CONFERENCES/ SHORT COURSES/ WORKSHOPS

Title	Organiser	Date
<i>Inauguration of Centre for Computational Biology at IIIT Delhi and Panel Discussion on Importance of Computational Biology in Indian Context</i>	<i>Dr. Subhadip Raychaudhury, Dr. Shriram K. and Dr. Arnab Bhattacharjee</i>	<i>June 18, 2015</i>
<i>Workshop for School Teachers on Strategies for Safe and Effective Use of Online Social Media</i>	<i>Dr. Ponnurangam K.</i>	<i>May 2, 2015</i>
<i>Ted X</i>	<i>IIIT-D and TED</i>	<i>April 12, 2015</i>
<i>2nd Global Cybersecurity Leaders Program Speaker: Prof. Mustaque Ahamad (Georgia Institute of Technology)</i>	<i>CERC and CISO Academy</i>	<i>April 9-10, 2015</i>
<i>One Day Workshop on Network-on-Chip</i>	<i>Dr. Sujay Deb</i>	<i>March 29, 2015</i>
<i>Start-Up Fair</i>	<i>Dr. Pankaj Jalote and Ms. Rashmil Mishra</i>	<i>March 20, 2015</i>
<i>5th IIIT-D Research Showcase</i>	<i>Dr. Pankaj Jalote and Dr. Saket Anand</i>	<i>March 13-14, 2015</i>
<i>Mobile Security Workshop</i>	<i>CERC</i>	<i>March 12-15, 2015</i>
<i>Training of Cyber Security & Network Security</i>	<i>CERC</i>	<i>February 18-20, 2015</i>
<i>3rd Security and Privacy Symposium</i>	<i>CERC</i>	<i>February 13-14, 2015</i>
<i>Workshop on Online Social Media Policy for Police - Pitfalls, Challenges and Opportunities</i>	<i>CERC</i>	<i>February 2-4, 2015</i>
<i>The Third International Conference on Big Data Analytics (BDA 2014)</i>	<i>Dr. Vikram Goyal</i>	<i>December 20-23, 2014</i>
<i>Winter School on Machine Intelligence and Signal Processing</i>	<i>Dr. Angshul Majumdar, Dr. Richa Singh and Dr. Mayank Vatsa</i>	<i>December 20-23, 2014</i>
<i>Open-To-All Lecture on Secure Programming by Prof. Matt Bishop from UCDavis</i>	<i>CERC</i>	<i>December 22, 2014</i>
<i>5 day course on Secure Programming</i>	<i>CERC</i>	<i>December 15-19, 2014</i>
<i>Seminar on National Critical Information Infrastructure Protection Centre (NCIIPC). Speaker: Dr. Muktesh Chander, IPS. Special Commissioner, Delhi Police</i>	<i>CERC</i>	<i>November 18, 2014</i>
<i>Using Online Social Media for Intelligence and Policing</i>	<i>CERC</i>	<i>November 15-16, 2014</i>
<i>National Workshop on Online Social Media for Senior Law Enforcement Officers" with LNIN National Institute of Criminology and Forensic Science</i>	<i>CERC</i>	<i>October 9-10, 2014</i>
<i>INOI Preparatory Workshop in Collaboration with IARCS</i>	<i>Dr. Debajyoti Bera, Dr. Rajiv Raman and IIT-Delhi Faculty</i>	<i>September 30, 2014</i>



RESEARCH SHOWCASE

Title	Organiser	Date
Seminar on Securing the Digital Enterprise. Speaker: Mr. Felix Mohan, Chief Knowledge Officer, CISO Academy and Advisory Board Member of CERC	CERC	September 9, 2014
Design for Impact Innovation Hackathon	IIIT-Delhi	August 1-3, 2014
Information Security Officers Awareness program for DRDO	CERC	June 30-July 4, 2014 & July 14-18, 2014
International Yoga Day	Yoga Demo Session	June 21, 2015
Mindfulness Meditation Workshop	Meditation Workshop	May 10, 2015

Research Showcase'15

The Research Showcase at IIIT-Delhi is an annual event and was held on 13th and 14th March, 2015. The purpose of this event is to showcase to the world, the research and development efforts of the students of IIIT-Delhi. The showcase aligns well with IIIT-Delhi's focus of being a research led institute. The posters and demos presented in the showcase included some recent innovations, and real-world applications by various research groups at IIIT-D including Emerging Architecture & System Design, Image Analysis & Biometrics, Information Management & Data Analytics, Mobile & Ubiquitous computing, Security & Privacy, Software Engineering & Theory as well as outstanding course projects undertaken by the students as part of their curriculum.

Research Showcase invites faculty of other institutes, industry professionals, media, students, parents and other tech-savvy visitors. It also serves as an open house where prospective students, recruiters, faculty and parents are encouraged to come and explore the campus and engage with the students and staff at IIIT-D. The event serves as a platform to encourage faculty, staff, business and industry leaders to come together for a day of collaboration and develop a deeper understanding as to how research adds value to the community and society.

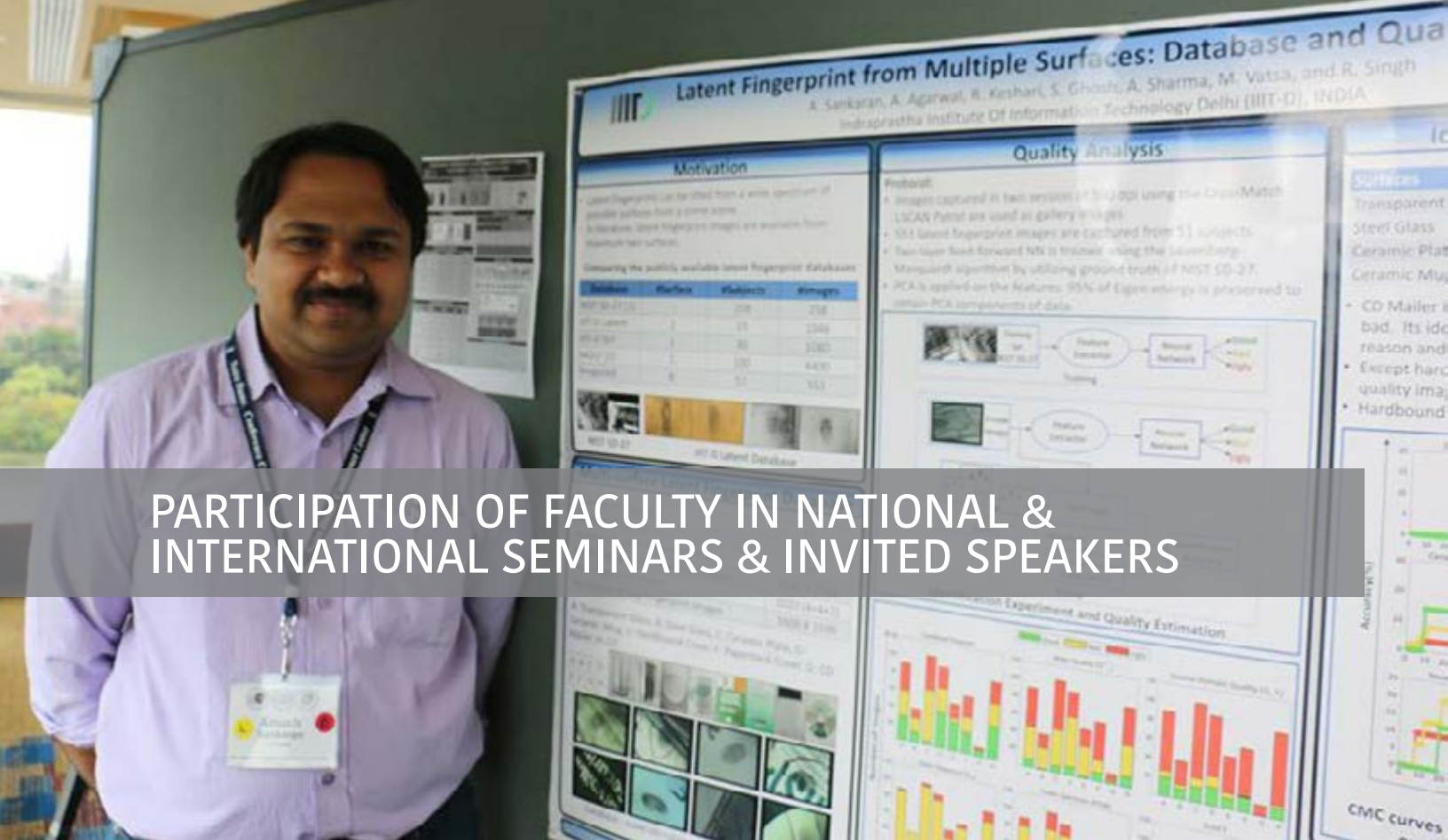


DISTINGUISHED VISITORS & INVITED SPEAKERS

The aim of inviting distinguished visitors to IIIT-D is to provide opportunities to our faculty to strengthen collaborative research and enhance their visibility both in academia and industry. Many distinguished speakers from academia and the industry visited IIIT-D and this served as a venue for discussing research. Some of these distinguished visitors are mentioned below:

Speaker	Title	Date
Dr Amey Karkare, IIT Kanpur	Computer Aided Education	April 17, 2015
Mr. Raj Kumar Nagpal, Synopsys / STMicroelectronics	Jitter understanding and Jitter failure investigation for High Speed Parallel (DDR) memory links	April 16, 2015
Dr. Aditya Gopalan, IISc Bangalore	Sequential Decision Making in Complex Environments	April 9, 2015
Mr. Zishaan Hayath, Co-Founder ar Toppr.com	Starting up, staying there, and going all in	March 25, 2015
Dr. Vishwesh Guttal, IISc Bangalore	Early warning signals of tipping points	March 19, 2015
Dr. Neelima Gupta, Associate Professor, University of Delhi	Capacitated Facility Location Problem with Penalties	March 12, 2015
Dr. Vimal Bhatia, IIT Indore	Introduction to Cognitive Radio	March 11, 2015
Dr. Gaurav Sood, Co-Founder, Sunnyvale Labs Inc.	From Paper to Digital: Statistical Models of Language for Improving Digitization	February 19, 2015
Prof. Dipankar Nagchoudhury, Former Professor, IIT Delhi	Logical Effort - A Model for Delay Estimation	February 18, 2015
Dr. Subhashis Sengupta, Research Fellow at Accenture Technology Labs	Practical Text Analytics for Industrial Problems	February 13, 2015

Speaker	Title	Date
Prof. Kamalakar Karlapalem, IIIT Hyderabad	Towards Visualizing Clusters and Classes for Real Valued High Dimensional Data Sets	February 12, 2015
Prof. Shmuel Peleg, The Hebrew University of Jerusalem	Video with no Photographers	February 11, 2015
Dr. Ashwin Mahesh, former NASA scientist	Technology and Public Policy	February 05, 2015
Dr. K. Jaishankar, Manonmaniam Sundranar University, Tamil Nadu, India	Protection of Youth from Internet Crimes	January 29, 2015
Prof. Anurag Kumar, Director, IISc Bangalore, India	Design and Deployment of IEEE 802.15.4 ("Zigbee") Networks for Internet of Things Applications	January 27, 2015
Dr. Srikanta B. Jagannath, IBM Research, India	Big Graphs - a new challenge for Big Data management	January 22, 2015
Dr. Turbo Majumder, IIT Delhi	Leveraging Network-on-Chip for Computational Biology	January 15, 2015
Dr. Chetan Arora, IIT Delhi	Looking into the future with Google Glass: Opportunities and Challenges	January 08, 2015
Dr. Jai Narayan Tripathi, STMicroelectronics	Maintaining Power Integrity in High Speed VLSI Systems	November 13, 2014
Mr. Vishy Kuruganti, Founder, Tech-Sangam.com	Organizing the Unorganized - The mGaa-di Story	October 30, 2014
Dr. Kanad Basu, Synopsys India Pvt Ltd	Enhancing Observability During Post-Silicon Debug	October 15, 2014
Dr. Shreekanth Gupta, Delhi School of Economics	Policy Options for Addressing Climate Change: The Role of Integrated Assessment Models (IAMs)	October 16, 2014
Prof. Shiv Dutt Joshi, IIT Delhi	Some Studies on Signal Representation	October 09, 2014
Mr. Rajbans Talwar, Steag Energy Services	Optimization in the Real World	September 18, 2014
Dr. Mukul Sarkar, IIT Delhi	The Electronics behind Analog/Digital Cameras	September 11, 2014
Dr. Arijeet Samal, IMSc Chennai	Phenotypic constraints drive the architecture of metabolic networks	September 04, 2014
Prof. Sumit Roy, University of Washington	White Space Networking	August 28, 2014
Dr. Durai Sundar, IIT Delhi	Precision Genome Engineering with Programmable DNA-binding Proteins	August 21, 2014
Prof. Jeff Froyd, Texas A&M University	Preparing Engineering Graduates for the Evolving Computing Landscape	August 14, 2014
Prof. Gaurav Sharma, University of Rochester	Imaging Arithmetic: Physics U Math > Physics + Math	August 07, 2014
Dr. Supratik Mukhopadhyay, Louisiana Tech	Synthesis of Geometry Proof Problems	August 05, 2014



PARTICIPATION OF FACULTY IN NATIONAL & INTERNATIONAL SEMINARS & INVITED SPEAKERS

Our faculty members attended various national and international conferences and presented their research results and gave lectures and presentations, enhancing their academic and professional expertise. The detailed list is given in Appendix E.

No. of Papers published/ accepted in International Conferences (Appendix A)	- 136
No. of Workshops/ Demos/ Posters in International Conferences (Appendix A)	- 41
No. of Invited Talks and Presentations (Appendix E)	- 65



PROFESSIONAL SERVICES

Our faculty members chaired and were members of several committees in national & international conferences. Many of the faculty members are part of Editorial Boards and regularly serve as reviewers of national & international journals. The list is given in Appendix F.

<i>Members of Program Committee in National & Intl conferences</i>	100
<i>Members of Advisory Committee in National & Intl conferences</i>	7
<i>Chair & Co-Chair in National & Intl conferences</i>	13
<i>Editor of Journals</i>	10
<i>Reviewer of Journals</i>	70
<i>Reviewer of Funding Agencies</i>	2
<i>Member/ Chair of Review Committee/ Task Forces/ Advisory Committees of Govt.</i>	11
<i>Members of Organizing Committee of National & Intl Conferences</i>	28



INTERSHIPS @ IIIT DELHI

The summer internship program at IIIT-Delhi continues to grow every year. In addition to having our students continue working on a project/ research topic, through this program, we also give opportunities to students from other Institutions to work in IIIT-Delhi. This program, which is also a part of our outreach initiative, aligns with our vision to have an open campus, facilitating greater community engagement and helping strengthen our PhD intake. We continue to get support from Microsoft through their Rx program for supporting the interns

This year (2014-15) a total of 85 interns worked in IIIT-Delhi. Out of these, 44 were IIIT-D students and 41 students were from other Institutions.



COMMUNITY WORK

Community work provides students a chance to build and strengthen broader connection with the society and the self. At IIT Delhi, students are required to do about 80-90 hours of community work. This activity teaches students about their rights, duties and responsibilities as citizens, and their ability to bring about meaningful change through advocacy and service. It enables students in applying skills and content knowledge to real needs in their local community. Students are encouraged to give back to society through compulsory community work credits. Almost every student is involved with various NGOs all over the country. The institute also has a Community Work Club called *Communitas - Opere*, which organizes blood donation camps and facilitates student partnerships with NGOs. Main areas of intervention are listed below:

Sl No	Sector	No. of students
1	Teaching	42
2	Promote rights of education	03
3	Data Collection, Entry and Case Study	03
4	Women Welfare	01
5	Old age home	01
6	Child rights	07
7	Help Underprivileged section of Society	01
8	Welfare of rural community	02
9	Community literacy programme	01
10	Blind Education & Training	03
11	Energy Consumption behaviour	04
12	Handicapped Children	02
13	Fund collection for Orphanage	02
14	Others	07
	Total	79



PLACEMENTS

IIT-DELHI



PLACEMENTS

IIIT-Delhi provides a platform to facilitate interaction between students and companies, so that both can find the best match as per their aspirations and requirements. Our Graduates are a combination of rigorous thinking, hard work and fundamentals. The campus promotes a host of student activities to improve their soft skills, which are imperative for one to excel in his/ her work space.

B.Tech. 2015 Graduating Batch Placement Statistics:

Highest salary (India -2 job offers)	Rs 31 LPA (Lakhs Per Annum)
Average salary (93 offers)	9.89LPA
Number of job offers equal to or above 10LPA (out of 93 offers)	35
Number of job offer < 5LPA	11
Number of job offers between 5 LPA to 9 LPA (out of 93 offers)	47
Number of companies visited campus (or conducted campus recruitment drive)	80

M.Tech. (2015 Graduating Batch) Placement Statistics:

Highest salary (India) (1 job offer)	CSE - 25 LPA
Average salary CSE (61 Indian offers)	8.78 LPA
Average salary ECE (11 Indian offers)	6.29 LPA
Number of job offers equal to or above 10 LPA (out of 72 offers)	CSE - 18
Number of job offers between 5 LPA to 9 LPA (out of 72 offers)	CSE - 36 & ECE - 8
Number of job offer < 5 LPA	CSE - 07 & ECE - 03
Number of companies visited campus	80

Some of the companies that visited IIIT-Delhi are:





AWARDS AND RECOGNITION



AWARDS & RECOGNITION

Our faculty and students have received several coveted awards for their papers and posters. Many have also been granted prestigious research grants and fellowships such as the Prime Minister's Fellowship for Doctoral Research and IBM and TCS Fellowships. Six of our young faculty members are the proud recipients of the DST's Inspire fellowship, and one has been honored with Adobe's Excellence in Research Award. This year's awards and recognition are:

Faculty

- Dr. Anand Srivastava received Erasmus Mundus Fellowship [visiting Scholar to Aston University], Feb 2015. June/July 2015.
- Dr. Anand Srivastava got Best Poster award in IEEE ANTS 2014 Conference.
- Dr. Angshul Majumdar received Best Reviewer award 2013-14 for Elsevier Magnetic Resonance Imaging.
- Dr. Mayank Vatsa received the AR Krishnaswamy Faculty Research Fellow Faculty Research Fellowship at IIIT Delhi, 2013-2016.
- Dr. Mayank Vatsa is IEEE Senior Member, 2014.
- Dr. Mayank Vatsa has been elected as the Vice President (Publications) in the IEEE Biometrics Council.
- Dr. Mayank Vatsa received Best Poster Presentation award at IEEE International Joint Conference on Biometrics, Clearwater, USA 2014.
- Dr. Mohammad Hashmi is Editorial Board member, IEEE Microwave Magazine.
- Dr. Mohammad Hashmi is IEEE MTT-S Delhi Chapter Executive Committee Member.
- Dr. Ojaswa Sharma received the NVIDIA CUDA Teaching Centre award 2015.

- Dr. P.K received Best Paper award. Roy, R., Padmakumar, A., Jeganathan, G., and Kumaraguru, P. Automated Linguistic Personalization of Targeted Marketing Messages Mining User-generated Text on Social Media. Proceedings of the 16th International Conference on Intelligent Text Processing and Computational Linguistics 2015 (CICLing '15).
- Dr. P. K received Best Paper award. Gupta, N., Aggarwal A. and Kumaraguru, P. bit.ly/malicious: Deep Dive into Short URL based e-Crime Detection. In Anti -Phishing Working Group e-Crime Researchers Summit (2014).
- Dr. Pravesh Biyani won third prize for his portal Traffic Karma, a traffic information and prediction mechanism, being used by various City transport systems and NGOs at the CODS data challenge, organised by ACM,IKDD.
- Dr. Pushendra Singh received Teaching Excellence award by the 2015 Graduating Batch (B.Tech. & M.Tech.) of IIIT-Delhi.
- Dr. Richa Singh received the Kusum and Mohandas Pai Faculty Research Fellowship at IIIT Delhi, 2013-2016.
- Dr. Richa Singh received the Best Poster Presentation award at IEEE International Joint Conference on Biometrics, Clearwater, USA 2014.
- Dr. Richa Singh is IEEE Senior Member, 2014.
- Dr. Saket Anand, Dr. Sanjit Kaul, Dr. P. B. Sujit and Dr. Alexander Fell, Dr. Ojaswa Sharma, Dr. Shobha Sundar Ram and Dr. Rahul Purandare, as a team, participated in the Mahindra Rise Driverless Car challenge. The team of faculty members from IIIT-D made it to the prototype building stage and is among the 13 out of the 259 competing teams that initially participated.
- Dr. Sandip Aine received the Best Poster award, SOCS, 2014.
- Dr. Somitra Kr. Sanadhya received Teaching Excellence award at IIIT Delhi in May 2015.
- Dr. Sujay Deb won the India-US Grand Challenge: Affordable Blood Pressure Measurement Technologies for Low-Resource Settings in India and the U.S. 2014.
- Dr. Vinayak Naik received Teaching Excellence award by 2015 Graduating Batch of B.Tech and MTech.
- Dr. Vivek Bohara received the Best Poster award (Runners up) at International Conference on Communication Systems and Networks” (COMSNETS), Bangalore, India, Jan, 2015 for the paper titled “Analysis of Carrier Aggregated OFDM signals in presence of Dual band Power amplifiers”.
- Dr. Vivek Bohara received the Best Poster award at 2014 Eighth IEEE International Conference on Advanced Networks and Telecommunications Systems 2014 (IEEE ANTS), New Delhi, 2014 for the paper titled “Exploiting Multiple Antenna Cognitive Radio System for Cooperative Spectrum Sharing”.

Students

- Seven PhD students awarded TCS Research Scholarship for the year 2015-16
- One student received IBM Ph.D. Fellowship Award for 2015-2016
- Poster award (Runner Up) at COMSNETS 2015 (Bangalore, India).
- Best Poster award at IEEE ANTS 2014.
- Third Prize at the IDRBT Doctoral Colloquium 2014.
- Best Doctoral Dissertation Award by the Indian Unit of Pattern Recognition and Artificial Intelligence (IUPRAI) at ICVGIP2014.
- Best Demo award at ACM Buildsys 2014 (Memphis, USA)
- Best Poster award at IEEE/IAPR IJCB2014 (Florida, USA)
- Indian National Academy of Engineering- Innovative Student Projects Award - 2014 - Doctoral Level.
- Best Poster award at SoCS 2014.





STUDENT ACTIVITY



STUDENT CLUBS

At IIITD, a major chunk of students' time goes in academics as it requires hardwork and focused effort. Nonetheless, there are many facilities and clubs to grow in various ways. Students take part in a number of social and cultural activities. If they want to pursue a hobby, they just need to find some like-minded people to start their own club. These clubs not only hone their leadership skills but also help instill team spirit in them. Several student clubs in the institute enable them to enhance their talent in areas beyond academics. Clubs already in existence at IIIT Delhi are Quiz Club - Trivialis, Design Club - Ink, Dance Club - MadToes, Music Club - Audio Bytes-, Photography Club - Tasveer, the Literary Club, Eco Club and Adventure Club. These clubs enable students to come together, share knowledge and mentor those looking to break into the field. Students can also suggest books for the library, organize a blood donation campaign, an adventure trip during summer holidays or purchase a new instrument for the music room.

Students are also encouraged to help the society in some way or the other. Almost every student is involved with various NGOs all over the country. The institute also has its own home-grown NGO of students called 'FindAWay', which helps the children in need. Summary report of student's clubs activities for 2014-15 is placed as Appendix G.



SPORTS

IIIT-D students also participated in several tournaments within and outside Delhi. They were participants in the LSR invitational tournament from 26-28 February, 2015 and achieved 2nd and 3rd position. Our students also took part in Twaran Sports Fest at Gwalior from 23-26 January, 2015 and achieved positions in almost every sport activity. Our basketball boys' team came out as winner, while we were runners up in tennis, girls' volleyball and in football, besides claiming four medals in athletics. In addition, IIIT-D participated in the Sports Fest Utkarsha organized by NSIT Dwarka in March, 2015. One of our students also emerged as a winner in weightlifting at IIM Sports meet Ranbhoomi in February 2015. The Institute has been regularly organizing various sports events like football tournament Joga Bonito, Table Tennis and Pool tournaments. Every year a group of students from IIIT Delhi takes part in Delhi Half Marathon running for a cause. We also organize summer camps for various sports activities at IIIT Delhi campus.

In order to engage maximum number of students in sports, the first IIIT-D intra mural was organized from 6-13 October, 2014 in which around 250 students participated in different sports. A significant initiative from student's side was the intra-IIITD football tournament known as 'Joga Bonito', which was organized by the sports coordinator with the participation of 30 teams.

On various occasions, IIIT-D invited other college teams for friendly/ practice matches, including those from G.B.Pant Engineering College, College of Vocational Studies, Kirorimal College, and Jamia Millia Islamia etc.



TECH FEST - ESYA

'ESYA' which means a journey, an adventure - exploring Infinity and Beyond, is the IIT-Delhi's TechFest, and is one of the largest events organized annually on the campus. IIT-Delhi organized ESYA'15 on 21st and 22nd Aug 2015, with an aim to build ESYA as the platform to not only showcase technical expertise but also integrate technology with social causes. After four successful years that saw promising talents and immense reception, ESYA'15 saw an even larger participation. The two day festival included a series of unique and challenging events such as Data Hackathon, Hardware Hackathon, HuntIT, RoboWars, Chess, and Circuitrix.





CULTURAL FEST – ODYSSEY

IIIT Delhi organized its 2nd Cultural Fest “Odyssey”, a two day fest, on 31st January and 1st February, 2015 consisting of events ranging from dance, music, theater, art, literature and lifestyle. The students worked hard as volunteers and participated with great energy and enthusiasm.





IIIT-DELHI IN THE NEWS: SPOTLIGHT

Our Institute's key events and developments were covered by the media extensively. Specifically, articles related to events like Research Showcase, Esya, Convocation, Snow Petrel study conducted on Antarctica by WII with the technological support provided by TReWiS, Inauguration of Incubation Centre and international workshop were covered by top newspapers including The Times of India, The Hindustan Times, The Economic Times, Press Trust of India (PTI), Indo-Asian News Service (IANS) and Business Standard. Individual faculty research on cybersecurity and IT enabled wildlife monitoring, was highlighted in several media outlets.



FACULTY AND STAFF

FACULTY

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5. Mr. Adarsh Kumar Agarwal, Junior Manager (System Admin & Networking)
6. Mr. Ajay Kumar, Assistant Manager (S&P)
7. Mr. Amit Shankdhar, Assistant Manager (Finance & Accounts)
8. Mr. Ankit Agarwal, Web Manager
9. Mr. Anoop Singh, Deputy Manager (HR & Support Services)
10. Ms. Anshu Dureja, Junior Manager (Academics)
11. Mr. Anurag Tyagi, Junior Engineer (Civil)
12. Mr. Ashutosh Brahma, Junior Manager (Academics)
13. Mr. Bhawani Shah, Junior Manager (System Admin & Networking)
14. Mr. Husain Raza, Manager (Projects)
15. Ms. Jahnvee Tripathi, Junior Manager (Student Affairs)
16. Ms. Neha Bhatia, Assistant manager (IRD)
17. Ms. Priti Patel, Junior Manager (Academics)
18. Mr. Prosenjit Chatterjee, Assistant Manager (Finance & Accounts)
19. Mr. Rahul Gupta, Junior Research Engineer
20. Mr. Rajendra Singh, Assistant Manager (Library & Information Service)
21. Ms. Rashmil Mishra, DGM (Placements)
22. Mr. Ravi Bhasin, Assistant Manager (Student Affairs)
23. Mr. Sanjay Verma, Incubator Coordinator
24. Ms. Sheetu Ahuja, Assistant Manager (Academics)
25. Mr. Umesh, Junior Engineer (Electrical)
26. Mr. Vinod Kumar, Senior Executive Assistant
27. Mr. K.P.Singh, Academic In-charge

APPENDICES

IIT-DELHI

APPENDIX A

Refereed Journals/ Conference Publications/ Books (Published/Accepted) in 2014-15:

Journals

1. Pravindra Kumar and Anand Srivastava, Electrical Spreading Code based OFDM Optical Access Networks for Budget Enhancement and Reduced System Bandwidth Requirement, *Journal of Optical Communications (JOC)*. [Submitted on 18-Sept.-2014, Accepted on 11-Feb.-2015.
2. Gogna and A. Majumdar, "Matrix Completion Incorporating Auxiliary Information for Recommender System Design", *Expert Systems with Applications*, (I.F. 2.0).
3. Adriana Vamosiu, Marvin Titus, and Anubha Gupta, Conditional Convergence of Nonresident Tuition Rates at Public Research Universities: A Panel Data Analysis," *Higher Education*, Springer, April, 2015. [IF: 1.124]
4. Search by proteins for their DNA target site: 1. The effect of DNA conformation on protein sliding by Arnab Bhattacharjee and Yaakov Levy. Published in *Nucleic Acid Research*, July 2014. (impact factor: 8.81)
5. Search by proteins for their DNA target site: 2. The effect of DNA conformation on the dynamics of multidomain proteins by Arnab Bhattacharjee and Yaakov Levy. Published in *Nucleic Acid Research*, July 2014. (impact factor: 8.81)
6. Chetan Arora, Subhashis Banerjee, Prem Kalra, and S.N. Maheshwari. Generalized Flows for Optimal Inference in Higher Order MRF-MAP. In *IEEE Transactions on Pattern Analysis and Machine Intelligence*, 2015. Impact Factor: 5.694.
7. A different Deutsch {Jozsa, Debajyoti Bera. *Quantum Information Processing*, 2015,14(6), pp 1777{1785 (2013 Impact Factor - 2.96).
8. S. Bharadwaj, H.S. Bhatt, M. Vatsa, and R. Singh, QFuse: Online Learning Framework for Adaptive Biometric System, *Pattern Recognition*, 2015 (Accepted). Impact factor: 2.584
9. Nigam, M. Vatsa, and R. Singh, *Ocular Biometrics: A Survey of Modalities and Fusion Approaches*, Information Fusion (Elsevier), Vol. 26, pp. 1-35, 2015. Impact factor: 3.472
10. A.Sankaran, M. Vatsa and R. Singh, Multisensor Optical and Latent Fingerprint Database, *IEEE Access*, Vol. 3, pp. 653 - 665, 2015.
11. D. Yadav, R. Singh, M. Vatsa, and A. Noore, Recognizing Age Separated Face Images: Humans and Machines, *PLoS ONE* Vol. 9, No. 12, e112234 doi:10.1371/journal.pone.0112234, 2014. Impact factor: 3.534
12. H.S. Bhatt, R. Singh, M. Vatsa and N. Ratha, Matching Cross Resolution Face Images using Ensemble based Co-transfer Learning, *IEEE Transactions on Image Processing*, Vol. 23, No. 12, pp. 5654 - 5669, 2014. Impact factor: 3.111
13. G. Goswami, M. Vatsa and R. Singh, RGB-D Face Recognition with Texture and Attribute Features, *IEEE Transactions on Information Forensics and Security*, Vol. 9, No. 10, pp 1629-1640, 2014. Impact factor: 2.065
14. M. Singh, S. Nagpal, R. Singh and M. Vatsa, On Recognizing Face Images with Weight and Age Variations, *IEEE Access*, Vol. 2, pp. 822-830, 2014.
15. A.Sankaran, M. Vatsa and R. Singh, Latent Fingerprint Matching: A Survey, *IEEE Access*, Vol.2, pp. 982-1004, 2014.
16. M. S. Hashmi, F. M. Ghannouchi, and P. J. Tasker, High Frequency Wave-form Engineering and its Applications," *IEEE Instrumentation and Measurement Magazine*, Issue 3, pp. 44-50, June 2015. [IF: 0.474]
17. M. A. Maktoomi, M. S. Hashmi, and V. Panwar, A Dual-Frequency Matching Network for FDCLs using Dual-band Quarter-Wave-Line," *Progress in Electromagnetics Research Letters*, Vol. 52, pp. 23 { 30, March 2015. [IF: 5.298]
18. M. A. Maktoomi, and M. S. Hashmi, A Coupled Line based L { Section DC- Isolated Dual-band Real to Real impedance Transformer and its Application to a Dual-band T { Junction Power Divider," *Progress in Electromagnetics Research (PIER)*, Vol. 55, pp. 95 { 104, Dec. 2014. [IF: 5.298]
19. M. A. Maktoomi, M. S. Hashmi, and F. M. Ghannouchi, A T-Section Dual-Band Matching Network for

Frequency-Dependent Complex Loads Incorporating Coupled Line with DC-Block Property Suitable for Dual-band Transistor Amplifiers,” *Progress in Electromagnetics Research (PIER)*, Vol. 54, pp. 75–84, Oct.2014. [IF: 5.298]

20. D. Ho, E.I. Grtli, P.B. Sujit, T.A. Johansen and J.B. Sousa: Optimization of wireless sensor network and UAV data acquisition, *Journal of Intelligent and Robotics Systems*, Vol.78, 2015, pp. 159–179. Impact factor 0.810.

21. Rajiv Raman, Mangesh Gharote, Rahul Patil, Sachin Lodha :Assignment of trainees to software project requirements: A stable matching based approach, , *Computers and Industrial Engineering*, 2015, Elsevier.

22. F. Ladu, T. Bartolini, S. Panitz, F. Chiarotti, S. Butail, S. Macrì, and M. Porfiri. Live predators, robots, and computer-animated images elicit differential avoidance responses in zebrafish. *Zebrafish (cover page)*, 2015.

23. V. Mwaffo, R. P. Anderson, S. Butail, and M. Porfiri. A jump persistent turning walker to model zebrafish locomotion. *Journal of the Royal Society Interface*, 12(102):20140884, 2015.

24. V. Mwaffo, S. Butail, M. diBernardo, and M. Porfiri. Measuring zebrafish turning rate. *Zebrafish*, 12(3):250-254, 2015.

25. S. Butail, G. Polverino, P. Phamduy, F. Del Sette, and M. Porfiri. Influence of robotic shoal size, configuration, and activity on zebrafish behavior in a free-swimming environment. *Behavioural Brain Research*, 275:269-280, 2014.

26. S. Butail, P. Salerno, E. M. Bollt, and M. Porfiri. Classification of collective behavior: a comparison of tracking and machine learning methods to study the effect of ambient light on fish shoaling. *Behavior Research Methods*, 2014.

27. Sandip Aine, Siddarth Swaminathan, Venkatraman Narayanan, Victor Hwang and Maxim Likhachev, Multi-Heuristic A*, to appear in *International Journal of Robotics Research (IJRR)*, 2015 (Top journal in Robotics, Impact Factor: 2.523).

28. SG Vadlamudi, Sandip Aine and PP Chakrabarti, Anytime Pack Search, *Natural Computing*, Springer, 2014.(Impact Factor: 0.539)

29. S. J. Darak, Christophe Moy, Sumedh Dhabu, Honggang Zhang, Jacques Palicot and A. P. Vinod, Decentralized Spectrum Learning and Access for Heterogeneous Cognitive Radio Networks,” *Digital Signal Processing (Elsevier)*, vol. 37, pp. 13-23, Feb. 2015. (Revised version: March 2015) (Impact factor: 2.018)

30. Vashistha, S. Sharma, V. A. Bohara, “Outage Analysis of a Multiple-Antenna Cognitive Radio System With Cooperative Decode-and-Forward Relaying,” *IEEE Wireless Communications Letters*, vol.4, no.2, April 2015. (Impact Factor: 2.29)

31. Pravindra Kumar and Anand Srivastava, “Optical Power Budget Enhancement in Next Generation DDO-OFDM based Optical Access Networks Using Square Root Module” *Journal of Photonics Network Communications (PNET)*, Springer. [Submitted 06.06.14, Accepted 06.06.15].

32. A.Majumdar and R. K. Ward, “Energy Efficient EEG Sensing and Transmission for Wireless Body Area Networks: A Blind Compressed Sensing Approach”, *Biomedical Signal Processing and Control*, (I.F. 1.5).

33. H. Aggarwal and A. Majumdar, “Exploiting Spatio-Spectral Correlation for Impulse Denoising in Hyperspectral Images”, *SPIE Journal of Electronic Imaging*, Vol. 24(1), 013027, 2015 (I.F. 0.85).

34. A.Shukla and A. Majumdar, “Exploiting Inter-channel Correlation in EEG Signal Reconstruction”, *Biomedical Signal Processing and Control*, Vol. 18 (4), pp. 49–55, 2015 (I.F. 1.5).

35. S. S. Ram and A. Majumdar, “High Resolution Doppler-Enhanced Frontal Radar Imaging of Moving Humans”, *IEEE Transactions on Aerospace and Electronic Systems*, accepted (I.F. 1.3).

36. A.Shukla and A. Majumdar, “Row-sparse Blind Compressed Sensing for Reconstructing Multi-

- channel EEG signals”, *Biomedical Signal Processing and Control*, Vol. 18 (4), pp. 174–178, 2015 (I.F. 1.5).
37. A.Majumdar, “Improving Synthesis and Analysis Prior Blind Compressed Sensing with Low-rank Constraints for Dynamic MRI Reconstruction”, *Magnetic Resonance Imaging*, Vol. 33(1), pp. 174-179, 2015 (I.F. 2.0)
38. A.Majumdar and R. Ward, “Exploiting Sparsity and Rank Deficiency for MR Image Reconstruction from Multiple Partial K-Space Scans”, *IEEE Canadian Journal of Electrical and Computer Engineering*, Vol. 37 (4), pp. 228-235. (I.F. 0.33).
39. A.Majumdar, A. Gogna and R. Ward, “Low-rank Matrix Recovery Approach For Energy Efficient EEG Acquisition for Wireless Body Area Network”, *Sensors, Special Issue on State-of-the-art Sensor Technologies in Canada*, Vol. 14(9), pp. 15729-15748, 2014 (I.F. 2.0).

Conference Publications

1. Force-Directed Scheduling for Data Flow Graph Mapping on Coarse-Grained Reconfigurable Architectures by Alexander Fell, Zoltan Endre Rakossy and Anupam Chattopadhyay. Paper accepted and published in the International Conference on ReConfigurable Computing and FPGAs (ReConFig), 2014.
2. Pravindra Kumar and Anand Srivastava, Enhanced Optical Power Budget in DDO-OFDM-PON and CO-OFDM-PON System Using Frequency Diversity” IEEE International Conference on Advanced Networks and Telecommunication Systems (ANTS 2014). Conference date: 14-17, Dec.14, Published on IEEE site in Feb.15. (This paper got Best poster award in ANTS 2014 Conference)
3. Pravindra Kumar and Anand Srivastava, Enhanced Performance of FSO Link Using -FSO OFDM and Comparison with Traditional TDM Link” IEEE International Broadband and Photonics (IBP) Conference, Bali, Indonesia, Accepted and presented in the Conference (23-25 April 2015).
4. H. K. Aggarwal and A. Majumdar, “Blind Compressive Hyper-Spectral Imaging”, IEEE IGARSS 2015.
5. H. K. Aggarwal and A. Majumdar, “Mixed Gaussian and Impulse Denoising of Hyperspectral Images”, IGARSS 2015.
6. S.Tariyal, H. K. Aggarwal and A. Majumdar, “Hyperspectral Impulse Denoising with Sparse and Low-Rank Penalties”, 7th IEEE WHISPERS 2015.
7. H. K. Aggarwal, S. Tariyal and A. Majumdar, “Compressive Hyper-Spectral Imaging in The Presence of Impulse Noise”, 7th IEEE WHISPERS 2015.
8. A.Majumdar and R. K. Ward, “Learning the Sparsity Basis in Low-rank plus Sparse Model for Dynamic MRI Reconstruction”, 40th IEEE ICASSP 2015.
9. A.Majumdar, N. Ansari and H. Aggarwal, “Hyper-spectral Impulse Denoising: A row-sparse Blind Compressed Sensing Formulation”, 40th IEEE ICASSP 2015.
10. A.Majumdar, A. Shukla and R. K. Ward, “Combining Sparsity with Rank-Deficiency for Energy Efficient EEG Sensing and Transmission over Wireless Body Area Network”, 40th IEEE ICASSP 2015.
11. A.Gogna and A. Majumdar, “ Blind Compressive Sensing Framework For Collaborative Filtering”, 40th IEEE ICASSP 2015.
12. A.Majumdar, “Scale-Rotation Invariant Features from Non-Subsampled Contourlets”, 8th ICAPR 2015.
13. A.Gogna and A. Majumdar, “SVD free Matrix Completion with Online Bias Correction for Recommender Systems”,8th ICAPR 2015.
14. H. K. Aggarwal and A. Majumdar, “Multi-spectral Demosaicing: A Joint-sparse Elastic-net Formulation”,8th ICAPR 2015.
15. A.Majumdar, A. Shukla and R. K. Ward, “A Kronecker Compressed Sensing Formulation for Energy Efficient EEG Sensing”, 8th ICAPR 2015.
16. P. Das, M. Jain and A. Majumdar, “Non Linear Sparse Recovery Algorithm”, 14th IEEE ISSPIT.

17. Rajani, P. Mittal, A. Jain and A. Majumdar, "A Blind Compressed Sensing Formulation for Collaborative Filtering", 14th IEEE ISSPIT.
18. A.Shah and A. Majumdar, "Sparse Recovery on GPUs: Accelerating the Iterative Soft-Thresholding Algorithm", 14th IEEE ISSPIT.
19. H. Agarwal and A. Majumdar, "Generalized Synthesis and Analysis Prior Algorithms with Application to Impulse Denoising", ICVGIP 2014.
20. A.Gogna and A. Majumdar, "Distributed Elastic Net Regularized Blind Compressive Sensing for Recommender System Design", COMAD 2014.
21. W. Singh, A. Shukla, S. Deb and A. Majumdar, "Energy Efficient Acquisition and Reconstruction of EEG Signals", 36th IEEE EMBC 2014.
22. A.Gogna, A. Shukla, H. Agarwal and A. Majumdar, "Split Bregman Algorithms for Sparse Joint-sparse and Low-rank Signal Recovery: Application in Compressive Hyperspectral Imaging", IEEE ICIP 2014.
23. Priya Aggarwal, Anubha Gupta, and Ajay Garg, Joint Estimation of Hemodynamic Response Function and Voxel Activation in functional MRI Data," Accepted, MICCAI 2015, Germany, Oct. 2015. (ECE Approved and CSE Core A conference- Top Medical Imaging Conference)
24. Naushad Ansari and Anubha Gupta, Signal-Matched Wavelet Design via Lifting using Optimization Techniques," Accepted, IEEE DSP, Singapore, July 2015.
25. Naushad Ansari and Anubha Gupta, Lifting-based Rational Wavelet Design from a Given Signal," Accepted, IEEE DSP, Singapore, July 2015.
26. Anupriya Gogna, Sri Harsha Gade, and Anubha Gupta, Design of Signal-Matched Critically Sampled FIR Rational Filterbank," IEEE International Conference on Acoustics, Speech and Signal Processing, ICASSP 2015, April 19{24, 2015, Australia. (IEEE Signal Processing Society Flagship).
27. Ananya Sen Gupta, Naushad Ansari, and Anubha Gupta, Tracking the underwater acoustic channel using two-dimensional frequency sampling," IEEE OES International Symposium on Underwater Technology 2015, National Institute of Ocean Technology-India, Feb 23-25, 2015, Chennai, India.
28. Chandan Pradhan and Anubha Gupta, Modeling of Ambient and Ship Noise in Underwater Ocean Environment of the Bay of Bengal," IEEE International Conference on Signal Processing, Informatics Communication and Energy Systems, IEEE SPICES 2015, Feb. 19-21, 2015, National Institute of Technology Calicut (NITC),India.
29. Mandar Karlekar and Anubha Gupta, Stochastic modeling of EEG rhythms with fractional Gaussian Noise," Proceedings of the 22nd European Signal Processing Conference, EUSIPCO-2014, pp. 2520{2524, Sep. 1-5, 2014, Portugal. (European Signal Processing Society Flagship)
30. Garima Ahuja, Anubha Gupta, Harsh Wardhan, and Venkatesh Choppella, Assessing the impact of Virtual Labs: a case study with the lab on Advanced VLSI," Accepted, 15th IEEE ICALT, 2015 Conference, Hualien, Taiwan, July 2015.
31. Apala Guha, Karan Kalra, Sandip Aine. Instruction Set Architecture Customization for Heuristic Search Applications, Indian Symposium on Computer Systems (IndoSys), Bangalore, June 2014.
32. Deepanker Aggarwal, Astrid Kiehn: Analyzing Mutable Checkpointing via Invariants, 6th International Conference on Fundamentals of Software Engineering (FSEN) 2015, to appear in LNCS.
33. Chetan Arora and S.N. Maheshwari. In Proceedings of Multi Label Generic Cuts: Optimal Inference in Multi Label Multi Clique MRF-MAP Problems. In Proceedings of IEEE International Conference on Computer Vision and Pattern Recognition (CVPR), June 2014.
34. Chetan Arora, Subhashis Banerjee, Prem Kalra, and S.N. Maheshwari. Fast Approximate Inference in Higher Order MRF-MAP Labeling Problems. In Proceedings of IEEE International Conference on Computer Vision and Pattern Recognition (CVPR), June 2014.

35. Yair Poleg, Chetan Arora, and Shmuel Peleg. Temporal Segmentation of Egocentric Video. In Proceedings of IEEE International Conference on Computer Vision and Pattern Recognition (CVPR), June 2014.
36. Chetan Arora and Michael Werman. Optical Flow for non Lambertian surfaces by cancelling illuminant chromaticity. In Proceedings of IEEE International Conference on Image Processing (ICIP), October 2014.
37. Yair Poleg, Chetan Arora, and Shmuel Peleg. Head Motion Signatures from Egocentric Videos. In Proceedings of Asian Conference on Computer Vision (ACCV), November 2014.
38. Finding RkNN Set in Directed Graphs. Pankaj Sahu, Prachi Agrawal, Vikram Goyal, Debajyoti Bera, ICDCIT 2015: 162{173.
39. Megha Agrawal, Donghoon Chang, Mohona Ghosh, Somitra Kumar Sanadhya. Collision attack on 4-branch Type-2 GFN based hash functions using sliced biclique cryptanalysis technique. Inscrypt 2014, December 13-15, Beijing, China.
40. Andrey Bogdanov, Donghoon Chang, Mohona Ghosh, Somitra Kumar Sanadhya. Bicliques with Minimal Data and Time Complexity for AES. ICISC 2014, December 3-5, 2014, Seoul, Korea.
41. H.B Acharya, Incremental Verification of Computing Policies (SSS 2014).
42. H.B Acharya, Towards a practical infrastructure for Decoy Routing (SENT 2015).
43. T. I. Dhamecha, P. Verma, M. Shah, M. Vatsa and R. Singh, Annotated Video Crowd Face Database, IAPR International Conference on Biometrics, 2015.
44. R. Bhardwaj, G. Goswami, R. Singh and M. Vatsa, Harnessing Social Context for Improved Face Recognition, IAPR International Conference on Biometrics, 2015.
45. P. Mittal, M. Vatsa and R. Singh, Composite Sketch Recognition via Deep Network - A Transfer Learning Approach, IAPR International Conference on Biometrics, 2015.
46. A.Jain, P. Mittal, G. Goswami, M. Vatsa and R. Singh, Person Identification at a Distance via Ocular Biometrics, In Proceedings of IEEE International Conference on Identity, Security and Behavior Analysis, 2015.
47. A.Shankar, M. Vatsa, and P. B. Sujit, Collision Avoidance for a Low-cost Robot using SVM-based Monocular Vision, In Proceedings of IEEE International Conference Robotics and Biomimetics,2014.
48. P. Mittal, A. Jain, G. Goswami, R. Singh and M. Vatsa, Recognizing Composite Sketches with Digital Face Images via SSD Dictionary, In Proceedings of International Joint Conference on Bio-metrics, 2014 (Acceptance rate: 29%).
49. G. Goswami, R. Bhardwaj, R. Singh and M. Vatsa, MDLFace: Memorability Augmented Deep Learning for Video Face Recognition, In Proceedings of International Joint Conference on Biometrics, 2014 (Acceptance rate: 29%).
50. S. Bharadwaj, M. Vatsa and R. Singh, Aiding Face Recognition via Social Context Association, In Proceedings of International Joint Conference on Biometrics, 2014 (Acceptance rate: 29%).
51. A.Sankaran, P. Pandey, M. Vatsa and R. Singh, On Latent Fingerprint Minutiae Extraction via Stacked Denoising Sparse Auto Encoders, In Proceedings of International Joint Conference on Biometrics, 2014 (Acceptance rate: 29%).
52. A.Sharma, S. Verma, M. Vatsa, and R. Singh, On Cross Spectral Periocular Recognition, In Proceedings of International Conference on Image Processing, 2014.
53. I.Nigam, M. Vatsa, and R. Singh, Leap Signature Recognition using HOOF and HOT features, In Proceedings of International Conference on Image Processing, 2014.
54. M. Mohsina, M. S. Hashmi, and S. S. Ram, A Generic Technique to Develop Human Tissue Phantom,” IEEE Asia Pacific Antenna and Propagation Conference (APCAP), June-July 2015.

55. Y. D. Mishra, A. C. Mishra, and M. S. Hashmi, *System-level Signal and Power Integrity Co-Simulation of DDR4 Based on Power Aware IBISv5.0 Models*," Synopsys User Group (SNUG) Conference, June 2015.
56. R. Sinha, B. S. Nirwan, and M. S. Hashmi, *A New Row Decoding Architecture for Fast Wordline Charging in NOR Type Flash Memories*," IEEE 19th International Conference on VLSI Design and Test (VDAT), June 2015.
57. Y. D. Mishra, M. S. Hashmi, and A. C. Mishra, *An Efficient Approach for Estimating the Impact of SSO Noise on LPDDR2 Timing Budget*," IEEE 19th International Conference on VLSI Design and Test (VDAT), June 2015.
58. G. Anil Kumar, N. Kumar, and M. S. Hashmi, *Interpolation Based Simple and Effective Technique for Modeling and Estimation of Electromigration in SRAMs*," IEEE 19th International Conference on VLSI Design and Test (VDAT), June 2015, (Accepted)
59. S. Srivastava, M. S. Hashmi, D. Barua, and S. Das, *Real-time Blind Spectrum Sensing Using USRP*," IEEE International Symposium on Circuits and Systems (ISCAS), May 2015, Lisbon (Accepted)
60. Z. Zafar, M. A. Maktoomi, and M. S. Hashmi, *A New Adjustable Square/Triangular-Wave Generators using CCII/CCCII and OTA*," IEEE 26th International Conference on Microelectronics, Qatar, pp. 104-107, Dec. 2014.
61. R. Krishnamurthy, and M. S. Hashmi, *A Low Power, High Dynamic Range and Area Efficient Cyclic On-Chip Delay Measurement Architecture*," IEEE 26th International Conference on Microelectronics, Qatar, pp. 64-67, Dec. 2014.
62. D. Sharma, and M. S. Hashmi, *A Miniature Tri-band Patch Antenna for GSM, WiFi, and WiMAX Applications*," IEEE MTT-S International Microwave and RF Conference (IMaRC), Bangalore, pp. 156-158, Dec. 2014.
63. M. A. Maktoomi, V. Panwar, M. S. Hashmi, and F. M. Ghannouchi, *A Dual-Band Matching Network for Frequency-Dependent Complex Loads Suitable for Dual-Band RF Amplifiers*," IEEE MTT-S International Microwave and RF Conference (IMaRC), Bangalore, pp. 88-91, Dec. 2014.
64. R. Sinha, and M. S. Hashmi, *A Positive Level Shifter for High Speed Symmetric Switching in in Flash Memories*," IEEE 18th International Conference on VLSI Design and Test (VDAT), Coimbatore, pp. 1-5, July 2014.
65. K. Sundar, P.B. Sujit, S. Rathinam, D.E. Lucani, and J.B. Sousa: *Algorithms for collecting data from cooperating sensor motes using unmanned vehicles*, Indian Control Conference, Chennai, India, Jan 2015.
66. Nishant Sharma and P.B. Sujit: *A multi-robot foraging model on deciding predation risk vs. food quality trade-offs*, IEEE International Conference on Robotics and Biomimetics, Bali, Indonesia, December 2014.
67. Dipto Sarkar, Shayan Lahiri, Akshit Gupta and P.B. Sujit: *Communication network discovery strategies for multi-robot deployments*, International Symposium on Distributed Autonomous Robotic Systems, Daejeon, Korea, 2014.
68. Rahul Singhal and P.B. Sujit: *Trajectory Tracking for a Quadcopter Using MPC on a 3D Terrain*, International Conference on Unmanned Aerial Systems, Denver, Colorado, June 2015.
69. Alvika Gautam and P.B. Sujit: *Application of Guidance Laws to Quadrotor Landing*, International Conference on Unmanned Aerial Systems, Denver, Colorado, June 2015.
70. Parikshit Maini and P.B. Sujit: *On Cooperation between a Fuel Constrained UAV and a Refueling UGV for Large Scale Mapping Applications*, International Conference on Unmanned Aerial Systems, Denver, Colorado, June 2015.
71. Mayank Garg, Abhishek Kumar and P.B. Sujit: *Terrain-Based Landing Site Selection and Path*

Planning for UAVs, International Conference on Unmanned Aerial Systems, Denver, Colorado, June 2015.

72. Parikshit Maini and P.B. Sujit: Distributed Task Servicing using Multiple Robots with Human-in-the-loop under Limited Communication Range, IRMAS, ACM Symposium on Applied computing, Salamanca, Spain, April 2015.

73. Online Social Networks and Police in India {Understanding the Perceptions, Behavior, Challenges. Sachdeva, N., and Kumaraguru, P. Accepted at the European conference on Computer-Supported Cooperative Work (ECSCW) 2015.

74. Roy, R., Padmakumar, A., Jeganathan, G., and Kumaraguru, P. Automated Linguistic Personalization of Targeted Marketing Messages Mining User-generated Text on Social Media. Proceedings of the 16th International Conference on Intelligent Text Processing and Computational Linguistics 2015 (CICLing '15).

75. Social Networks for Police and Residents in India: Exploring Online Communication for Crime Prevention. Sachdeva, N., and Kumaraguru, P. Accepted at the 16th Annual International Conference on Digital Government Research. 2015.

76. TweetCred: Real-Time Credibility Assessment of Content on Twitter. Gupta, A., Kumaraguru, P., Castillo, C., and Meier, P. Accepted at The 6th International Conference on Social Informatics.

77. Gupta, N., Aggarwal A. and Kumaraguru, P. bit.ly/malicious: Deep Dive into Short URL based e-Crime Detection. 9th Anti-Phishing Working Group (APWG) eCrime Research Symposium (eCRS), 2014.

78. Gupta, S., and Kumaraguru, P. Emerging Phishing Trends and Effectiveness of the Anti-Phishing Landing Page. 9th Anti-Phishing Working Group (APWG) eCrime Research Symposium (eCRS), 2014.

79. Dewan, P., Kashyap, A., Kumaraguru, P. Analyzing Social and Stylometric Features to Identify Spear phishing Emails. Accepted at 9th Anti-Phishing Working Group (APWG) eCrime Research Symposium (eCRS), 2014.

80. Kireet Pant, Dibyendu Talekdar and Pravesh Biyani, Traffickarma: estimating effective traffic indicators", presented at, ACM IKDD Conference on Data Science 2015, Bangalore, India. (3rd position out of 31 entries in the data challenge).

81. Singh, M.; Kaul, S.; Biyani, P., "On large throughputs in high density enterprise wireless LAN(s)," in Global Communications Conference (GLOBECOM), 2014 IEEE , vol., no., pp.4864-4869, 8-12 Dec. 2014

82. Siddhartha Asthana, Pushpendra Singh, Parul Gupta, "Survival Analysis: Objective assessment of Wait Time in HCI," Proceedings of the 33rd Annual ACM Conference on Human Factors in Computing Systems (CHI), 2015

83. Shilpa Garg, Pushpendra Singh, Parameswaran Ramanathan, Rijurekha Sen, "VividhaVahana: smartphone based vehicle classification and its applications in developing region," Proceedings of the 11th International Conference on Mobile and Ubiquitous Systems: Computing, Networking and Services, 2014.

84. Pandarasamy Arjunan, Mani B. Srivastava, Amarjeet Singh, Pushpendra Singh, "OpenBAN: An Open Building Analytics Middleware for Smart Buildings," Proceedings of the 12th International Conference on Mobile and Ubiquitous Systems: Computing, Networking and Services, 2015.

85. Pandarasamy Arjunan, Manaswi Saha, Haksoo Choi, Manoj Gulati, Amarjeet Singh, Pushpendra Singh, Mani B. Srivastava, "SensorAct: A Decentralized and Scriptable Middleware for Smart Energy Buildings," Proceedings of the 12th IEEE International Conference on Ubiquitous Intelligence and Computing (UIC 2015).

86. Garvita Bajaj, Pushpendra Singh, "Sahyog: A Middleware for Mobile Collaborative Applications," 7th IFIP International Conference on New Technologies, Mobility and Security (NTMS), 2015.

87. Siddhartha Asthana, Pushpendra Singh, Shraddha Jain, "Adaptive Framework for Data Transmission over GSM Voice Channel for Developing Regions," 7th IFIP International Conference on New Technologies,

Mobility and Security (NTMS), 2015.

88. Nitinder Mohan, Pushpendra Singh, "CCNCheck: Enabling Checkpointed Distributed Applications in Content Centric Networks," CCNxCon, 2015

89. Siddhartha Asthana, Pushpendra Singh, "Maareech: Usability Testing Tool for Voice Response System using XML based User Models," 17th International Conference on Human-Computer Interaction 2015.

90. Meenu Singh, Amit Agarwal, Pankaj Pant, Saurabh Kumar, Pushpendra Singh, "Telemonitoring - ECG through the use of mobile based technology", 10th International Conference of Telemedicine Society of India, 2014

91. Meenu Singh, Pushpendra Singh, Amit Agarwal, Pankaj Pant, Saurabh Kumar, Suresh Bhatt, Munish Kumar, "Telemonitoring the Pulmonary Function Test (PFT's) by using Tele-Spirometer", 10th International Conference of Telemedicine Society of India, 2014.

92. Venkatesh Vinayakarao, Rahul Purandare, Aditya V. Nori: Structurally Heterogeneous Source Code Examples from Unstructured Knowledge Sources. PEPM 2015.

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121. Ramandeep Kaur, Rahul Malhotra and Sujay Deb, "MAC based FIR Filter: A novel approach for Low-Power Real-Time De-noising of ECG signals", accepted in *19th International Symposium on VLSI Design and Test VDAT-2015*.
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Computing for Development (DEV 2014), 5-6 December, 2014, San Jose, USA.

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136. A V Subramanyam Spatial Domain Quantization Noise Based Image Filtering Detection, accepted in IEEE International Conference on Image Processing, Quebec City, Canada, 2015

Books/ Book Chapters Published

1. Compressed Sensing for Magnetic Resonance Image Reconstruction, Angshul Majumdar, Cambridge University Press, 2015.

2. T.I. Dhamecha, J. Agrawal, A. Pant, M. Vatsa, and R. Singh, RGB-D Face Recognition, Face Recognition Across the Electromagnetic Spectrum, Edited by Thirimachos Bourlai, 2015 (Accepted with minor revision).

3. G. Goswami, M. Vatsa, and R. Singh, RGB-D Face Recognition, Face Recognition Across the Electromagnetic Spectrum, Edited by Thirimachos Bourlai, 2015 (Accepted with minor revision). N. Kose, J.-L. Dugelay, R. Singh, and M. Vatsa, Recognizing Face Images with Disguise Variations.

4. N. Kose, J.-L. Dugelay, R. Singh, and M. Vatsa, Recognizing Face Images With Disguise Variations, Face recognition in Adverse Conditions, Edited by M. De Marsico, M. Nappi, and M. Tistarelli, 2014 (Invited Chapter).

Workshop/Demos/Posters in International Conferences

Dr. Alexander Fell

1. Technical Demo on A low Cost and low Power Nest Monitoring System for Snow Petrels" by Alexander Fell- Demo accepted and published in the International Conference on ReConFigurable

Computing and FPGAs (ReConFig), 2014

Dr. Angshul Majumdar

1. P. Mittal, A. Jain and A. Majumdar. Metadata Based Recommender Systems. *International Conference on Advances in Computing, Communications and Informatics (ICACCI 2014)*, September 24-27, 2014, Greater Noida, India (Accepted).
2. A.Majumdar and R. K. Ward. Fast SVD Free Low-rank Matrix Recovery: Application to Dynamic MRI Reconstruction *International Conference on Medical Imaging, m-Health & Emerging Communication Systems (MEDCOM 2014)*, November 7-8, 2014, Greater Noida, India. (Accepted)
3. S. Banerjee and A. Majumdar, "Improving Rating Predictions by Baseline Estimation and Single Pass Low-rank Approximation", *Workshop on Machine Intelligence and Signal Processing*, December 20-23, 2014, New Delhi, India.
4. K. Gupta and A. Majumdar, "Greedy Algorithms for Non-linear Sparse Recovery ", *Workshop on Machine Intelligence and Signal Processing*, December 20-23, 2014, New Delhi, India.
5. J. Mehta, A. Gang and A. Majumdar, "Recovering Partially Sampled EEG Signals using Learned Dictionaries", December 20-23, 2014, New Delhi, India.
6. A.Shah and A. Majumdar. Accelerating Low-Rank Matrix Completion on GPUs. *International Conference on Advances in Computing, Communications and Informatics (ICACCI 2014)*, September 24-27, 2014, Greater Noida, India (Accepted).

Dr. Anubha Gupta

1. Anupriya Gogna, Sri Harsha Gade, and Anubha Gupta, *Design of Signal-Matched Critically Sampled FIR Rational Filterbank*," Research Showcase, IIIT Delhi, Won 3rd Prize, March 2015.

Dr. Apala Guha

1. Rakhi Hemani, Subhasis Banerjee and Apala Guha. Inference-based LLC-side access pattern estimation for shared cache modeling on commercial multicores, *IIIT Delhi Technical Report IIITD-TR-2015-007*, May 2015.
2. Rakhi Hemani, Subhasis Banerjee and Apala Guha. ACCORD: An Analytical Cache Contention Model using Reuse Distances for Modern MultiProcessors, *21st Annual International Conference on High Performance Computing Student Research Symposium (HiPC SRS)*, Goa, India, December 2014. Poster.
3. Rakhi Hemani, Subhasis Banerjee and Apala Guha. ACCORD: An Analytical Cache Contention Model using Reuse Distances for Modern MultiProcessors, *21st Annual International Conference on High Performance Computing Student Research Symposium (HiPC SRS)*, Goa, India, December 2014. Acceptance Rate 23.5%.
4. Rakhi Hemani, Subhasis Banerjee, Apala Guha. ACCORD: An Analytical Cache Contention Model using Reuse Distances for Modern Multiprocessors, *IIIT Delhi Technical Report IIITD-TR-2014-004*, September 2014.

Dr. Arnab Bhattacharjee

1. Poster presented: "Conformational and aggregation properties of the 1-93 fragment of apolipoprotein A-- I" *Protein Folding-- 2014*, NCBS Bangalore.

Dr. Donghoon Chang

1. Donghoon Chang, Arnab Kumar, Pawel Morawiecki, Somitra Kumar Sanadhya. 1st and 2nd Preimage Attacks on 7, 8 and 9 Rounds of SHA3-224,256,384,512. SHA-3 Workshop organized by NIST, August 22, 2014, UCSB, Santa Barbara, USA (Co-located with Crypto 2014).

Dr. K.Sriram

1. Alvika Gautam Vinayak S. Naik Archie Gupta S. K. Sharma Sriram K (2014) An Smartphone-based Algorithm to Measure and Model Quantity of Sleep, Net Health Workshop, COMSNETS 2015.

Dr. Mayank Vatsa

1. G. Goswami, R. Singh and M. Vatsa, Automated Spam Detection in Short Text Messages, In Proceedings of International Workshop on Machine Intelligence and Signal Processing, 2014.
2. S. Bharadwaj, S. Jairath, M. Vatsa and R. Singh, Adaptive Skin Color Model to Improve Video Face Detection, In Proceedings of International Workshop on Machine Intelligence and Signal Processing, 2014.

Dr. M.S Hashmi

1. Y. D. Mishra, M. Bansal, A. Chandra, and M. S. Hashmi, PI and EMI/EMC Analysis of DDR4 based on Power Aware Models,” STMicroelectronics Tech Week, Feb. 2015.

Dr. Ponnurangam Kumaraguru

1. Sachdeva N. and Kumaraguru P. Deriving Requirements for Social Media based Community policing: Insights from Police. Dg.o 2015, 16th International Digital Government Research Conference. May 27 - 30, 2015. Poster.
2. Aggarwal, A., and Kumaraguru, P. Followers or Phantoms? An Anatomy of Purchased Twitter Followers. XRCI Open, 22 { 23 Jan, 2015. Poster.
3. Aggarwal, A., and Kumaraguru, P. Followers or Phantoms? An Anatomy of Purchased Twitter Followers. Security and Privacy Symposium, 14 { 15 Feb, 2015. Poster.
4. Gupta, A., Castillo, C., and Kumaraguru, P. TweetCredCrisis: Real-time Assessment of Quality of Content Posted on Twitter during Crisis Events. Security and Privacy Symposium, 14 { 15 Feb, 2015. Poster.
5. Dewan, P., Kashyap, A., and Kumaraguru, P. Analysing Social and Stylometric Features to Identify Spearphishing Emails. Security and Privacy Symposium, 14 { 15 Feb, 2015. Poster.
6. Sachdeva N. and Kumaraguru P. Police on Facebook: Improving Online Public Communication for Police and Residents. Security and Privacy Symposium, 14 { 15 Feb, 2015. Poster.
7. Dewan, P., and Kumaraguru, P. Spam Identification on Facebook During Events. Conference on Online Social Networks (COSN), Oct 1 { 2, 2014. Poster.

Dr. Pushpendra Singh

1. Rakshit Wadhwa, Pushpendra Singh, Meenu Singh, Saurabh Kumar, “An EMR-Enabled Medical Sensor Data Collection Framework”, NetHealth 2015.
2. Rakshit Wadhwa, Apurv Mehra, Pushpendra Singh, Meenu Singh, “A Pub/Sub based Architecture to Support Public Healthcare Data Exchange”, NetHealth 2015.

Dr. Richa Singh

1. G. Goswami, R. Singh and M. Vatsa, Automated Spam Detection in Short Text Messages, In Proceedings of International Workshop on Machine Intelligence and Signal Processing, 2014.
2. S. Bharadwaj, S. Jairath, M. Vatsa and R. Singh, Adaptive Skin Color Model to Improve Video Face Detection, In Proceedings of International Workshop on Machine Intelligence and Signal Processing, 2014.

Dr. Sachit Butail

1. P.Jain, K.Choudhary, S.Pradhan, O.P.Singh, and S. Butail. An indoor lighting system to study mosquito-- swarming behavior. In Research showcase, IIT Delhi, New Delhi, India (Won second prize in Elevator Pitch demo competition), 2015.

Dr. Sandeep Aine

1. Sandip Aine, Siddarth Swaminathan, Venkatraman Narayanan, Victor Hwang and Maxim Likhachev, Multi-Heuristic A*: Extended Abstract (Poster), Symposium on Combinatorial Search (SoCS), 2014 [Best Poster Award]

Dr. Sanjit Kaul

1. Dheryta Jaisinghani, Vinayak Naik, Sanjit Kaul, and Sumit Roy, "Realtime Detection of Degradation in WiFi Network's Goodput Due to Probe Traffic," in The 2015 International Workshop on Wireless Network Measurements and Experimentation (WinMee).

Dr. Somitra Kumar Sanadhya

1. Donghoon Chang, Arnab Kumar, Pawel Morawiecki, Somitra Kumar Sanadhya. 1st and 2nd Preimage Attacks on 7, 8 and 9 Rounds of SHA3-224,256,384,512. SHA-3 Workshop organized by NIST, August 22, 2014, UCSB, Santa Barbara, USA (Co-located with Crypto 2014).
2. Abhishek Kumar, Somitra Kumar Sanadhya, Praveen Gauravaram, Nasour Bagheri, Javad Alizadeh, Mohammad Reza Aref, Hoda A. Alkhzaimi and Martin M. Lauridsen. Cryptanalysis of SIMON Variants with Connections, RFIDSec 2014, Oxford, UK, July 21-23, 2014.

Dr. Sujay Deb

1. Poster: Niranjan Kumar, Amogh Agrawal, Sujay Deb," Cuffless BP Measurement Using a Correlation Study of Pulse Transient Time and Heart Rate" in ICACCI 2014.

Dr. Vinayak Naik

1. S. Chakravarty, V. Naik, H.B. Acharya, and C.S. Tanwar. Towards Practical Infrastructure for Decoy Routing (Positional Paper). Accepted at Workshop on Security of Emerging Networking Technologies (SENT) held in conjunction with Network and Distributed System Security (NDSS) Symposium, February 8- 11, 2015 in San Diego, USA
2. Gautam, V.Naik, A. Gupta, S. K. Sharma, and K. Sriram. An Smartphone- based Algorithm to Measure and Model Quantity of Sleep. Accepted at Networked Healthcare Technology (NetHealth'15) Workshop held in conjunction With 7th International Conference on COMmunication Systems & NETworks (ComsNets'15), January 6 -10, 2015, Bangalore, India.
3. C. Hughes, R. Sengupta, D. Saxena, and V. Naik. Geovisualization for cluster detection of Hepatitis A & E outbreaks in Ahmedabad, Gujarat, India. Accepted at Third International ACM SIGSPATIAL Workshop on HealthGIS (HealthGIS'14), November, 2014, Dallas, USA.

Dr. Vivek Bohara

1. N. Jain, S. Sharma, A. Vashistha, V. A. Bohara and N. Gupta, "Cooperative Spectrum Sharing using Transmit Antenna Selection for Cognitive Radio Systems," in workshop proceedings of 10th International Conference on cognitive radio oriented wireless networks and communications, CROWNCOM, Doha, Qatar, April 2015.
2. V. K. Singh, S. Baghoriya, and V. A. Bohara. "Project Monitotation Version 1." arXiv preprint arXiv:1501.04865 (2015) (The project was demonstrated in COMSNETS 2015, Bengaluru)
3. V. Sharma and V. A. Bohara, "Exploiting Machine Learning Algorithms for Cognitive Radio," accepted to the Proceedings of International Conference on Advances in Computing, Communications and Informatics (ICACCI), Greater Noida, Delhi, India, Sept. 2014, pp. 1554-1558, IEEE, 2014.

APPENDIX B

Technologies Developed/ Deployed at IIT-Delhi in 2014-15

1. Robust, low power sensors to monitor snow petrels in collaboration with the Wildlife Institute of India (WII), Dehradun. Sensors have been successfully deployed in the Antarctica from January till April 2015. The system is able to measure the nest temperatures and to detect the presence of the parent birds in the nest. Presence detection has been achieved by using light dependent resistors due to the fact that motion detectors based on infrared radiation do not work with these fast moving and well insulated birds. An ordinary and inexpensive 9V battery is able to power the system for approximately 2 weeks at temperatures ranging from -30°C to -5°C .
2. Swarath is our entry into the autonomous car competition by Mahindra. After successfully passing through the initial selection stages, we are competing with another 11 teams heading to the live demo stage in which we have to implement and proof our concepts developed so far. This concept involves the usage of comparatively low cost sensors and concentrates on the algorithms for vision, perception, etc. to achieve a driver less car.
3. Nari Raksha project: In this project an accessory needs to be developed allowing women in need or in dangerous situations to contact relatives to ask for help. This accessory needs to be like a ring, pendant etc. to increase its acceptance rate. The design challenge is to develop a design that is small in size and extremely low in power consumption.
4. A new password hashing scheme, RIG v2.0, by Sweta Mishra, Arpan Jati, Somitra Kumar Sanadhya and Donghoon Chang. Password hashing competition, 2014.
5. ParaCUDA: source-to-source compiler. (Converts XMT-C to CUDA-C)
6. POPE: a tool for parallel resolution of events by policies.
7. (under development) RingMaster: Kerberos in the Internet of Things.
8. Vision based obstacle avoidance on a low cost ground robot.
9. Onboard vision based obstacle detection for quad-rotor.
10. AASMA: Advanced Application for Social Media Analytics. Fully developed at IIITD. Deployed in 14+ state and federal government agencies in India, 3 more planned by end of July 2015. Last year it was 5, we have added 9 in the period of evaluation.
11. TweetCred: A Chrome browser plugin to analyse credibility on Twitter. As of Sept 2014, 1500+ Active users and analyzed 12+ million tweets. <http://twitdigest.iitd.edu.in/TweetCred/>
12. PhishAri: A Chrome browser plugin to analyze a given URL in a tweet as phishing or legitimate. PhishAri analysed 350,000 URLs in real world. <http://precog.iitd.edu.in/cyber-crime.html>
13. Backpack. A Learning Management System. The idea is a fall out from the course Designing Human Centered Systems. Dr. P.K and Apoorv Narang have registered a company Backpack Labs around this technology. Web application went online on Aug 1, 2013, total number of courses ordered until now are 275 with 4,697 unique users (as on April 2015) in the system. The Android application went online on Dec 1, 2013 with 476 downloads until now. We have 150 active users per day on the Android App. System is 25,000+ LOC and has received over 1000+ feedback mails since launch. Backpack is being used at IIT-Delhi, IIT Kanpur, IIT Hyderabad, IIT Bombay, IIT Kharagpur, IIT Madras, IISc Bangalore and many other institutes across India.
14. Wizters: It is an anonymous social networking service. We have a total of 4,500 users. 13,000 posts and photos have been shared. In last 4 months we acquired more than 2,100 users. Interactions served are around 32,000 and total logins are around 21,000. Technology has already transferred (made real money) to a company in Delhi and they are looking at building a start-up around it in the US. wizters.com
15. MeriAwaaz: An App to help get the voice of citizens to the Government. 900+ downloads with 1.6 lakhs engagements until April 2015 and approx 20 posts per day on the Dashboard. Already made real

money from sales, many deals done with pending deployment. It is currently being used by political parties in Delhi. <http://meriawaazapp.com/>

16. **WiPlay:** It is a cost effective device (less than 2000 INR), which acts as a media server and a WiFi hotspot with content on it. Users can access this device without internet by using WiFi of their phones/laptops. This content can be monitored/put on the device from cloud and the contents can automatically change based on what users like - a sort of online YouTube. This device can be put in schools in villages for education, taxis, restaurants and even buses/trains/flights where it can act as on-the-go entertainment system. It was put in 5 coffee shops for pilot testing. It is being used by an NGO presently.

17. **TrafficKarma:** It is one of its kind traffic information and prediction mechanism, that predicts traffic in a city based only on the social media data, without any use of pilot vehicles, a method use by most on traffic estimation. The project involves a mixture of signal processing (for prediction), sentiment analysis and web technologies for effective visualisation. It is now being used by various city transport systems (Mapunity in Bangalore, Mumbai) for their analysis and research purposes. It is also being used by an NGO presently.

18. **Opine Course Feedback System:** It is the current course feedback system being used at the Institute, is an IP as well.

19. **R.A. Automated Attendance System:** The current automated attendance system for RAs is based on a M.Tech thesis.

20. **181 Women-in-distress Helpline:** Receives around 2000 calls per day and has received over 10 Million calls so far. The systems remains up 24/7.

21. **RRCpacketSniffer:** An Android app to collect IP packets and RRC states of 3G in a single log file on the phone

a. The existing software to do this costs thousands of US dollars

b. Ours is the first open source freely available software for it

c. 100-- 500 installations from Google Play store

d. Code released on GitHub.

22. **Quizzing:** A fully Android based app to conduct quiz/poll on mobile phones

a. The results are available in real time to faculty

b. Tested in Computer Networks course last semester

c. Joint work with Manan Gakhar, BTech CSE 2012054

23. **A Computational Tool (combining kinetic Monte Carlo model and data analysis)** is being developed that can be potentially applied to find optimal strategies in cancer therapy (such as by selective induction of apoptotic death in cancer cells). Such an approach may also have broader applicability (in the context of Diseases and therapy). Kinetic Monte Carlo is astochastic simulation method that can capture the essential dynamics of biological systems, both inherent and extrinsic variability and stochastic bifurcations of any type (impact of D bifurcations, P bifurcations, bifurcations of purely stochastic kinetic origin etc.). The data analysis involves statistical methodologies and a quantitative scoring technique (similar to bio-- informatic scoring approaches). Initial feasibility has been demonstrated by an in silico study of selective killing of cancer cells under TRAIL (death ligand) therapy.

24. **Wearable Cuff-less BP monitor.**

25. **Multi-signal biomedical monitor for preventive cardiology.**

26. **Microsoft Spectrum Observatory at IIIT-Delhi**

Prof. Sumit Roy (University of Washington and IIIT-Delhi) and Dr. Vivek A. Bohara were actively involved in deploying a Microsoft spectrum observatory at IIIT-Delhi. The Observatory provides an intuitive presentation of how spectrum is used in locations throughout the world. It also provides real time frequency usage data from measurement stations located at above locations. Some stations where observatory has been installed includes University of California, Santa Barbara, University of Wisconsin Maddison, University of Washington, Mawingu Networks Kenya etc. (<https://observatory.microsoftspectrum.com/>)

27. **AirZen:** AirZen is a compact, real-time pollution measurement device developed at IIITD under Jyoti Sinha that aims at not only tracking the pollution levels of the major gas pollutants but the particulate matter including PM 2.5 and PM 10. This project aims to empower citizens of Delhi and other big polluted metropolitan cities with a real time pollution tracking data and to help them take decisions about car/walking routes with minimum pollution, safe school zones for children, advisory to home buyers as well as advisory precautions and medicines in case of individual pollutant levels crossing the minimum threshold. AirZen won the best “Entrepreneurship project” under the ESYA ENT competition which started with more than 25 teams.

28. **All-In-One Women, Child, home and vehicle safety device:** State of the art solutions for child, home, vehicle and women safety require you to purchase the devices and apps separately. Under guidance of Jyoti Sinha, a team of IIITD students have developed a low cost all-in-one safety prototype that can act for all four safety paradigm and cost less than one-fourth of the price of all devices. The device uses interchangeable and simultaneously running modes with a smart app to navigate between the modes easily. This compact, revolutionary design was awarded the “most popular prototype” in national level ST Microelectronics University Design Championship where more than 700 participated.

APPENDIX C

Sponsored Research Projects 2014-15

Sno	Name of Project	Start Date	Project Duration	Project Investigator	Funding Agency	Amount
1.	Small Cell WiFi Networks For The Enterprise	25.07.2014	36 months	Dr. Sanjit Kaul	DeitY	8,834,000.00
2.	Design Innovation Centre	06.08.2014	4 years	Dr. Pankaj Jalote	IIT Delhi/MHRD	13,000,000.00
3.	DST-INRIA programme” proposal Personalized Mobility Service for Urban Travellers”	01.09.2014	3 years	Dr. Pushpendra Singh	DST-CEFIRA	514,722.00
4.	DST/INSPIRE Faculty Award/2014	29.08.2014	5 years	Dr. Arnab Bhattacharjee	DST-INSPIRE	3,500,000.00
5.	AUV object Detection and identification using Sonar	23.09.2014	1 year	Dr. P. B Sujit	NRB	1,290,000.00
6.	Design and Development of Leukoanalyzer, an Automated Computer Assisted Tool for Minimal Residual Disease Estimation (MRD) in B-lineage Acute Lymphoblastic Leukemia(ALL) using Image Processing Techniques.	15.10.2014	3 years	Dr.Anubha Gupta	DeitY	2,831,000.00
7.	Design and development of Digital Multimedia Forgery Detection system	15.10.2014	3 years	Dr.A.V. Subramanyam	DeitY	4,980,000.00
8.	A low cost and easy to use cuff-less blood pressure measuring device using pulse transit time and pre-ejection period	05.11.2014	3 years	Dr.Sujay Deb	INDO-US S&T (DST)	4,094,000.00
9.	Creating Course Content for Privacy and Security in Online Social Media	04.12.2014	NA	Dr.Ponnurangam Kumaraguru	Intel Corporation	1,219,495.00

Sno	Name of Project	Start Date	Project Duration	Project Investigator	Funding Agency	Amount
10.	Mobile-based Diagnosis of Sleep Apnea	01.04.2015	3 years	Dr.Vinayak Naik	DST-SERB	5,101,000.00
11.	Google Award for School	04.06.2015	NA	Prof.Pankaj Jalote	Google	950,000.00
12.	Using Online Social Media for Intelligence Gathering	25.06.2015	6 months (extendable)	Dr.Ponnurangam Kumaraguru	MHA (IB)	636,000.00
13.	DST/INSPIRE Faculty Award/2014	30.01.2015	5 years	Sumit J Darak	DST-INSPIRE	3,500,000.00
14.	AUV object Detection and identification using Sonar	23.09.2014	1 year	Dr.P. B Sujit	NRB	1,290,000.00
15.	Research on Multimodal Context Switching using Multispectral Face, Periocular and Iris Recognition at a Distance	July 2014 - June 2017	3 Years	M. Vatsa and R. Singh	DeitY	1,20,75,000

APPENDIX D

Industry Collaborations

Dr. Apala Guha

1. Surinder Pal-Singh, STMicroElectronics. Developing a LLVM-based back-end for Reisc, the ultra low-power architecture by STMicroElectronics. 1 Masters student interning at STMicro.

Dr. H.B Acharya

2. Collaboration with James McCauley, of Scott Shenker's group at ICSI, UC Berkeley.

Dr. Mohammad Hashmi

3. Mr. M. Sohaib (Director, Siways Microelectronics) - Cost Effective WiFi Booster.

Dr. P.K

4. Adobe Benagluru. Student = 1.

Dr. Rahul Purandare

5. Dr. Mohan Dhawan (IBM IRL - Delhi): Project - Automatic Program Repair, No. of Students: 2. Master's.

Dr. Mayank Vatsa and Dr. Richa Singh

6. Dr. Nalini Ratha, IBM TJ Watson Research Center, USA. Low resolution face recognition.

Dr. Vikram Goyal

7. Dr. Sameep Mehta, IBM IRL India. Querying over Graph Data. 1 MTech student.

Dr. Vinayak Naik

8. National Geographic Society for Research and Exploration funded project titled Use of Cell Phone for Detecting and Controlling Infectious Diseases.
9. One MS student from McGill University, one faculty and two RAs from IIPH Ahmedabad, and two MTech students from IIIT-Delhi
10. The project was funded in the past for USD20,100 (10,41,481.50) as mentioned in an earlier report.

Dr. Pravesh Biyani

11. Dr Akshay Soni, StumbleUpon, USA. On dictionary learning. No student involved.

Dr. Vivek Bohara

12. Collaborations with Dr. Ashutosh Deepak Gore of Samsung Research, Bengaluru, on the project titled "Low-Power MIMO systems". One or two MTech Thesis student will be involved in this collaboration.

Academic Collaborations - National and International

Dr. Anubha Gupta

1. Prof. Ritu Gupta (AIIMS, Delhi)- Deity funded project on development of Leuko- analyzer (Microscopic Image Analysis)- 46.77 lakh
2. Prof. Ajay Garg (AIIMS, Delhi)- fMRI signal and image processing
3. Dr. Ananya Sen Gupta (University of Iowa)- Signal Processing for Underwater Communication
4. Prof. S.D. Joshi (IIT Delhi)- EEG Signal Processing
5. Dr. Venkatesh Choppella (IIIT Hyderabad)- Virtual Lab Assessment
6. Prof. Marvin Titus (University of Maryland-College Park) - Higher Education Finance

Dr. Arnab Bhattacharjee

7. “Understanding fold switch mechanism in proteins” collaboration with Dr.Stefan Wallin, Lund University, Sweden. Number of students involved: 1
8. “Coarse- grained modeling of protein- DNA interaction” collaboration with Prof. Yaakov Levy, Weizmann Institute of Science, Israel.

Dr. Chetan Arora

9. Prof. Shmuel Peleg, Hebrew University, Israel. Egocentric Vision. 1 PhD and 2 Masters Students.
10. Prof. C.V. Jawahar, IIIT Hyderabad. Egocentric Activity Recognition. 1 M.S. Student.
11. Prof. S.N. Maheshwari, IIT Delhi. Inference Algorithms for MRF-MAP. 1 PhD Student.
12. Dr. Parag Singla, IIT Delhi. Inference Algorithms for Structured Inference Problems. 1 PhD and B.Tech Student.
13. Dr. Parag Singla, IIT Delhi. Inference Algorithms for MRF-MAP. 1 PhD and 1 B.Tech Student.
14. Dr. Parag Singla, IIT Delhi. Deep CNN. 2 B.Tech Students.

Dr. Mayank Vatsa

15. Dr. Angshul Majumdar, IIIT Delhi. Deep learning and dictionary learning.
16. Dr. P. B. Sujit, IIIT Delhi. Low cost autonomous robots.
17. Dr. Richa Singh, IIIT Delhi. Project topics: Biometrics related projects
18. Prof. Afzel Noore, West Virginia University, USA. Kinship classification, face aging, and CAPTCHA
19. Prof. Kevin Bowyer, University of Notre Dame, USA. Detecting retouching in images.

Dr. Mohammad Hashmi

20. Prof. Fahdel M. Ghannouchi (University of Calgary, Canada) - development of multi-band circuits and components for SDR application.
21. Prof. Ramesh Pokharel (Kyushu University, Japan) - on-chip antenna for UWB applications.
22. Prof. Jaleel Akhtar (IIT Kanpur) - Low Cost 1-port Vector Network Analyzer.
23. Prof. Paul J. Tasker (Cardiff University, UK) - Advanced RF Measurement Techniques.

Dr.P.K

24. Qatar Computing Research Institute (QCRI), Qatar. Collaborators: Dr. Carlos Castillo and Dr. Patrick Meier. Spring 2014 - Present. Student = 1.
25. Center for Interdisciplinary Studies in Security and Privacy (CRISSP) at New York University Abu Dhabi. Collaborators: Prof. Nasir Memon, Prof. Mustaque Ahmad, Dr. Payas Gupta. April 2014 - Present. Student = 1.
26. Ebiquty research group at University of Maryland Baltimore County (UMBC), USA. Collaborator: Prof. Anupam Joshi. Jan 2012 - Present. Student = 1.
27. School of Law and Government, Dublin City University, Ireland. Collaborator: Prof. Maura Conway. Jan 2012 - Present. Student = 2.

Dr. Pravesh Biyani

28. Profs Geetam Tiwari and Rao, Civil Engg. Dept, IIT Delhi. On transportation related problems. Submitted a proposal to DST. One PhD student at IIT Delhi working with us.
29. Prof James Hogan, QUT, Australia. Started collaboration in January 2015. May be advising a PhD student from IIT Delhi jointly. We are also in the process of submission of a proposal on "Optimisation techniques for genome sequence alignment and matching".
30. Prof Surendra Prasad, IIT Delhi. On interference cancellation in VDSL and G.FAST. Jointly advising 1 PhD and 1 Masters students at IIT Delhi.
31. Prof. Henk Wymeersch, Chalmers University, Sweden. On optimisation of multi-agent path planning. One PhD student involved. Funded by Chalmers University.

Dr. Pushpendra Singh

32. Mobile Healthcare
 - a) People
 - i. Prof. Nancy Reynolds, Yale University, USA
 - ii. Prof. Allison Shorten, Yale University, USA
 - iii. Dr. Bhanu Duggal, JJ Hospital, Mumbai
 - iv. Dr. Mona Duggal, PGIMER, Chandigarh
 - v. Dr. Meenu Singh, PGIMER, Chandigarh
 - vi. Dr. Prabha, NIMHANS, Bengaluru
 - b) No. of students: 2
 - c) Funding: One NIH grant is submitted, around \$ 75,000
33. IVR+Mobile Systems
 - a) People

- i. Prof. Patrick Olivier, Newcastle University, UK
 - ii. Dr. Madeline Balaam, Newcastle University, UK
 - b) No. of students: 2
 - c) Funding: Nothing yet, will be submitting in September
34. Personalized Mobile Services
- a) People
 - i. Prof. Valerie Issarny, Inria, France
 - ii. Prof. Nikolaos Gregontas, Inria, France
 - iii. Dr. Animesh Pathak, Inria, France
 - b) No. of students: 1
 - c) Funding :One DST-CEFIPRA project for 3 years

Dr. Rahul Purandare

35. Dr. Anita Sarma (University of Nebraska - Lincoln, USA): Project - Code Search, No. of Students: 3 (1 PhD, 2 Undergrads).
36. Dr. Georey Nellisen and Dr. David Pereira (University of Porto, Portugal): Project - Runtime Monitoring for Real-Time Systems, No. of Students: 3 (1 Master's, 2 Undergrads).
37. Dr. Aditya Kanade (Indian Institute of Science, India): Project - Automatic Feedback System for Programming Assignments, No. of Students: 1 Master's.
38. Dr. Aditya Nori and Dr. Matthew Dwyer (MSR - Bangalore, India - Currently Cambridge, UK): Project - Code Comprehension, No. of Students: 1 PhD.

Dr. Richa Singh

39. Dr. Angshul Majumdar, IIIT Delhi. Deep learning and dictionary learning.
40. Prof. Kevin Bowyer, University of Notre Dame, USA. Detecting retouching in images.
41. Prof. Afzel Noore, West Virginia University, USA. There are multiple projects under this collaboration: for example kinship classification and CAPTCHA.
42. Dr. Mayank Vatsa, IIIT Delhi. Biometrics related projects.

Dr. Sachit Butail

43. Causal Relationships Underlying the Collective Dynamic Behavior of Swarms with Maurizio Porfiri of NYU.
44. Swarming in malarial mosquito *Anopheles stephensi*: collaboration with Dr. O. P. Singh of National Institute of Malaria Research. Joint grant proposal under preparation.
45. Analysis of Tiger movement in Sundarbans: collaboration with Dr. Y. V. Jhala, Q. Qureshi, and Dipanjan Naha of Wildlife Institute of India (WII) via the TReWIS group at IIITD.

Dr. Saket Anand

46. Initiated a collaboration in the area of Systems Engineering for Computer Vision with Prof. Visvanathan Ramesh at University of Goethe, Germany. The project for collaboration is Swarath – Autonomous Shuttle for Last Mile Connectivity. He is also one of the mentors for the IIITD team in the Mahindra Rise challenge. There is no joint funding yet.

Dr. Sandip Aine

47. Dr. Path Planning with Multiple Algorithms with Maxim Likhachev, Carnegie Mellon University, Pittsburgh, USA.

48. Meta-reasoning with Multi-heuristic Search with Maxim Likhachev, Carnegie Mellon University, Pittsburgh, USA.

49. Monotonic Beam Search with Carlos Linares Lopez, Universidad Carlos III de Madrid, Madrid, Spain.

Dr. A.V Subramanyam

50. Collaborative work with National University of Singapore and Kuwait University. Collaborators: Professor Mohan Kankanhalli, School of Computing, National University of Singapore, Singapore and Dr. Sabu Emmanuel, Assistant Professor, Computer Engineering, Kuwait University, Kuwait. Project: Design and Development of Digital Multimedia Forgery Detection System. Number of Students: 2 .Funding amount and Source: INR 49.8 lacs, Department of Electronics and Information Technology, India

51. Collaborative work at University of Maryland. Collaborator: Professor Min Wu, Electrical and Computer Engineering, University of Maryland, College Park. Project: Electrical Network Frequency based Audio Forensics

Dr. Sujay Deb

52. Collaborator: Dr. Amlan Ganguly, Rochester Institute of Technology, Project: Interference aware wireless NoC design, Number of students: 1, Funding: NA

53. Collaborator: Dr. Manoj K. Das, The INCLIN Trust, Project: Cuffless BP monitor, Number of students: 2, Funding: Indo-US, Amount: ₹ 40,94,000.

54. Collaborator: Dr. Pratha Pande, Washington State University , Project: Low power NoC design, Number of students: 1, Funding: NA

Dr. Sumit Darak

55. Project: Decentralized Green Cognitive Radio Networks

i. Collaborators title: Jacques Palicot and Christophe Moy, SUPELEC, France and Honggang Zhang, Zhejiang University, China

ii. Fund details: Collaborators provide necessary funds for conference and journal paper publications such as registrations, extra-page lengths etc.

Dr. Vikram Goyal

- 56. *Prof. Sham Navathe, Georgia Technical University. Mining Spatial-textual Data. 1 MTech student.*
- 57. *Dr. Dhaval Patel, IIT Roorkee. Scalable Spatial-textual join algorithms. 1 MTech student.*

Dr. Vinayak Naik

- 58. *DST-- SERB funded project titled Mobile-- based Diagnosis of Sleep Apnea. Collaborators: Prof. Sharma (Head of Internal Medicine), Prof. Sinha, and Prof. Soneja from AIIMS. Funding: 55,43,000.00*

Dr. Vivek Bohara

- 59. *Collaborations with Dr. Mazen Abi Hussein and Prof. Olivier Vernard of ESIEE Paris (University of Paris, East) on the project titled "Fixed point Digital Predistortion architecture". One MTech Thesis student was involved in this collaboration.*
- 60. *Collaborations with Dr. Anubha Gupta of IIIT-Delhi on the project titled "Channel Estimation for Rapidly Time-Varying Scenarios in IEEE 802.11p". One MTech Thesis student was involved in this collaboration.*

APPENDIX E

Participation of faculty in National & International Seminars & Invited Speakers

Dr. Alexander Fell

1. Session Chair for ESWeek 2014 (CASES) conference.

Dr. Anand Srivastava

1. Lecture at Aston Univ, UK in Feb 2015

Dr. Angshul Majumdar

1. “A unified framework from reconstruction to analysis for biomedical signal and image Processing” - University of Waterloo, March, 2015.
2. “Accelerating MRSI: Lessons from Dynamic MRI Reconstruction” - Workshop on Magnetic Resonance Spectroscopic Imaging (organised by AIIMS), March, 2015.
3. “Collaborative Filtering” & “Applications of Matrix Factorization” - National Mathematics Initiative, Workshop on Learning Sparse Representations for Signal Processing, Indian Institute of Science, February, 2015.
4. “Compressed Sensing Biomedical Signal Acquisition” - Tata Consultancy Service Research, Kolkata, December 2014.
5. “Modern Trends in Medical Image Reconstruction” – Keynote, IEEE Medcom, November, 2014.
6. “Matrix Completion Techniques in Collaborative Filtering” - Indian Statistical Institute, Kolkata, September 2014.
7. “Recommender Systems” - Indian Institute of Science, September, 2014.
8. “Collaborative Filtering” – IEEE Signal Processing Society Summer School, Vancouver, Canada, July 2014.

Dr. Apala Guha

1. Program Chair of the Indian Symposium on Computer Systems, June 2014, Bangalore, India. Impact of emerging architecture trends on software research, Invited Presentation at the National Workshop on Computing Systems Research, NMAMIT, Nitte, India, March 2015.

Dr. Astrid Kiehn

1. Talk: “Snapshot algorithms for mobile computing environments”, 30. July 2014, Formal Methods Update Meeting 2014, IIT Kharagpur.
2. Conference Talk: “Analyzing Mutable Checkpointing via Invariants” on 24. April 2015, Fundamentals of Software Engineering (FSEN) 2015.

Dr. Chetan Arora

1. Invited talk at ACM NCR Annual Day on 1st November, 2014 at Amity University.

2. Seminar Talk at IIIT on 8th January, 2015.
3. Invited speaker at Industry Institute Interaction week on 8th April, 2015 at PEC University of Technology, Chandigarh.

Dr. Debajyoti Bera

1. “Repeated Trials and Amplitude Amplification” in TCS Innovation Labs Kolkata, April 24 2015.

Dr. Donghoon Chang

1. Invited Speaker, Title: A Key Recovery Attack on DES using Differential Statistical Property, Winter School 2014 on Interplay Between Statistics and cryptology, held in ISI-Kolkata, December 1-5, 2014.
2. Invited Speaker, Title: Password Hashing Competition, National Security Research Institute, Korea, October 27, 2014.
3. Invited Speaker, Title: Password Hashing Competition, Korea University, Korea, October 29, 2014.

Dr. H.B Acharya

1. Network Security: DRDO, Delhi, Dec 2014.
2. Security Policies: SUTD, Singapore, Sep 2014.

Dr. K. Sriram

1. Invited talk in the Indo-Australian workshop at IIIT-Delhi “Time-series analysis of oscillatory systems: Analysis and modeling of biochemical oscillators “.

Dr. Mayank Vatsa

1. Panelist in the Session on Identity and Behavior Analysis: Two sides of the security coin, organized during IEEE International Conference on Identity, Security and Behavior Analysis, 2015
2. IEEE International Conference on Pattern Recognition, 2014 Stockholms, Sweden
3. IEEE International Joint Conference on Biometrics, 2014, Clearwater, USA
4. IEEE International on Image Processing, 2014, Paris, France

Dr. M.S Hashmi

1. Organized 1-day Workshop on RF/Microwave Systems and Measurement Techniques for Industrial Applications at IIIT Delhi on 14th Dec 2014. It was sponsored by Agilent Inc and Tektronix Ltd. The speakers came for IIT Kanpur, IIT Delhi, IIIT Delhi, Agilent Inc., and Tektronic Ltd. Over 100 participants attended this workshop.

2. Organized TI Analog Design Competition for North Zone in the month of October 2014.
3. Delivered an invited talk titled “Emerging Trends in Nonlinear RF Instruments and RF Amplifier Design Techniques”, during an IEEE workshop at IIT Kanpur, on 9th Sept 2014.
4. Delivered an invited talk titled “Changing Paradigm of RF Power Amplifier Design Methodologies”, at BEL Ghaziabad, on 8th Nov 2014.
5. Delivered a talk titled “Introduction to Load-Pull Systems and Applications”, during workshop on RF and Microwave at IIIT Delhi, on 14th Dec 2014.
6. Delivered an invited talk titled “Reconfigurable Radios”, at IIT Patna, on 27th Feb 2015.

Dr. P.K

1. Privacy and Security in Online Social Media. Jaypee Institute of Information Technology, NOIDA. ACM India Eminent Speaker talk. March 16, 2015. 140+ participants attended.
2. Online Social Media: Opportunities, Pitfalls, and Challenges, Defence Research and Development Organisation (DRDO) Headquarters. 30+ participants. Jan 14, 2015.
3. Privacy and Security in Online Social Media. Coimbatore Institute of Technology (CIT), Coimbatore. ACM India Eminent Speaker talk. Dec 18, 2014. 120+ participants attended.
4. Privacy and Security in Online Social Media. PSG College of Technology, Coimbatore. ACM India Eminent Speaker talk. Dec 17, 2014. 40+ participants attended.
5. Building Usable Secure Systems. International Conference on Secure Knowledge Management in big-data Era at BITS Pilani, Dubai Campus. Dec 8 { 9, 2014.
6. Research work at CERC. Indira Gandhi Delhi Technical University for Women (IGDTUW). Sept 25, 2014.
7. Privacy and Security in Online Social Media at a course organized by Defence Research and Development Organisation (DRDO). Sept 24, 2014.
8. Privacy and Security in Online Social Media. ACM Pune’s Workshop on Cybersecurity. ACM India Eminent Speaker talk. Sept 13, 2014. 70+ participants attended.
9. Conducting high quality research in Cybersecurity. Sardar Patel University of Police, Security, and Criminal Justice. Sept 2, 2014.

Dr. Pravesh Biyani

1. Delivered invited talk at TCS Research, Kolkata. Topic: Dictionary Learning and Source Separation.

Dr. Rahul Purandare

1. Invited to give a lecture on using static program analysis to provide security assurances by CAIR, DRDO (Bangalore) on 12th November, 2014

Dr. Richa Singh

1. IEEE International Conference on Pattern Recognition, 2014 Stockholms, Sweden
2. IEEE International Joint Conference on Biometrics, 2014, Clearwater, USA
3. IEEE International on Image Processing, 2014, Paris, France
4. IEEE International Conference on Identity, Security and Behavior Analysis, 2015, Hong Kong

Rajiv Raman

1. Settling the APX hardness status for Geometric Set Cover at FOCS 2014.
2. A separator theorem for intersecting line segments in the plane, CCCG 2014,
3. QPTAS for set cover in geometric settings, Chennai Math Institute, 2104
4. Geometric optimization problems, NYU Abu Dhabi, 2014.

Dr. Sachit Butail

1. Invited Talk on Measuring information flow in fish→ robot interactions, Centre for Ecological Sciences, Indian Institute of Science, Bangalore, December 1, 2014 (Seminar)
2. Invited Talk on Flow of information in collective animal behavior, Centre for Ecological Sciences, Indian Institute of Science, Bangalore, November 28, 2014 (Workshop)

Dr. Shobha Sundar Ram

1. Invited lecture at BEL Ghaziabad, on Frontal Radar Imaging of Humans in Non-Line-of-Sight Environments at BEL Ghaziabad on October 11, 2014.
2. Invited lecture at BEL Bangalore, on Radar Frontal Radar Imaging of Humans in Non-Line-of-Sight Environments at BEL Bangalore on January 5, 2015.

Dr.Somitra Kumar Sanadhya

1. (Series of lectures on) Block cipher design and cryptanalysis, NCM AIS School on Cryptology, SETS Chennai, 24-25 June 2014.
2. Cryptographic hash functions, National instructional workshop on Cryptology, MNNIT Allahabad, 07-June-2014.

Dr. Subhadip Raychaudhuri

1. *In-- silico single cell biology of apoptotic cell death in healthy And diseased cells (Seminar talk delivered at lecture session on Emerging Trends in Biomathematics, jointly organized by Jaypee Institute of Information Technology (JIIT) and Delhi node of the National Network for Mathematical and Computational Biology (NNMCB) on 29th November, 2014)*
2. *How we can kill cancer cells and activate immune cells (seminar talk delivered at JNU Open Day for the School of Computational and Integrative Sciences, on 17th April 2015).*

Dr.Sujay Deb

1. *Embedded Systems Week 2014, Wireless Network-on-Chip: A New Era in Multi-Core Chip Design at Noida on 16/10/2014.*
2. *HiPC 2014, Promises & Challenges of Wireless Network-on-Chip at Goa on 20/12/2014.*

Dr. Vinayak Naik

1. *Invited as a panelist on the discussion of “Smart Cities” at First Xerox Research Centre India (XRCI) Open on March 14, 2014 in Bangalore, India.*
2. *Invited to be on the panel on “Mobile Software – is that really just software for devices with small screens” at MOBILESofT’14, June 2014, Hyderabad, India.*
3. *Invited to give a talk titled “Backpack: Take your classroom online” at IBM Research Labs, Bangalore, India on Jan 9, 2015.*

Dr. Vivek Bohara

1. *Seminar titled “A prototype testbed for cognitive radio” at Bharat Electronics limited (BEL), Ghaziabad on 11th October 2014.*
2. *Seminar titled “Digital Predistortion techniques” at one-day IEEE MTT workshop on RF/Microwave Systems and Measurement Techniques for Industrial Applications at IIIT-Delhi on December 14, 2014.*

APPENDIX F

Professional Services

Dr. Alexander Fell

1. Session Chair for ESWeek 2014 (CASES) conference.

Dr. Angshul Majumdar

1. IEEE Signal Processing Society Delhi Chapter Chair
2. Founded the IEEE SPS Delhi Chapter
3. Organising Chair IEEE-APSIPA Winter School on Machine Intelligence and Signal Processing
4. Reviewer for ICASSP, ICIP, Eusipco, MICCAI
5. Reviewer for IEEE TSP, IEEE TIP, IEEE TGRSS, IEEE Cybernetics, IEEE TMI, IEEE SPL, Elsevier BSPC, Elsevier MRI, Elsevier Signal Processing, Elsevier Information Fusion.
6. Served in International Advisory Committee for IEEE MedCom 2014
7. Served as Session Chair - Image Processing and Pattern Recognition Session, 3rd ICACCI 2014, MedCom 2014 and Image Processing Session, 8th ICAPR, 2015.
8. Reviewer for Israel Science Foundation.

Dr. Anubha Gupta

1. Reviewer for leading conferences ICIP 2015, EUSIPCO 2014, ICVGIP 2014, NCC 2014, MISP 2014. Also reviewed journal papers for IEEE TVT, IEEE SP Letters, Signal Processing (Elsevier), Electronics Letters, Computers and Electrical Engineering (Elsevier), Chaos, Solitons & Fractals (Elsevier), NASA (India) in the past twelve months.
2. Vice Chair, IEEE SPS Delhi Chapter
3. MTech External Examiner, IIT Delhi
4. PhD Thesis External Expert, JNU, Delhi

Dr. Apala Guha

1. Served on Program Committee for the ACM SIGPLAN/SIGBED Conference on Languages, Compilers, Tools and Theory for Embedded Systems (LCTES) 2015.
2. Served on Program Committee for the 29th IEEE International Parallel and Distributed Processing Symposium (IPDPS) 2015.
3. Served on Program Committee for the 23rd High Performance Computing Symposium (HPC) 2015.
4. Served on Program Committee for the 2014 International Conference on Principles and Practices of Programming on the Java Platform: virtual machines, languages, and tools (PPPJ) 2014.
5. Program Chair of the Indian Symposium on Computer Systems, June 2014, Bangalore, India.

Dr. Arnab Bhattacharjee

Reviewer of the following international journals:

- a) Proteins: Structure, Function and Bioinformatics. Wiley publication.
- b) Soft Matter. Royal Society of Chemistry publication.
- c) Plos ONE.

Dr. Astrid Keihn

1. Program committee member of the international workshop on Petri Nets and Software Engineering (PNSE) 2015.

2. Member of the advising Student Research Committee of Shibashis Guha, PhD student at CSE, IIT Delhi.
3. Member of the advising Student Research Committee of Divyanshu Bagga, PhD student at CSE, IIT Delhi.

Dr. Chetan Arora

1. Reviewer for PAMI and JMLR.
2. Reviewer for CVPR, ICCV and ECCV.
3. Reviewer for funding agencies like ISF (Israel Science Foundation)
4. Participating as an expert for Due Diligence and Mentoring in India-Israel Initiative for Industrial R&D (i4RD) Program

Dr. Debajyoti Bera

1. Member of one proposal evaluation committee of DST, Govt. of India.

Dr. Donghoon Chang

1. Program Committee Member, ICISC 2014, 2015
2. Program chair, The 2015 International Workshop on Future Security and Privacy
3. Reviewer for IET Information Security, Indocrypt 2014, ICISC 2014, etc.

Dr. H.B Acharya

1. Technical committee member and session chair, ICNP 2014.
2. Reviewer, Transactions on Dependable and Secure Computing.

Dr. K. Sriram

1. An Program committee for the sixth International Workshop on Biological Processes & Petri Nets (BioPPN 2014) in Belgium. The website link is <http://ceur-ws.org/Vol-1373/>. I am in the program committee of the workshop consecutively for the third year.

2. Also, reviewed two full-length articles on Petri-nets submitted in this workshop.
3. An organizer for three day instructional workshop on “Fundamentals of systems biology” December 22-24, 2014, University of Delhi supported by Science and Engineering Research Board (SERB), Government of India. Also, delivered two lectures in the workshop
4. Also, delivered two lectures in the workshop, mentioned in Pt. No. 3. <http://www.iiserpune.ac.in/~mbio/?q=nnmcb/event/instructional-workshop-fundamentals-systems-biology>.

Dr. Mayank Vatsa

Editorial Board of Journals

1. Associate Editor, IEEE Access, 2014 - present
2. Area Editor, Journal of Information Fusion, Elsevier, February 2014 - Present
3. Area Editor, IEEE Biometrics Compendium, January 2012 - Present
4. Guest Editor, EURASIP Journal on Image and Video Processing Special Issue on Soft Biometrics:

Extraction and Applications based on Images and Videos, 2014-2015

Conference/Workshop Organized (one of the key organizers)

1. *IEEE International Joint Conference on Biometrics, Clearwater, FL, USA, 2014*
2. *Winter School and Workshop on Machine Intelligence and Signal Processing, Delhi, India, 2014*

Conference Organizing Committees

1. *Publications Chair, IEEE International Conference on BTAS, Buffalo, USA, September 2016 Also, one of the four main organizers.*
2. *Publicity Chair, IAPR International Conference on Biometrics, Sweden, 2016.*
3. *Sponsorship Co-chair IEEE International Conference on Identity, Security and Behavior Analysis, 2016*
4. *Publications Co-chair, IEEE International Conference on BTAS, Washington DC, USA September 2015.*
5. *Area Chair, IAPR International Conference on Biometrics, Thailand, 2015.*
6. *Publications Chair, International Workshop on Machine Intelligence and Signal Processing, December 2014.*
7. *Program Committee Co-Chair, IEEE International Joint Conference on Biometrics, Tampa, USA, September 2014.*

Government Consulting

1. *Member, Working Group on R&D in e-Governance, Department of Electronics & Information Technology, Government of India*

Conference Program Committee Member

1. *International Conference on Computer Vision - 2015*
2. *IEEE International Conference on Image Processing, Canada, September 2015*
3. *International Workshop on Biometrics in The Wild, co-located with Automatic Face and Gesture, Slovenia, May 2015*
4. *IEEE International Conference on Identity, Security and Behavior Analysis, Hong Kong, March 2015*
5. *IEEE International Conference on Computer Vision and Pattern Recognition, Boston, June 2015*
6. *IEEE International Conference on Automatic Face and Gesture, Slovenia, May 2015*
7. *Indian Conference on Computer Vision, Graphics and Image Processing, Bangalore, December 2014*
8. *Computer Vision for Affective Computing @ ACCV, Singapore, November 2014.*

Dr. M.S Hashmi

1. *Reviewer for leading conferences APCAP, IMS, IMArc, APMC, and ISCAS. Also reviewed papers for PIER Journals, IEEE Transaction on Instrumentation and Measurements, IEEE Microwave Magazine, IEEE Microwave Wireless Component Letters (MWCL), and Elsevier Journal (IEB) in the past twelve months.*
2. *IEEE Delhi Chapter Standing Committee Member*
3. *MTech External Examiner, IIT Delhi*
4. *MTech External Examiner, Gautam Buddha University, UP*
5. *MTech External Examiner, Jamia Millia Islamia, New Delhi*

6. MTech External Examiner, Aligarh Muslim University, Aligarh
7. External Examiner, G B Pant Engineering College, Okhla, Delhi
8. Organized a session on Circuit Design during the “workshop for school students” organized by Dr. Rahul Purandre.

Dr. Ojaswa Sharma

1. Reviewer for Graphics Interface 2014 conference.
2. External examiner at IIT-Delhi (CSE, Prof. P K Kalra, and prof. Subodh kumar) for four M.Tech theses defended on 25 June 2014:
 - a. “Level of Detail Management”, Satyendra Singh
 - b. “Rendering of Weathered Surfaces”, Devashish Tyagi
 - c. “Towards Rendering of Weathered Objects”, Keshav Choudhary
 - d. “Beam Tracing using pre-processed UV maps”, Ashish Gaurav

Dr. P.B Sujit

1. Associate Editor for International Conference on Unmanned Aerial Systems, 2015.
2. Reviewer for American Control Conference, IEEE Conference on Decision and Control, Journal on Intelligent Robotic Systems, Robotics and Autonomous Systems, IEEE Cybernetics, IEEE IROS, International Journal of Systems Science.
3. IEEE RAS Multi-robot systems Technical Committee member.

Dr. P.K

Government Advisory roles / Interactions

1. Member of Review Committee. Technology Foresight Study taken up in partnership with C-DAC, Pune & DSCI, New Delhi. Information & Communication Security & Financial Sector Security. Funded by Technology Information, Forecasting and Assessment Council (TIFAC). 2015 {2016.
2. Member of Project Review and Steering Group (PRSG), Global, Regional and Domestic Factors Impacting India’s Cyber Security, by Institute for Defence Studies and Analysis (IDSA), Delhi. Funded by Department of Electronics and Information Technology (DeitY). 2015 {2017.
3. Upon request from CBI HQ in Delhi, hosted 4 police officers from Royal Canadian Mounted Police at IIITD, as part of their Delegation to India. April 21, 2015.
4. Member of a delegation from India to attend the Indo-UK’s workshop on Underpinning the Development Data Revolution Social Media Data & Research. Organised by ICSSR - ESRC. January 9, 2015.
5. Member of a Sub-Group, Micro Mission, National Police Mission setup by the Bureau of Police Research and Development (BPR&D), Government of India. Jan 2015 {Present.

Conference/ Workshop Organized/Conference Organizing Committee member

1. Instructor Workshop for School Teachers on Strategies for Safe and Effective Use of Online Social Media. May 2, 2015.
2. Co-Organizer for Security and Privacy Symposium. 12 {13 Feb, 2016.
3. Technical PC Co-Chair, ACM Compute 2015 Conference, India.

4. Co-Organizer for Security and Privacy Symposium. Attended by 150+ participants, including 40 faculty / researchers, and 60 students from all around India. 14 { 15 Feb, 2015.
5. Committee member for evaluating scholars for Chevening TCS Cyber Policy Scholarship Programme. Dec 2, 2014.
6. Co-Organizer for Social Design Jam. Attended by 65+ participants. 1 { 3 Aug, 2014.
7. Part of the Technical Advisory Committee for the ACM Conference on Online Social Networks (COSN), cosn.acm.org. Six of the best workshops on Online Social Media were merged to create this conference and we are looking at making this a single big conference in the area of Online Social Networks. Program Committee member: 2014. Publicity & Web Chair: 2013, 2014, 2015.
8. Co-Organizer Innovate Delhi Entrepreneurship Academy, India. innovatedelhi.com 120+ participants from all around the country attended the program. This program was co-organized with Stanford Business School.
9. Continued Education Programs
 - (a) Instructor: Organized more than 5 CEPs in campus on Using Online Social Media for Policing, Intelligence, Investigation, and Law & Order.
 - (b) Co-ordination: Have organised more than 3 CEPs for various government organizations on topics related to Cybersecurity. This was organised both in campus and off-campus.

Dr. Pravesh Biyani

1. Organized a one day workshop on problems in transportation. It was attended by renowned people in industry, academia and civil society. There were overall 7 talks and around 30 students participated in it.
2. Evaluated transportation related proposals for CEFIPRA (Indo-French, bilateral S&T organisation). Participated in their industrial meet in Kolkata to discuss the proposals.
3. Reviewer for various IEEE Journals and conferences. SADHNA, IETE.

Dr. Pushpendra Singh

1. Steering Committee Member for MSE Track in ICSE
2. Publicity Chair for MSE Track in ICSE 2015
3. TPC member for MSE Track in ICSE 2015
4. Publicity Chair for ICDCN 2015
5. TPC member for IEEE Connect 2015
6. TPC member for NetHealth 2015
7. TPC member for XRCI 2015

Dr. Rahul Purandare

1. Served as a reviewer for top software engineering journals including TOSEM and STVR.
2. Served as a PC member for ISEC and WEPL, and as an organizing committee member for SEEW.
3. Invited by VRDE, DRDO (Ahmednagar) on 26th March, 2015 to review the design of autonomous vehicle system. I am now on their review committee.

Dr. Rajiv Raman

1. Paper review: ICALP 2015,
2. M.Tech committee for students from IIT Delhi
3. PhD committee for a student from Delhi University.
4. PhD external committee member for a student from IISc.

Dr. Richa Singh

1. Guest Editor, Special Issue on Applying Four D's of Machine Learning to Advance Biometrics, Access, IEEE.
2. Lead Guest Editor, Special Issue on Information Fusion in Biometrics, Journal of Information Fusion, Elsevier.
3. Associate Editor, EURASIP International Journal of Image and Video Processing, SpringerOpen
4. Editorial Board Member, Information Fusion, Elsevier
5. Among the key organizers of IEEE International Joint Conference on Biometrics, Clearwater, FL, USA, 2014
6. Among the key organizers of Winter School and Workshop on Machine Intelligence and Signal Processing, Delhi, India, 2014
7. Program Committee Co-Chair, IEEE International Conference on BTAS, USA, September 2016
8. Special Sessions Chair, IEEE International Conference on BTAS, USA, September 2015
9. Area Chair, IEEE International Conference on BTAS, USA, September 2015
10. Publications Chair, IEEE International Conference on Identity, Security and Behavior Analysis, March 2015
11. Program Co-Chair, International Workshop on Machine Intelligence and Signal Processing, India, December 2014
12. Session Chair, IEEE/IAPR International Joint Conference on Biometrics, USA, October, 2014
13. Area Chair, IEEE/IAPR International Joint Conference on Biometrics, USA, October, 2014
14. Publications Chair, IEEE/IAPR International Joint Conference on Biometrics, USA, October, 2014
15. Education Committee, IEEE Biometrics Council
16. Conference Committee, IEEE Biometric Council
17. TPC Member: International Conference on Pattern Recognition Applications and Methods, 2016
18. TPC Member: International Conference on Computer Vision 2015
19. TPC Member: IEEE International Conference on Image Processing 2015
20. TPC Member: IEEE Conference on Computer Vision and Pattern Recognition 2015
21. TPC Member: IEEE International Conference on Identity, Security and Behavior Analysis 2015
22. TPC Member: IEEE International Conference on Automatic Face and Gesture 2015
23. TPC Member: CVPR Workshop on Biometrics 2015
24. TPC Member: IEEE/IAPR International Conference on Biometrics 2015

Dr. Sachit Butail

1. (Ongoing) Editor for special issue titled "Dynamics of Animal Systems" for European Physical Journal with Nicole Abaid (Virginia Tech), Davide Spinello (University of Ottawa), and Maurizio Porfiri (NYU).
2. Reviewer for the following journals: PLoS One, Journal of Royal Society Interface, ASME Journal of dynamical systems and control, Behavior Research methods, Automatica, PEERJ, Neural Computing and Applications

3. Reviewer for the following conferences: ASME Dynamical systems and control.

Dr. Saket Anand

1. Reviewer for Pattern Recognition.
2. Reviewer for IEEE Transactions on Knowledge and Data Engineering.

Dr. Sandeep Aine

1. Program Committee Member: AAAI (2015), SOCS (2015)
2. Editorial Board Member: AI Review (2015)
3. Reviewer: ICRA (2015), IROS (2015), IJCAI (2015), RSS (2015)

Dr. Sanjit Kaul

1. Reviewer for PIMRC, ISIT, IEEE Transactions on Information Theory, Mobihoc, etc.

Dr. Shobha Sundar Ram

1. IEEE Radar Conference 2014, Student Activities Co-chair, on Judging panel of Student paper competition, Session Chair.
2. Review of IEEE Transactions on Antennas and Propagation, IEEE Transactions on Aerospace and Electronic Systems, IEEE Transactions on Signal Processing.

Dr. Somitra Kumar Sanadhya

1. Organized 4th Asian Symmetric Cryptography workshop ASK 2014, Dec 2014, at SETS Chennai. The first school supported by IACR. Attended by over 60 participants from various countries in Asia, and having 13 speakers from 7 countries in Asia and Europe. website:<http://ask2014.iiitd.ac.in/>.
2. Reviewer for FSE 2015, IEEE Transactions on Communications, IET Information Security, ACNS 2015, Indocrypt 2014, Space 2014.

Dr. Subhadip Raychaudhuri

1. Participant (delivered lecture and held hands-on training session) for Instructional Workshop on Fundamentals of Systems Biology (organized by National Network for Mathematical and Computational Biology (NNMCB) Dec 24, 2014, University of Delhi).

Dr. A.V Subramanyam

1. Reviewer of Journals:

- a) IEEE Transactions on Multimedia
- b) IEEE Transactions on Circuits and Systems for Video Technology
- c) ACM Transactions on Multimedia Computing, Communications and Applications
- d) Springer Multimedia Systems
- e) Springer Journal of Signal Processing Systems
- f) SPIE Journal of Electronic Imaging
- g) Elsevier Journal of Information Security and Applications
- h) Elsevier Information Fusion

2. Conference/Workshop:

- a) ACM Multimedia, Brisbane, Australia, 2014

- b) *Workshop on Machine Learning and Signal Processing, New Delhi, India, 2014*
- c) *International Conference on Advances in Computing, Communications & Informatics, Kochi, India, 2015*
- d) *Program Committee member of ACM Compute conference, Delhi-NCR, India, 2015.*

Dr. Sujay Deb

- 1. *Organized one day workshop on Network-on-Chip at IIIT Delhi*
- 2. *TPC member of VLSI Design Conference 2015, iNIS-2015*
- 3. *Reviewer of TVLSI, JETC, SUSCOM, IGCC, VDAT etc.*

Dr. Sumit Darak

- 1. *Review activities for CSSP, Springer and Elsevier Digital Signal Processing.*

Dr. Vikram Goyal

- 1. *Organizing Co-chair for International Conference on Big Data Analytics 2014 (BDA 2014).*
- 2. *Reviewer for ICDCS, BDA, COMAD, SPBDA, IBM I-Care, IKT 2015.*

Dr. Vinayak Naik

- 1. *A program committee member of Third International Workshop on Software Development Lifecycle for Mobile DeMobile, at ESEC/FSE, August 31 - September 4, 2015 Bergamo, Italy.*
- 2. *A judge for the Best PhD Forum Award at The Seventh International Conference on Communication Systems and Networks (COMSNETS), Bangalore, India from Jan 6-10, 2015.*
- 3. *An external examiner for evaluation of MS CSE Thesis titled "Improving Localization and Energy Efficiency of Smartphone Applications" by Mr. Swadhin Pradhan IIT Kharagpur Nov 2014.*
- 4. *A program committee member of The 16th International Workshop on Mobile Computing Systems and Applications (HotMobile'15), Feb 2015, Santa Fe, New Mexico, USA.*
- 5. *Proceedings Chair for The Second International Conference on Mobile Software Engineering and Systems (MOBILESoft'15) to be held in conjunction with ICSE'15 in Florence, Italy.*
- 6. *Program committee co-chair of First Mobile Software Engineering (MSE) Track co-located with 8th India Software Engineering Conference (ISEC), Feb 18-20, Bangalore, India.*
- 7. *A program committee member of The 3rd International Workshop on Cloud Computing Applications (IWCA'14), to be held in conjunction with HiPC'14, Dec 17 - 20, 2014, Goa, India.*
- 8. *A program committee member of Second International Workshop on Software Development Lifecycle for Mobile DeMobile, at FSE, November 16 - 22, 2014 HongKong.*
- 9. *A program committee member of Second Workshop on Mobile Development Lifecycle MobileDeli 2014, at SPLASH/OOPSLA, October 20 - 24, 2014 Portland, Oregon.*
- 10. *A program committee member of Second Workshop on Programming for Mobile and Touch PROMOTO 2014, at SPLASH/OOPSLA, October 20 - 24, 2014 Portland, Oregon.*
- 11. *A member of BTech CSE committee in IIIT Delhi since June'14.*
- 12. *Invited to chair Emerging Ideas session at MOBILESoft'14, June 2014, Hyderabad, India.*
- 13. *An internal examiner for evaluation of MTech CSE Thesis titled "Twitter and Polls: Analyzing and estimating political orientation of Twitter users in India General #Elections2014" by Abhishek Bhola IIIT Delhi June 2014.*

14. An internal examiner for evaluation of MTech CSE Thesis titled “Broker Bots: Analyzing automated activity during High Impact Events on Twitter” by Sudip Mittal IIIT Delhi June 2014.
15. A program committee member of 1st International Workshop on Mobile Collaborative crowdsourcing and Sensing (M-CROS) held in conjunction with the 15th IEEE International Conference on Mobile Data Management, 14-18 July, 2014, Brisbane, Australia.

Dr. Vivek Bohara

1. Reviewer for *IEEE Transaction on Wireless communication*, *IEEE Transaction on communication*, *IEEE Transaction on Vehicular Technology*, etc.
2. Technical program committee member for conferences such as *IEEE PIMRC 2015*, *ICACCI 2015*.
3. Organizing Chair for special session on “Technological Challenges for 5G communication” in *International Conference on Advances in Computing, Communications and Informatics (ICACCI)*, August, 2015.

APPENDIX G

Summary Report of Student Clubs Activities for 2014-15

Club	Focus area	Activities
Trivialis	Quizzing	Quizzing during ESYA, Freshers party, Orientation & Odyssey, Organized Bi-annual and On-line Quizzes.
FooBar	Programming	Programming events: ProSort (20), CodeClass (18) Participated in ICPC: Programming Contest.
BYLD	Software Development	Organized Hackathon (8), Byldathon (1), Tech Talks, Software Projects & Web Design Projects.
Ink	Design Club	Contributed to the designing of the NAAC , Brochure, Institute handbooks, Alumni Year book & Farewell mementos.
Prodigious Painters	Painting	Art-a-Thon, Photo Recreation, Madhubani Paintings and Poster making.
AudioBytes	Music	Karaoke Night, Talent Night, Singing (10), Piano class (6), Vocal and Guitar sessions (6).
Communitas-Opere	Community	Social talks, 2 Jodi Collection Drive, Associated with various NGO's.
Dramatic Personae	Dramatics	Enacted Paraya Aasman (play).
Game Craft	Game Development	3D modelling, Animation and Game Development, developed animation and games for both mobile and PC.
MadToes	Dance	Organized Flash Mob, Talent night, Salsa classes, Group dance & Rendezvous'14.
The 65thSQUARE	Chess	Intra and inter college chess and supply tournaments (18), Play Blitz, Anti-chess and online puzzles.
The Philosophy Society	Philosophy	Panel Discussion on Excursion/picnic/museum visit, Weekly meetings among Lunchbox Philosophers.
Voix De Literati	Public Speaking, Reading & Writing	Freshers Debate, Haiku Writing Competition, Poetry Recital, TTT Writing Competition.
Adventure Club	Adventure	Trip to Goa, Rishiksha (Proposed).
Swach Bharat Abhiyan	Cleaning & Awareness	Cleaning drives at nearby areas of IIITD (6)
Cultural team	Culture	Celebrated Independence Day, Republic Day, Lohri, Diwali, Rangoli, Odyssey, Halloween Party, The Night and TEDxIIITD.
Sports Committee	Sports	Participated in IIIT sports meet "Twaran" at Gwalior, Participated at NSIT & IIM-Indore sports meet, Organized Intramural tournament at IIITD.



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