International Institute of Information Technology - Bangalore

Annual Report

August 2014 to July 2015

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GOVERNING BODY *

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Co-founder, Infosys Ltd

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Indian Institute of Management, Bangalore

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Dept. of Electrical Engineering &Computer Science
University of California, Berkeley, USA

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Department of IT,BT,S&T
Government of Karnataka

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Department of IT,BT, S&T
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Backend Bangalore Pvt. Ltd.

Prof. S. Sadagopan
Director
IIIT- Bangalore

*As on July 31st, 2015

KEY OFFICIALS*

Prof. S.Sadagopan	Director
Prof. S.S. Prabhu	Advisor (Academics)
Mr. Pitchiah	Advisor (Finance)
Mr. V.S.Prakash	Registrar
Prof. Debabrata Das	Dean (Academics and R&D)
Prof.Balaji Parthasarathy	Dean (Faculty)
Prof. Jaya Sreevalsan Nair	M.S. / Ph.D. Course Coordinator
Prof. V.N. Muralidhara	M. Tech Course Coordinator
Prof.R. Chandrasekhar	Integrated M. Tech Course Coordinator
Prof. Srinivasa Raghavan	Professor-in-charge Internship & Placements
Prof. Jyotsna Bapat	Professor-in-charge Scholarship& Awards
Prof. Ramesh Sundararaman	Professor-in-charge Web Resources
Prof. S.Rajagopalan	Professor-in-charge Institutional Finance
Prof.Tricha Anjali	Professor-in-charge Student Exchange Program
Prof. V. Sridhar	Professor-in-charge Library
Prof. T. K. Srikanth	Professor-in-charge Computing
Prof. Brijesh Mishra	Warden (Men's Hostel)
Prof.Meenakshi D'Souza	Warden (Women's Hostel)
Mr. M. K. Doraimurugan	IT Manager
Ms. Ramadevi S	Librarian

*As on July 31st, 2015

DIRECTOR'S CORNER

The year 2014-15 is very special in the evolution of this young institution; five major initiatives got started this year.

1. The Institute got a unique assignment of **mentoring MIIT** (Myanmar Institute of Information Technology). With Undergraduate programs starting in December 2015 in a brand new campus in Mandalay City, MIIT is expected to play a leading role in shaping the destiny of Myanmar. IIIT-B will be handholding the growth of MIIT over a 5-year period, 2015-2020.

2. IIIT-B is launching a **2-year Master of Science Program in Digital Society** in August 2015. Positioned as an intersection of Social Sciences and IT, the innovative program brings together insights from Computer Science, Data Science, Economics, Management, Sociology and Policy Research.

3. IIIT-B is hosting India's first **Web Observatory**: On February 17th, 2015, Prof. Wendy Hall of University of Southampton, U.K and the former world-wide President of ACM formally launched Web Observatory at IIIT-B. With this the Institute joins 15 University Labs across Brazil, China, Korea, Europe and USA.

4. **I-MACX Accelerator Program**: Going past the Incubation program initiated in the year 2007, IIIT-B inaugurated I-MACX, a civic-tech startup focused 100-day Accelerator Program on 27th February 2015. The first batch of 6 start-ups successfully completed the program on 23rd June 2015. The Center also conducted an IBM-sponsored "Mobile Apps Hackathon" on April 25th, 2015 which witnessed 200+ participants.

5. **STP-3** (**S**pecial **T**raining **P**rogram): As part of the national mission to empower youth from disadvantaged sections of the society, 97 engineering graduates are being trained over 9-months at IIIT-B, starting February 2015. We are grateful to Infosys Foundation for sponsoring the program.

The year 2014-15 also saw five important milestones getting crossed

1. **Student strength nearing 750 mark**: With about 300 students in its 2-year M.Tech program, 300 in Integrated M.Tech students, 100 M.S /

Ph.D. students and 60 Sponsored M.Tech students, our student strength is close to 750 Post-Graduate students (M.Tech, M.S, and Ph.D.) this July. We started with about 125 students in the year 1999.

2. **Alumni strength crosses 2,000**: After the 15th Convocation on July 5th, 2015, our Alumni strength went past 2,000, yet another important milestone, especially considering the fact that all of them are Post-Graduate students.

3. **Students' hostel capacity reaches 1,000 seats**: IIIT-B started in a rented premise at ITPL in 1999. We moved into the current campus in the year 2003 and added the hostel block with 600 rooms in May 2013; the new facility is ready to receive the first set of students in August 2015. With this the Institute will have capacity to house 600 men and 400 women in its hostel facilities.

4. **DSIR Recognition**: IIIT-B has enjoyed the recognition of being a Scientific & Industrial Research Organization (SIRO) from its inception; a recognition that gives us a preferred status for receiving grants from scientific ministries of the government. DSIR formally extended the recognition for another 3-year period, namely, April 1st, 2015 to March 31st, 2018.

5. **Student Magazine BYTE – Seven Bits of IIIT-B**, an in-house magazine run completely by student volunteers took off in January 2015; the second issue was out in April 2015; such activities demonstrate the slow, yet steady maturing of the Institution.

Prof. S. Sadagopan
Director

ABOUT US

International Institute of Information Technology, Bangalore (IIIT-B) is promoted by the Government of Karnataka and the IT industry. The major objectives of the Institute are:

- to become a specialized centre for higher learning in IT,
- to promote Bengaluru as a global centre of Excellence in IT,
- to carry out R&D, both on its own account and also based on sponsorship from the Indian and global IT industry,
- to act as an interface between industry and the academic community, to co-create and commercialize Intellectual Property
- to train professionals from industry and government on advanced IT technologies.

IIIT-B was conferred the status of "Deemed to be a University" by the University Grants Commission under section 3 of the UGC Act in 2005 and is, therefore, empowered to award degrees. The Institute has also been accredited by the National Assessment and Accreditation Council with the highest grade of "A".

In addition to offering M.Tech, MS and Ph.D. programmes, IIIT-B has introduced a five year integrated M. Tech programme admitting students who have completed their higher secondary school education. Recognizing the potential of digital technologies to improve the lives of people and the increasing need to train professionals in harnessing this potential, IIIT-B is launching an innovative two-year inter disciplinary Masters Programme for the Digital Society from August 2015. IIIT-B has about 300 M.Tech students, 250 integrated M Tech students and 80 M.S / Ph.D. students.

IIIT-B has 37 full time faculty and 15 adjunct / visiting faculty. All full time faculty have a Ph.D. followed by considerable research and teaching experience in leading institutions around the world. Faculty members have contributed to over 300 publications in international journals and research conferences and have obtained seven patents.

IIIT-B has been selected by the Government of India to mentor the Myanmar Institute of Information Technology, Mandalay, Myanmar. The new IIIT being set up at Naya Raipur is also being mentored by IIIT-B.

WHY IIIT-B

The best universities in the world share common traits - a) ability to attract talented faculty and students, b) open environment that fosters creativity, critical thinking and knowledge sharing and c) genuine commitment to make a lasting contribution to the broader society. At IIIT-B, these serve as guideposts in our pursuit of excellence in teaching, research and student development.

IIIT-B offers students a unique multi-disciplinary curriculum that spans the wider spectrum of Information Technology than traditional computer science. While courses such as Operating Systems, Data Structures & Algorithms, Software Engineering, Communication Systems etc. constitute the core curriculum, students have a range of elective courses to choose from. Electives such as ICT in Health Care, Dynamics of the IT industry, Information Networks etc. equip students with a broad understanding of industry trends and practices. The curriculum is thus designed to strike an appropriate balance between foundational elements and industry relevance. Teaching methods at IIIT-B are continuously evolving with developments in technology and increasing access to information sources. The emphasis is on contextualization and enhancing student experience and not mere delivery of content. The success of our internship and final placement programmes year after year is a visible sign of the value that employers attach to IIIT-B students.

IIIT-B students are active in community work around the institute. The local SPICMACAY chapter conducts an annual music and dance festival where both students and professional artists perform. Activities such as these contribute to overall development of students which holds them in good stead though their careers.

All full time faculty of the institute have a Ph.D. followed by considerable research and teaching experience in leading institutions around the world. In its short period of existence, faculty members have contributed to over 300 publications in international journals and research conferences. Visiting faculty, from industry and other institutions of higher education, bring refreshing and new perspectives to many of our programmes.

The institute has a vibrant student exchange programme with a number of universities including MIT, City University of Berlin, Hoff University, University of Nottingham and Southampton University. The institute receives a number of eminent visitors from industry, academia and government through the year. This, coupled with the many conferences and seminars hosted by IIIT-B, provides students and faculty opportunities to keep abreast with latest developments in their areas of interest.

IIIT-B actively encourages the pursuit of entrepreneurial ventures. The IIIT-B Innovation Centre, a section 8 Company under the Companies Act (2013) provides incubation facilities and seed funding for promising ideas that could have significant social impact or economic value.

At IIIT-B, we believe that teaching, research and student career development are synergistic. The programmes and activities of the institute are frequently reviewed to ensure that the links are reinforced.

International Institute of Information Technology Bangalore

INFRASTRUCTURE

Campus & Housing

The Institute moved to its present Electronics City campus in 2003. The campus features well-maintained lush green lawns, musical fountain, and a small pond, creating an ideal learning environment to stimulate intellectual and personal growth.

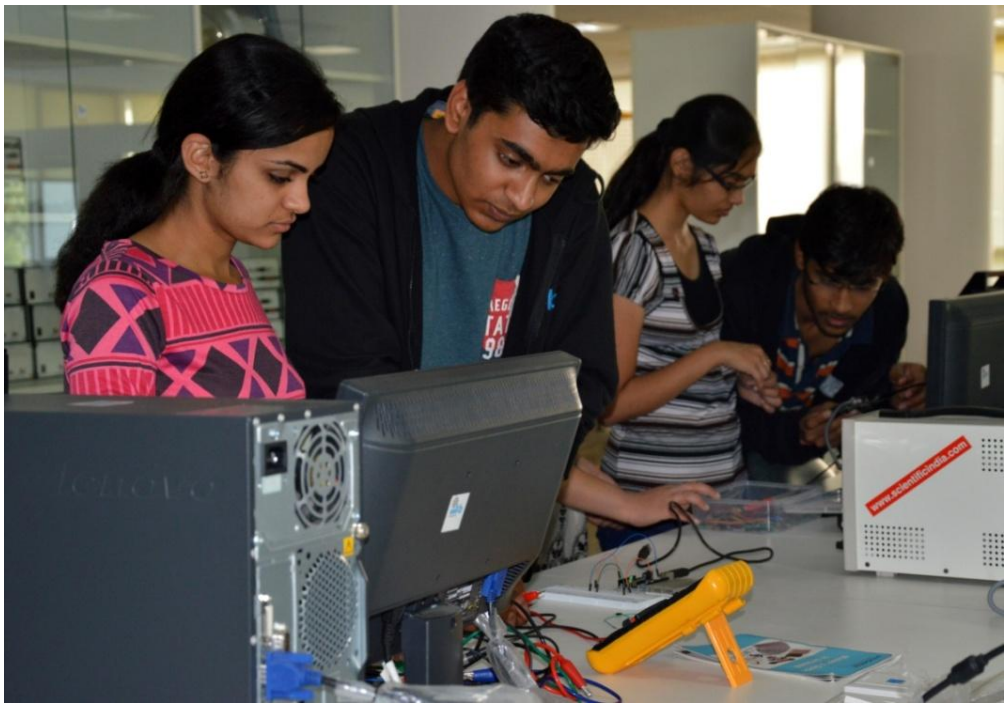
Designed and built to the highest global standards, the teaching and learning infrastructure features the most advanced elements of contemporary academic tools. With over 90,000 square feet of air-conditioned space, uninterrupted power supply, and a well-crafted interior, the Institute offers a world-class environment for students and faculty.

All the classrooms are "smart," with high-speed data networks and large projection systems for audio and video. The well designed main classroom comfortably seats in excess of 150 students. Video conferencing capabilities are built in using state of-the-art audiovisual equipment. They include electronic smart boards, location-sensing microphones, and multiple LCD projectors, thus enabling an enriching learning experience.

The campus has separate hostels for male and female students. Rooms are mostly single occupancy with wired and wireless network connectivity and access to recreational facilities. The campus houses a food court and cafeteria that serves the students and faculty on all 365 days of the year.

Computing Resources

The fully wired campus has a high-speed fiber-optic backbone connected to the internal network through a high-end gigabit Ethernet switch. Dedicated network equipment includes printers and scanners. The local intranet implements a "virtual classroom," where all the visual material, such as presentation slides used by professors in class, is made available electronically to students. All assignments and projects are announced and submitted online. The intranet also enables knowledge sharing among students. 24x7 Internet access is available throughout campus, in both wired and wireless modes. Wireless access is available throughout campus using the 802.11bprotocol. High-quality Ethernet ports are installed at various locations in the building, providing wired Internet access through a proxy web server. All students have a Wi-Fi enabled laptop for exclusive use.



ESDM Laboratory

Data Centre

ACADEMIC PROGRAMMES

The Institute offers five degree programmes.

Integrated M.Tech (iM.Tech)

The Integrated M.Tech programme is a 5-year (10 semester) dual degree programme intended for students who have completed or are completing Plus Two (or equivalent). At the end of five years of the programme, successful students get a B.Tech degree & M.Tech degree, both in IT.

The two streams in which a student could specialize are:

a) Computer Science & Information Systems

b) Electronics & Communication

Core courses are offered in the first four semesters that include Basic Sciences; Mathematics, Physics, Chemistry and the IT Core. Electives are offered from the 5thsemester. The stream selection is done at the end of the 5thsemester. Students must do a mandatory summer internship at the end of the 6thsemester. The final two semesters are earmarked for a thesis, under the supervision of a faculty member.

IT Core	
Computer Science & Information Systems	**Electronics & Communication**
Computer Science Database and Information Systems Software Engineering IT & Society	Networking and Communication Embedded Systems Design Signal Processing VLSI Design IT & Society

Master of Technology (M.Tech)

The M.Tech programme has two streams

i. Information Technology (IT)

The M.Tech (IT) degree is designed for students who wish to work in the IT industry as practitioners. It is awarded upon successful completion of a four semester broad-based academic programme in IT that goes beyond traditional computer science. Apart from imparting technical knowledge, the programme teaches managerial and other skills that are essential for a successful career in the competitive IT industry of today. The programme is residential and full-time.

ii. Electronic Systems Design (ESD)

The M.Tech in Electronic Systems Design (ESD) is a new programme launched in 2014. It is awarded upon successful completion of a four semester broad-based academic programme, with specialization either in System-on-Chip (SoC) or Embedded Systems. With the onset of a new revolution being unleashed by the Internet of Things (IoT) due to the availability of extremely low cost and low power hardware platforms in the form of SoCs and Embedded System boards, we are seeing the emergence of a new convergence between hardware and software. Its potential is limited only by human imagination and the impact is being seen in the rapid evolution it is fostering in different domains such as automation, e-health, mobile communication, smart homes, automotive sector, consumer electronics, pervasive computing, computer architecture etc. "

The M. Tech programme comprises of:

- three week preparatory semester with introductory sessions on Programming & Mathematics
- four regular semesters of 15 weeks each with core courses and electives
- summer semester of 8 weeks with soft skill courses such as marketing, finance and technical communication
- 25 week industrial internship / research thesis

Master of Science by Research (M.S by Research)

The M.S. by Research degree is intended for mature students who wish to learn and perform research in a supportive academic environment. It is awarded upon successful completion of a graduate-level research programme, usually lasting four semesters. Beyond the satisfaction of a relatively small number of course work requirements; the major focus of the programme is on developing research skills, leading to the completion of a Master's thesis describing significant original results. Most M.S. by Research students are working professionals (some already working as research scientists in reputed organizations or government bodies), who are sponsored by their employers.

Doctor of Philosophy (Ph.D.)

The Ph.D. is the terminal, research-oriented degree in the subject, intended to prepare students for research, teaching, and scholarly careers in academic settings or research laboratories. It connotes a superior comprehension of the field and a high aptitude for research, and is awarded upon completion of a programme that usually takes from 3 to 5 years. While there are some course work requirements, the focus is on carrying out a significant body of original research, the writing and the defense of a doctoral dissertation describing this work.

PGDSD Myanmar

The Post Graduate Diploma in Software Development for thirty students from Myanmar for duration of nine months; the first six months at IIIT Bangalore and the last three months in Mandalay, Myanmar.

The last three months involved a project assignment in addition to the course work. The contents of the programme included computer hardware and system software concepts, introduction to web technologies, programming fundamentals, client server and object oriented concepts, RDBMS, Unix/Linux, HTML/Java Script/XML, etc.

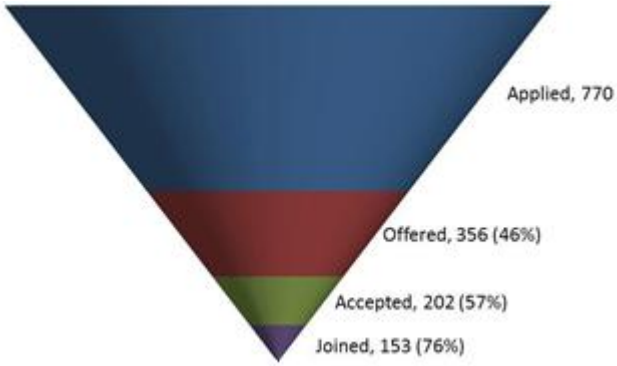
Scholarships

Scholarships are available for all Ph.D. and Masters of Science by Research students. They are also available to approximately 15-20% of the M.Tech students and to approximately 25% of iM.Tech students. The selection based on student accomplishments in academic as well as other areas and interviews.

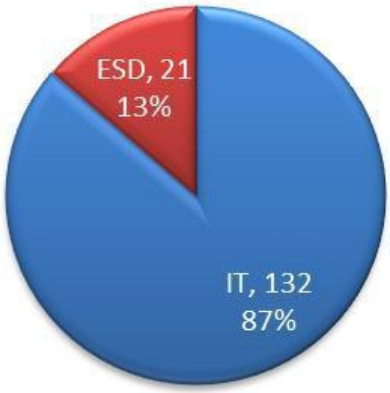
PROGRAM STATISTICS

M.Tech Batch 2014-15

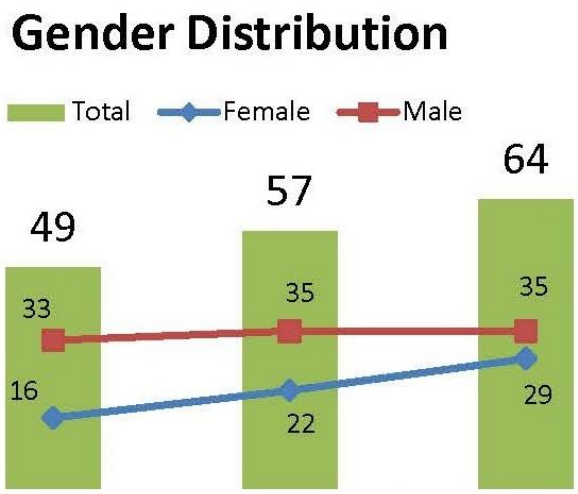
Batch Funnel - 153 Students

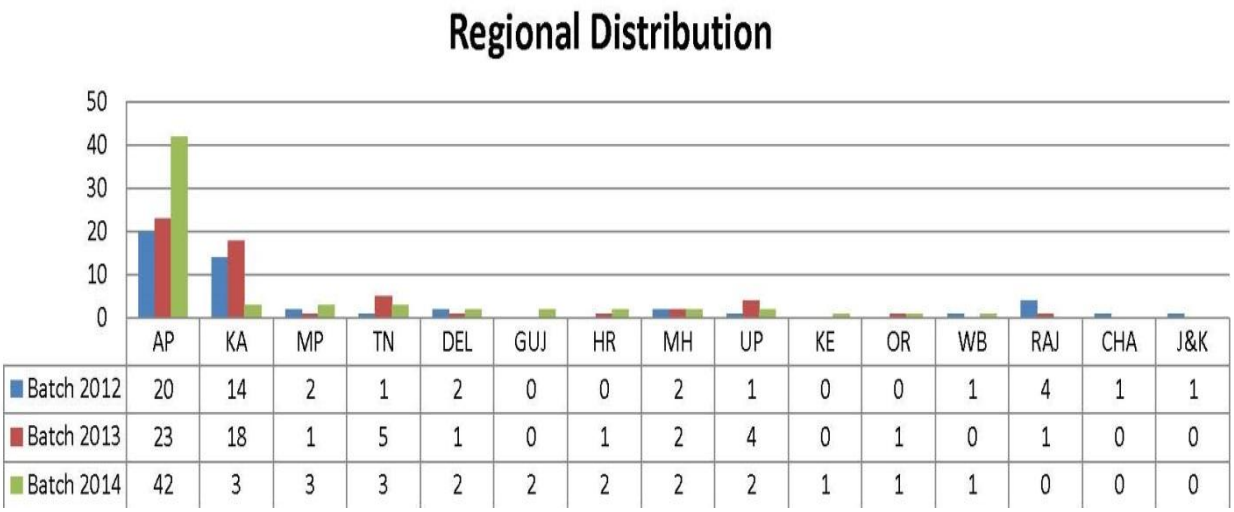


Gender Distribution



Integrated M.Tech - 2014-15 batch





	AP	KA	MP	TN	DEL	GUJ	HR	MH	UP	KE	OR	WB	RAJ	CHA	J&K
Batch 2012	20	14	2	1	2	0	0	2	1	0	0	1	4	1	1
Batch 2013	23	18	1	5	1	0	1	2	4	0	1	0	1	0	0
Batch 2014	42	3	3	3	2	2	2	2	2	1	1	1	0	0	0

EVENTS

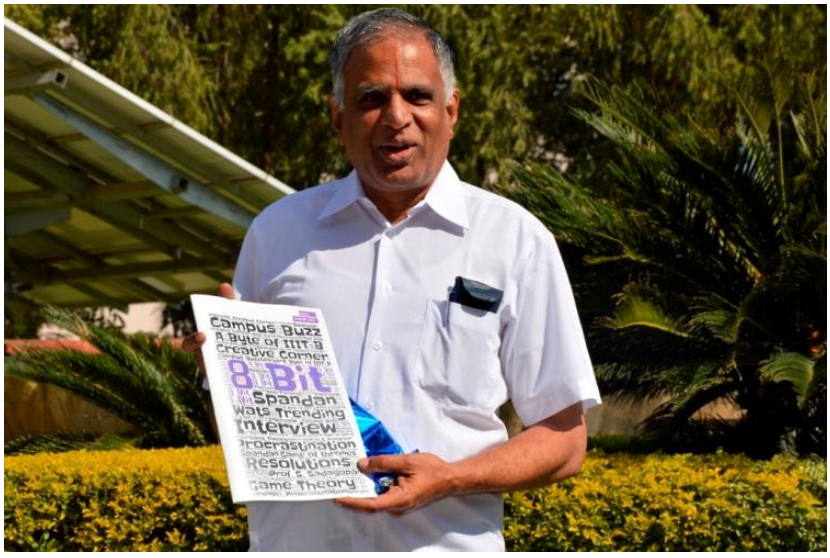
Convocation

The 15th Annual Convocation of IIIT-B was held on July 5th, 2015. Dr.K. Kasturirangan - Chancellor, Jawaharlal Nehru University and former Chairman, ISRO (Indian Space Research Organization) was the Chief Guest for the ceremony.

Number of students who graduated in the convocation:
136 – M.Tech
5 - M.S by Research
7 – Ph.D. students

15th Convocation (Class of 2013) **|| 15th Foundation Day**
(Chief Guest - Dr. Kasturirangan, Chancellor, Jawaharlal Nehru University; Former Chairman, Indian Space Research Organization)

Launch of Web Observatory



Release of BYTE, IIIT-B's student magazine

Special Training Programme (STP-3) sponsored by Infosys Foundation

Inaugration of I-MACX Accelerator

FACULTY

IIIT-B attracts outstanding faculty who are deeply committed to their teaching and who have made significant contributions to their field of research.

Full Time Faculty

1) Computer Science

	Prof. Ashish Choudhury (Ph.D., IIT Madras, India)	Theoretical Cryptography, Cryptographic Protocols
	Prof. Srinivas Prasanna G. N. (Ph.D., MIT, USA)	Algorithms with Information Theory, Robotics
	Prof. Srinivasaraghavan G. (Ph.D., IIT Kanpur, India)	Algorithms, Computational Geometry
	Prof. Muralidhara V. N. (Ph.D., IIT Delhi, India)	Theory of Algorithms and Complexity, and its Applications.
	Prof. Sadagopan S. (Ph.D., Purdue University, USA)	Operations Research, Multi-criteria optimization Decision Theory, Simulation, Enterprise Computing
	Prof. Shrisha Rao (Ph.D., University of Iowa, USA)	Distributed Computing, specifically Algorithms and Approaches for concurrent and Distributed Systems

	Prof. Srikanth T. K. (Ph.D., Cornell University, USA)	Mobile and Cloud Applications, Geometric Modelling and Graphics

2) Electronic Systems Design

	Prof. Madhav Rao (Ph.D., University of Alabama, USA)	VLSI Technology
	Prof. Srinath R. Naidu (Ph.D., Eindhoven University, Netherlands)	Electronic Design Automation including Statistical Timing Analysis and Optimization for Digital Circuits, Power Analysis and Optimization and Formal Verification.
	Prof. Subajit Sen (Ph.D., University of Waterloo, Canada)	Analog and Mixed – Signal VLSI Integrated Circuit & System Design, Digitally – Assisted Analog Circuit Design, Embedded – Systems for biomedical and Energy – Harvesting Applications
	Prof. Subir K. Roy (Ph.D., IIT Bombay, India)	Hardware Formal Verification, Power Estimation, Performance Analysis

3) Data Sciences

	Prof. Chandrashekhar Ramanathan (Ph.D., Mississippi State University, USA)	Software Engineering, Application Development, Databases

	Prof. Jaya Sreevalsan Nair (Ph.D., University of California, Davis, USA)	Visualization, Scientific Computing, Computer Graphics & Computational Geometry
	Prof. Srinath Srinivasa (Ph.D., Berlin Brandenburg Graduate School, Germany)	Web Information Retrieval, Multi-Agent Systems, Network Analysis and Text Mining

4) Software Engineering

	Prof. Dinesha K. V (Ph.D., IIT Bombay, India)	Software Engineering, Quality Systems (ISO, SEI CMM Models), Cryptography, Object Technology, Data Structures
	Prof. JayPrakash L. T. (Ph.D., IIT Kharagpur, India)	Program and Model Analysis, Testing, Requirements Engineering
	Prof. Sujit Kumar Chakrabarti (Ph.D., IISc, India)	Software Engineering, Formal Methods, Software Testing
	Prof. Meenakshi D'Souza (Ph.D., The Institute of Mathematical Sciences, India)	Formal Verification of Software Design, Model Based Development and Physical Access Control

5) Network & Communication

	Prof. Dinesh Babu Jayagopi (Ph.D., EPFL, Switzerland)	Audio-Visual Signal Processing, Machine Learning, Social Computing

	Prof. Jyotsna Bapat (Ph.D., Penn State University, USA)	Cognitive Radio Systems and Internet of Things
	Prof. Poonacha P. G. (Ph.D., IIT Kanpur, India)	Computer Vision Problems, Wireless Communications and Wireless Sensor Networks
	Prof. Tricha Anjali (Ph.D., Georgia Institute of Technology, USA)	Computer Networks and Wireless Networks. Design and Analysis of Multipath Routing Schemes, Heterogeneous Radio Access Network Selection
	Prof. Neelam Sinha (Ph.D., IISc, India)	Medical Imaging and Processing
	Prof. Debabrata Das (Ph.D., IIT Kharagpur, India)	Wireless Access Network's MAC, QoS, Power saving and IP Multimedia Subsystems

6) IT & Society

	Prof. Amit Prakash (Ph.D., IIM Bangalore, India)	Information Systems & Public Policy, ICT & Development
	Prof. Balaji Parthasarathy (Ph.D., University of California, Berkeley, USA)	Impact of public policy on ICT development

	Prof. Jillet Sarah Sam (Ph.D., University of Maryland College Park, USA)	Digital Case and Religious mobilization
	Prof. Niveditha Menon (Ph.D., Penn State University, USA)	Gender, Poverty, Violence, Community Development
	Prof. Bidisha Chaudhuri (Ph.D., Heidelberg University, Germany)	Governance, ICT for development, Policy Reform
	Prof. Rajagopalan (Ph.D., IIT Kanpur)	Innovation Dissemination, Economics of Innovations
	Prof. V. Sridhar (Ph.D., University of Iowa, USA)	Telecommunications Technology, Management & Policy
	Prof. Janaki Srinivasan (Ph.D., University of California, Berkeley)	Political Economy of Development, Social Theory, Critical Information Studies, ICTD, and Qualitative Research Methods

7) Basic Sciences

	Prof. Balakrishnan Ashok (Ph.D., University of Massachusetts Amherst, USA)	Theoretical Polymer Physics

	Prof. Brijesh Kumar Mishra (Ph.D., IIT Kanpur, India)	Quantum Chemistry, Electronic Structure Calculations
	Prof. Manisha Kulkarni (Ph.D., The Institute of Mathematical Sciences, India)	Diophantine Equations, Elliptic Curves, Galois Groups and Class Groups

Adjunct / Visiting Faculty

	Mr. Tridib Roy Chowdhury (Adjunct)	Multi-dimensional Indexes, Object Databases, Image Compression & Quality Systems
	Mr. Muralidhar Koteshwar (Adjunct)	Product Conceptualization and Development, Usability Design, quality (ISO & SEI CMM), Sales, Marketing, Product Management
	Mr. Ramesh Sundararaman (Adjunct)	Startups, Contextual Technologies, Business-process life-cycle
	Mr. Joy Prabhakaran (Adjunct)	Mobile Technologies, Multimedia, Printer Firmware, Aerospace Hardware Systems & Building Control Technologies
	Mr. Nagarajan S. (Adjunct)	Storage Systems, Emerging Computing Infrastructure, Operating Systems & Computer Architecture

	Mr. Chandramouleeshwaran Sankaran (Adjunct)	RTOS, Advanced Processor Architectures, ARM based Development
	Prof. Balwant Godara (Visiting)	ICT for Healthcare, Design of Circuits & Communications Systems in Biomedical Applications
	Prof. Ramesh S. (Visiting)	Rigorous Software Engineering, Embedded Systems & Real-Time Systems
	Prof. Roland E. Haas (Visiting)	Advanced Product Data Management, Engineering Workflow Automation, Concurrent & Simultaneous Engineering
	Prof. K. R. V. Raja Subramanian (Visiting)	Innovative Learning Solutions & Services
	Prof. S. S. Prabhu (Advisor)	Control of Distributed Parameter Systems, Robot Path Planning & Control, Power System Dynamics and Stabilizers, HVDC & FACTS Controllers, Voltage Stability, Industrial Informatics
	Prof. Vinod Vyasulu (Advisor)	Federal System, Federal Finances, Working of Local Governments and the Process of Urbanization

FACULTY HONORS

- Prof. Ramani was inducted into the Internet Hall of Fame.

- Prof. V. N. Muralidhara was awarded Research Grant by IBM under the IBM Shared University Research Award 2014

- Prof. Debabrata Das and Prof. V. Sridhar served as the General Co-chairs of the IEEE CONNECCT 2015 Conference.

- Prof. Subir Roy, Prof. Jyotsna Bapat, Prof. V. N. Muralidhara & Prof. Dinesh Babu Jayagopi served as the Technical Program Chairs at the IEEE CONNECCT Conference 2015 managing the tracks – Electronics, Communication, Computing & Signal Processing.

- Prof. S. Sadagopan was honoured with the "Digital Pioneer" Award by Cisco & NDTV on July 11, 2015.

FACULTY PUBLICATIONS

- Balaji Parthasarathy. "Reversing the flow of ideas? Frugal innovation for India and the world beyond," *Chanakya Papers,* Australia India Institute, Melbourne, 2014.
- Prasad, R and V. Sridhar. *The Dynamics of Spectrum Management: Legacy, Technology, and Economics*. Oxford: Oxford University Press, August 2014.
- M. Asadullah, K. V. Dinesha and P.C.P. Bhatt. "A heuristic for two bin partition problem,"*Seventh International Conference on Contemporary Computing (IC3), 2014,*Noida, India, August 7-9, 2014, pp. 85-88.
- Horia A. Maior and Shrisha Rao. "A Self-Governing, decentralized, extensible Internet of Things to share electrical power efficiently,"*10th Annual IEEE International Conference on Automation Science and Engineering (IEEE CASE 2014),*Taipei, Taiwan: August 18-22, 2014, pp. 37-43.
- Shrisha Rao. Book Review "Designing with the mind in mind: simple guide to understanding user interface design guidelines (2nd ed.) by Johnson J., Morgan Kaufmann,"*ACM Computing Reviews,*August 2014.
- Ashish Choudhury, Arpita Patra and Nigel P. Smart. "Reducing the overhead of MPC over a large population,"*9th International Conference on Security and Cryptography of Networks, (SCN 2014),*Amalfi, Italy, September 3-5, 2014, pp. 197-217.
- S. Eswaran, V. Ariharan and Jyotsna Bapat., "Event driven opportunistic communication enabler for smart city,"*8th International Conference on Next Generation Mobile Apps, Services and Technologies (NGMAST 2014),*Oxford, UK, September 10-12, 2014, pp. 313-319.
- Ameneh Pourmoghadas and P. G. Poonacha. "Performance analysis of a machine-to-machine friendly MAC algorithm in LTE-advanced,"*International Conference on Advances in Computing, Communications and Informatics (ICACCI 2014),*New Delhi, India, 24-27 September 2014, pp. 99-105.
- Y. M. Kondi, D. Varshneya, S. Krishnan and Madhav Rao. "An interdisciplinary, dialogic approach to develop an electronic device to enhance freedom and mobility of women in public spaces in the Indian context — Illustrated by the case of Convers[i[ation,"*IEEE Global Humanitarian Technology Conference - South Asia Satellite*

(GHTC-SAS), Trivandrum, India, September 26-27, 2014, pp. 179-176.

- Ritesh Kumar Kalle and Debabrata Das. "Energy and delay constrained scheduling of Real Time traffic over OFDM communication system with non-causal channel information,"*Physical Communication,*Vol. 12,. pp. 50–62, September 2014.
- Brijesh Kumar Mishra, Milind Madhusudan Deshmukh, and Ramanathan Venkatnarayan. "C–H···π Interactions and the nature of the donor carbon atom,"*The Journal of Organic Chemistry,*vol. 79, no. 18, pp. 8599-8606, September 2014.
- B. Ashok. "On the importance of length scales in determining the physics of biological systems,"*Nature's Longest Threads :New Frontiers in the Mathematics and Physics of Information in Biology edited by Janaki Balakrishnan, and B V Sreekantan,*World Scientific, September 2014, pp. 53-64.
- Akshay Narayan and Shrisha Rao. "Power-aware cloud metering,"*IEEE Transactions on Services Computing,*vol. 7, no. 3, pp. 440-451, July-September 2014.
- Bharath M. Palavalli, Harsha Krishna and Dinesh Babu Jayagopi. "Analyzing gaming-simulations using video based techniques,"*Second International Conference on Technological Ecosystems for Enhancing Multiculturality (TEEM '14),* Spain, October 1-3, 2014, pp. 235-239.
- Vivek Yadav and Chandrashekar Ramanathan. "Automated layout preservation in cross language translation of document: An integrated approach and implementation,"*7th ACM India Computing Conference (COMPUTE '14),* Nagpur, October 9-11, 2014, 8 pages.
- Mrinal Haloi and Dinesh Babu Jayagopi. "Characterizing driving behavior using automatic visual analysis,"*6th IBM Collaborative Academia Research Exchange (I-CARE 2014),* Bangalore, India, October 9-11, 2014, pp. 1-4.
- Akansha Singh, Jyotsna Bapat and Debabrata Das. "Health monitoring in smart grid using Big Data perspective,"*6th IBM Collaborative Academia Research Exchange (I-CARE 2014),* Bangalore, October 9-11, 2014.
- Kausal Malladi, Sridharan Srivatsan and Jayprakash T. Lalchandani. "Architecting a large scale ubiquitous e-voting solution for conducting Government elections,"*International Conference on*

Advances in Electronics, Computers and Communications (ICAECC), Bangalore, October 10-11, 2014, pp. 1-6.

- R. McDermott, J. Bass and Jayprakash T. Lalchandani. "The learner experience of student-led international group project work in software engineering,"*IEEE Frontiers in Education Conference (FIE),*Madrid, Spain, October 22-25, 2014, pp. 1-8.
- Sweety Agrawal, Chinmay Jog and Srinath Srinivasa. "Integrity management in a trusted utilitarian data exchange platform,"*13th International Conference on Ontologies, Databases and Applications of Semantics: Confederated International Conferences: CoopIS, and ODBASE 2014,*Amantea, Italy, October 27-31, 2014, pp. 623-638.
- P. Agrawal and Shrisha Rao. "Energy-aware scheduling of distributed systems,"*IEEE Transactions on Automation Science and Engineering,*vol. 11, no. 4. pp. 1163-1175, October 2014.
- Sunil Kumar Vuppala and G N Srinivasa Prasanna. "Optimization of energy management in large scale smart grid systems,"*Informs Annual Meeting: Bridging data and decisions,* San Francisco, USA, November 9-12, 2014.
- Abhilasha Aswal, Anushka Chandrababu and G.N.Srinivasa Prasanna. "Uncertainty Quantification for Robust Optimization and Extended Relational Algebra of Polytopes,"*Informs Annual Meeting: Bridging data and decisions,* San Francisco, USA, November 9-12, 2014.
- Yogalakshmi Jayabal and Chandrashekar Ramanathan. "Mutual information based weighted fuzzy clustering,"*International Conference on Contemporary Computing and Informatics (IC3I),*Mysore, 27-29 November, 2014, pp. 789-794.
- Meenakshi D'Souza, S. Ramesh and M. Satpathy. "Architectural semantics of AADL using Event-B,"*International Conference on Contemporary Computing and Informatics (IC3I),*Mysore, 27-29 November, 2014, pp. 92-97.
- B. Ashok, and G. Ananthakrishna. "Dynamics of intermittent force fluctuations in vesicular nanotubulation,"*Journal of Chemical Physics,* vol. 141, no. 17, pp. 174905-1 - 174905-13, November 2014.
- Shrisha Rao. Book Review. "Regulated grammars and automata by Meduna A., Zemek P,"*ACM Computing Reviews,* November 2014.
- Neha Oraon and Madhav Rao. "Study of solder based self assembled 3D micro scale structures via surface evolver,"*IEEE 2nd International Conference on Emerging Electronics (ICEE),*Bangalore, India, December 3-6, 2014, pp. 1-4.

- K. P. Vishnu Priya and Jyotsna Bapat. "Bad Data Detection in Smart Grid for AC Model,"*Annual IEEE India Conference (INDICON),*Pune, India, December 11-13, 2014, pp. 1-6.
- Prashant K. Wali and Debabrata Das. "Novel Access Scheme for IoT Communications in LTE-Advance Networks,"*IEEE International Conference on Advanced Networks and Telecommuncations Systems (ANTS),*New Delhi, India, December 14-17, 2014, pp. 1-6.
- Chinmay Jog, Sweety Agrawal and Srinath Srinivasa. "Root Set: A Distributed Trust-based Knowledge Representation Framework For Collaborative Data Exchange,"*20th International Conference on Management of Data (COMAD '14),* Hyderbad, India, December 17-19, 2014, pp. 127-130.
- Sumant Kulkarni, Srinath Srinivasa and Priyanaka Shukla. "Akshaya: a framework for mining general knowledge semantics from unstructured text,"*20th International Conference on Management of Data (COMAD '14),* Hyderbad, India, December 17-19, 2014, pp. 131-133.
- M S Srinivasan, Srinath Srinivasa and Sunil Thulasidasan. "A comparative study of two models for celebrity identification on twitter,"*20th International Conference on Management of Data (COMAD '14),* Hyderbad, India, December 17-19, 2014, pp. 57-65.
- Sumant Kulkarni and Srinath Srinivasa. "Sorting Hat: a deep matching framework to match labeled concepts,"*20th International Conference on Management of Data (COMAD '14),* Hyderbad, India, December 17-19, 2014, pp. 134-137.
- S. Banerjee, N. J. Rao, Chandrashekar Ramanathan and V. Ramesh. "Design of Valid Summative Assessment Instruments in Formal Higher Education Programmes,"*IEEE Sixth International Conference on Technology for Education (T4E),*Clappana, Kerala, India, December 18-21, 2014, pp. 76-79.
- S. Nayak, P. Vakrani, A. Purohit and G.N. Srinivasa Prasanna. "Remote Triggered Lab for Robotics: Architecture, Design and Implementation Challenges,"*IEEE Sixth International Conference on Technology for Education (T4E),*Clappana, Kerala, India, December 18-21, 2014, pp. 214-217.
- R. Rahul, A. Whitchurch and Madhav Rao. "An open source graphical robot programming environment,"*IEEE International Conference on MOOC, Innovation and Technology in Education (MITE),*Patiala, India,December 19-20, 2014, pp. 96-100.

- Beena Kumari, Avijit Ashe and Jaya Sreevalsan-Nair. "Remote Interactive Visualization of Parallel Implementation of Structural Feature Extraction of Three-dimensional Lidar Point Cloud,"*Third International Conference on Big Data Analytics, (BDA 2014),*New Delhi, India, December 20-23, 2014, pp. 129-132.
- V. A. Kumar, and Debabrata Das. "Data Enriched SACK: A Novel Acknowledgement Generation Scheme for Secure SCTP,"*IEEE Communications Letters,* vol. 18, no. 12,. pp. 2109-2112, December 2014.
- Shrisha Rao. Book Review. "Statistics, data mining, and machine learning in astronomy: A practical Python guide for the analysis of survey data by Ivezic Z. Connolly A., VanderPlas J., Gray A., *ACM Computing Reviews,* December 2014.
- Aparna Lalingkar, Chandrashekar Ramnathan and Srinivasan Ramani. "Ontology-based smart learning environment for teaching word problems in mathematics,"*Journal of Computers in Education,*vol. 1, no. 4, pp 313-334, December 2014.
- V. Sridhar and Anees Haidary. "Project Management Lessons in Outsourced Product Development,"*Manage India,*vol.5, no. 11, pp. 10, December 2014.
- Srinath Srinivasa and Sameep Mehta Editors. "Big Data Analytics (Vol. 3),"*Third International Conference Big Data Analytics (BDA 2014),*Delhi, India, Springer, December 2014.
- P. Sravani and Madhav Rao. "Design of 3D Antennas for 24 GHz ISM Band Applications,"*28th International Conference on VLSI Design (VLSID),*Bangalore, India, January 3-7, 2015, pp. 470-474.
- Ashish Choudhury and Arpita Patra. "Optimally Resilient Asynchronous MPC with Linear Communication Complexity,"*International Conference on Distributed Computing and Networking (ICDCN 2015),*Goa, India, January 4-7, 2015, pp. 1-10.
- Shweta Ghodeswar and P.G. Poonacha. "Tenth Order Envelope Moment Based SNR Estimation Technique Using Newton-Raphson Method for AWGN and Rician Channels,"*International Conference on Communication, Information & Computing Technology (ICCICT 2015),*Mumbai, India, January 15-17, 2014, pp. 208-213.
- V. Sridhar. "Flexible Spectrum Management,"*SITM-IRC-TEM International Research Conference,*Pune, India, January 16-17, 2015.

- Sumant Kulkarni and Srinath Srinivasa. "Deep Matching: Explainable Semantic Matching Algorithms,"*The second XRCI Open, an open innovation exchange,* Bangalore, India, January 22-23, 2015.
- Pradeep Kumara, C.N. Ramachandran, Brijesh Kumar Mishra and N. Sathyamurthy, Interaction of rare gas dimers in the confines of a carbon nanotube, Chemical Physics Letters, vol. 618, pp. 42–45, January 2015.
- Meenakshi Dsouza and Sujit Kumar Chakrabarti. "Graduate Course in Software Testing,"*International Workshop on Software Engineering Education,*Bangalore, India, February 18-20, 2015,
- Rajikha Raja, Neelam Sinha and Jitender Saini. "DTI - DKI fitting: a graphical toolbox for estimation and visualization of diffusion tensor and diffusion kurtosis imaging,"*SPIE, Medical Imaging 2015: PACS and Imaging Informatics,* Orlando, Florida, United States, February 21, 2015.
- P.J. Prabhakaran and P. G. Poonacha. "A new decimation and interpolation algorithm and an efficient lossless compression technique for images Communications,"*Twenty First National Conference on Communications (NCC),*Mumbai, India, February 27 - March 1, 2014, pp. 1-6.
- Bivas Bhattattacharya and Debabrata Das. "QoS Enhancement using Embedded Agent in OpenFlow based SDN Node," IEEE International Conference on Electrical, Computing and Communication Technology (ICECCT-2015), Coimbatore, India, 5-7th March 2015, pp. 944-948.
- Chinmay Jog, Sweety Agarwal and Srinath Srinivasa. "Distributing a Trust Framework for Utilitarian Data: Exchanges in Inter-Organizational Collaborations,"*Second ACM IKDD Conference on Data Sciences CoDS '15,*Bangalore, India, March 18-21, 2015, pp. 1-10.
- Yogalakshmi Jayabal and Chandrashekar Ramanathan. "Mutual information based weighted clustering for mixed attributes,"*Second ACM IKDD Conference on Data Sciences CoDS '15 ,*Bangalore, India, March 18-21, 2015, pp. 136-137.
- Shweta Ghodeswar and P.G. Poonacha. "An SNR Estimation Based Adaptive Hierarchical Modulation Classification Method to Recognize M-ary QAM and M-ary PSK Signals,"*3rd International Conference on Signal Processing, Communications and Networking (ICSCN - 2015),*Chennai, India, March 26-28, 2015.

- Rohit Prasad and V. Sridhar. "Unfinished Tasks in the Liberalisation of Spectrum for Mobile Services,"*Economic and Political Weekly,*Vol – L, No. 13, March 28, 2015.
- Jennifer Brant and Balaji Parthasarathy. "The Dynamics of Global Technology and Knowledge Flows,"*International Chamber of Commerce,* Innovation and Intellectual Property Series no. 4, March 2015, pp. 1-32.
- P. C. Hershey, Shrisha Rao, C. B. Silio and A. Narayan. "System of Systems for Quality of Service Observation and Response in Cloud Computing Environments,"*IEEE Systems,* vol. 9, no.1, pp. 212 - 222 , March 2015.
- T. Hongray, B. Ashok and J. Balakrishnan. "Oscillatory dynamics of a charged microbubble under ultrasound,"*Pramana,*vol. 84, no.4, pp. 517-541, April 2015.
- Amit Prakash. "E-Governance and Public Service Delivery at the Grassroots: a Study of ICT Use in Health and Nutrition Programmes in India,"*Information Technology for Development,* published online on April 2015.
- Shrisha Rao. Book Review. "Introduction to machine learning (3rd ed.) by Alpaydin E,"*ACM Computing Reviews,* April 2015.
- Daniela Trogolo, Brijesh Kumar Mishra, Michèle B. Heeb, Urs von Gunten and J. Samuel Arey. "Molecular Mechanism of NDMA Formation from *N*,*N*-Dimethylsulfamide During Ozonation: Quantum Chemical Insights into a Bromide-Catalyzed Pathway," *Environmental Science and Technology*, vol. 49, no. 7, pp. 4163 – 4175, April 2015.
- Jayati Deshmukh and Srinath Srinivasa. "Evolution of Cooperation with Entrenchment Effects,"*International Conference on Autonomous Agents and Multiagent Systems (AAMAS '15),* Istanbul, Turkey, May 4-8, 2015, pp. 1717-1718.
- Subha P. Eswaran, Jyotsna Bapat and V. Ariharan. "Service driven Dynamic Hashing based Radio Resource Management for Intelligent Transport Systems,"*8th International Workshop, Nets4Cars/Nets4Trains/Nets4Aircraft 2015,*Sousse, Tunisia, May 6-8, 2015, pp. 12-23.
- Subha P. Eswaran and Jyotsna Bapat. "Service Centric Markov based Spectrum Sharing for Internet of Things,"*An international conference of IEEE Region 10 (TENSYMP 2015,* Ahmedabad, India, May 13-15, 2015,

- Silvia Masiero and Amit Prakash. "The politics of anti-poverty artefacts: lessons from the computerization of the food security system in Karnataka,"*Seventh International Conference on Information and Communication Technologies and Development (ICTD '15,* Singapore, May 15-18, 2015, pp. 10.
- Parthiban Annamalai, Sajal Kumar Das, Jyotsna Bapat and Debabrata Das. "Coverage enhancement of PBCH using reduced search Viterbi for MTC in LTE-Advanced networks,"*13th International Symposium on Modeling and Optimization in Mobile, Ad Hoc, and Wireless Networks (WiOpt),*Mumbai, India, May 25-29, 2015, pp. 110-114.
- Rajesh Mishra and Balaji Parthasarathy. "Technology driven Foreign Direct Investments by Emerging Multinational Enterprises: Imbalances, perception gaps and the Indian experience,"*Technology Driven FDI from Emerging Countries:Challenges and Opportunities for Europe,*Pisa, Italy, 28-29 May 2015.
- Bivas Bhattacharya and Debabrata Das. "Software Defined Network controller embedded in mobile device for user's policy implementation,"*International Conference on Industrial Instrumentation and Control (ICIC),*Pune, Maharastra, India, May 28-30, 2015, pp. 1437-1441.
- Saptarshi Chaudhuri, Irfan Baig and Debabrata Das. "Utility based QoS aware Uplink scheduler scheme for LTE small Cell Network,"*IEEE International Conference on Communications: Smart City and Smart World,* London, United Kingdom, June 8-12, 2015, pp. 4761-4766.
- Mrinal Halio and Dinesh Babu Jayagopi. "A Robust Lane Detection and Departure Warning System,"*IEEE Intelligent Vehicles Symposium,* June 28 - July 1, 2015, COEX, Seoul, Korea.
- Abinaya Mahendiran, Srivatsan Sridharan, Sushanth Bhat and Shrisha Rao. "Cross-Referencing Cancer Data Using GPU for Multinomial Classification of Genetic Markers,"*CSI Journal of Computing,*vol. 2, no. 4, 2015, pp. 67-79.
- Rohit Prasad and V Sridhar. "Net Neutrality to Digital Dynamism,"*Economic and Political Weekly,*Vol - L, no. 26-27, pp. 19-22, June 27, 2015.
- Nirmal Kumar Sivaraman and Srinath Srinivasa. "Abstractions, Expressions and Online Collectives," *ACM Web Science 2015*, Oxford University, UK, June 28 – July 01, 2015.

- Balaji Parthasarathy, Yuko Aoyama and Niveditha Menon. "Innovating for the Bottom of the Pyramid: Case Studies in Healthcare from India,"*Technologies for Development,*Springer, 2015, pp 55-69.
- Gopika Gopan K, Neelam Sinha and Dinesh Babu J. "Hybrid Features based Classification of Alcoholic and Non-alcoholic EEG,"*IEEE International Conference on Electronics, Computing and Communication Technologies (CONECCT),* Bangalore, India, July 10-11, 2015.
- Sunil Kumar V, Neelam Sinha and Srinivasa Raghavan. "Modified Oriented Gaussian Derivative Filter Based Texture Detection Algorithm and Parameter Estimation,"*IEEE International Conference on Electronics, Computing and Communication Technologies (CONECCT),*Bangalore, India, July 10-11, 2015.
- Prakruti Chandrashekar, Sashank Dara and V. N. Muralidhara. "Efficient Format Preserving Encrypted Databases,"*IEEE International Conference on Electronics, Computing and Communication Technologies (CONECCT),*Bangalore, India, July 10-11, 2015.
- Prashant K. Wali and Debabrata Das. "PS-SPS: Power Saving - Semi Persistent Scheduler for VoLTE in LTE-Advanced," *IEEE International Conference on Electronics, Computing and Communication Technologies (CONECCT),*Bangalore, India, July 10-11, 2015.
- Asha Subramanian, Srinath Srinivasa, S. Vignesh and R. R. Pavan Kumar. "Semantic Integration of Structured Data Powered by Linked Open Data,"*5th International Conference on Web Intelligence, Mining and Semantics,*Cyprus, July 13-14, 2015.
- Pragati Agrawal and Shrisha Rao. "Energy-Minimal Scheduling of Divisible Loads," *ACM Sixth International Conference on Future Energy Systems* (e-Energy '15), Bangalore, India, July 14-17, 2015, pp.265-270.
- V. Sridhar and T K Srikanth. "Telco-OTT, a symbiotic relationship? : There are more opportunities for Telcos and OTT firms to colloborate and gain collectively - A viewpoint."*Voice n Data,*vol. 22, no. 7, pp. 66-67, July 2015.
- Aparna Lalingkar, Chandrashekar Ramnathan and Srinivasa Ramani. "MONTO: A Machine-Readable Ontology for Teaching Word Problems in Mathematics. ,"*Journal of Educational Technology & Society,*vol. 18 no. 3, 197–213, July 2015.

- V. Sridhar and A. Basaure. DSA Applications and Scenerios: Cases of Finland and India, *Cognitive Radio Policy and Regulation: Techno-Economic Studies to Facilitate Dynamic Spectrum Access*, Medeisis, A., & Holland, O. Editors, Switzerland: Springer International Publishing, 2015, pp. 75-79.
- A. Basaure and V. Sridhar., Introduction of DSA: The Role of Industry Openness and Spectrum Policy. *Cognitive Radio Policy and Regulation: Techno-Economic Studies to Facilitate Dynamic Spectrum Access*, Medeisis, A., & Holland, O. Editors, Switzerland: Springer International Publishing, 2015, pp. 270-277.
- Balakrishnan K and Debabrata Das, "Evaluation and Optimization of Short TCP Completion Time over Wireless Broadband Access Networks," *Wireless Networks,* vol. 22, no.5, pp. 1549-1562*,* July 2015.

INVITED TALKS

- Prof. Balaji Parthasarathy delivered a talk on "ICT as an enabler of growth in developing countries - the example of Bangalore" at the Annual Event of Chamber Trade Sweden in Stockholm.
- Prof. Dinesh Jayagopi gave a talk on "Behavior Tracking and Perception using applications in Operator Assist and Team Training" at the DRDO workshop on Technologies for Autonomous Soldier-Assist System (TASAS) 2014, organized at the Jadavpur University, Kolkata.
- Prof. T K Srikanth gave a talk on "3D Printing/Additive Manufacturing" in a session at the CII Tenth India Innovation Summit, 2014 in Bangalore. The theme of the session was "Disruptive Innovation as a Driver for Social Change".
- Prof. Jaya Sreevalsan Nair gave a tutorial titled "Visualization: Above all else show the data" at the ACM-W India Celebrations of Women in Computing (AICWIC 2014) in Goa.
- Prof. Debabrata Das presented an invited talk in IoT track on "Concept of IoT and Govt. Initiatives", at the IEEE Metropolitan Conference.
- Prof. Amit Prakash was invited to deliver a talk on "Opportunities and Challenges in Designing IT Solutions to Address Societal Needs" at Code Together, an event organized by Oracle Academy. It saw participation of over 350 students and teachers from 30 high schools and engineering colleges in Bangalore.
- Prof. Srinivasa Raghavan gave an invited talk on "Recent Advances in Clustering Theory" at the "International Workshop on Computer Vision and Machine Learning - 2014" held at Sri Sathya Sai Institute for Higher Learning, Puttaparthi.
- Prof. Srinivasa Raghavan gave an invited talk on "Machine Learning - Opportunities and Imperatives for ICICI Bank" to the analytics group at ICICI Bank and a few of their business heads (General Managers along with the CIO) at the ICICI Bank Headquarters in Mumbai.
- Prof. Balaji Parthasarathy delivered the keynote address, upon invitation, on Frugal Innovation at the 4th IPR Researchers' Confluence on IP Challenges in Frugal Innovation at the IIT Bombay.

- Prof. S.Rajagopalan and Prof. Amit Prakash were invited to attend a 4-day workshop on e-Government and Information Security & Privacy organized by the United Nations Asia-Pacific Centre for ICT and Development (UN-APCICT) at Incheon, Republic of Korea.
- Prof. S. Sadagopan was the Chief Guest for IEEE Metropolitan Conference where he delivered the inaugural address on "Role of Big Data and IoT for Mankind and Next Generation of Technology".
- Prof. V. Sridhar was the co-chair for the Mobile India2015 Conference held at Bangalore.

RESEARCH LABS

Center for Electronics and Embedded Systems - Prof. P G Poonacha

The Center for Electronics and Embedded Systems (CEEMS) Lab's objective is to nurture talent by focusing on Embedded Computing, Wireless Communication and Computer vision. Facilities available in the lab will enable world class research and education and will be seen as an extension of the strong Information Technology (IT) Core competence already available at IIIT-B. CEEMS Lab collaborates with public and private organizations to do research and development in the emerging areas of embedded systems to bridge the gap between academia output and industry requirements thus providing every learner an equal opportunity to become industry ready.

CEEMS lab is funded by the government of Karnataka.

Web Sciences Laboratory - Prof. Srinath Srinivasa

The Open Systems Laboratory (OSL) at IIIT Bangalore was started in 2002. It works in the broad areas of data and information systems engineering, graph data management, web information retrieval, text mining, social network analysis, mobile data management, distributed computing and openworld computing. The lab also hosts the first PlanetLab (www.planet-lab.org) node in India. PlanetLab grid is a worldwide grid for testing distributed algorithms. The OSL is also involved in another major project called Silverfish, whose objective is to develop a wide-area data grid for academic materials and course pages.

Wireless Network Lab - Prof. Debabrata Das

The lab focuses on research involving networking standards and technology. Current research is focussed on latest broadband wireless access technology – WiMAX/ LTE. Major areas of work include, medium access control (MAC), QoS, QoE, power management, media independent handover (MIH). Students from Microsoft Research India and TCS Research Ph.D. fellowship programmes work in this lab.

Mobile Computing and IMS Innovation Lab - Prof. Debabrata Das

The lab has projects sponsored by HP and Nokia. The R&D focus is on video and audio streaming including handheld devices, as also Video Media Platform, Charging, Service Delivery in IMS using Application Servers, XDMS, HSS and Presence servers. The lab also addresses issues related to quality of service modeling in IMS architecture with respect to differential traffic.

Wireless Sensor Network Lab - Prof. Jyotsna Bapat

Machine to machine (M2M) communication is going to be one of the major areas of R&D in networking and communication specialization. M2M faces multiple challenges and some of the major issues related to efficient communication between sensors, protocols, power saving in sensor, etc. In IIIT-B we have a WSN lab which supports multiple R&D projects on sensor networks. This lab has been sponsored by Govt. of Karnataka for development in embedded systems.

Document Engineering Lab - Prof. Chandrashekar Ramanathan

Documents still constitute a significant content type in the enterprise today. Document Engineering deals with developing algorithms, techniques, tools and processes that help in creating and manipulating the content, format, and representation of documents. There are several challenges being addressed as part of Document Engineering. The DocEng lab explores the various standards and tools available in this space. Following are some of the projects from the Lab:

- Pralekhasaara (for interactive content chunking and assembling)

- ORCA (Online Repository for Content Assembly)

- DocuBhasha (translation of documents, supported by Microsoft Research)

Information Convergence Lab - Prof. Chandrashekar Ramanathan

The revolution of mobile phones made media convergence possible. Today we don't need separate devices for talking on the phone, listening to music, watching videos, surfing the Internet, reading/sending e-mails. Information convergence is a similar concept that is focused on interoperability of information scattered across multiple dimensions and multiple sources and destinations. The focus of the Information

Convergence Lab (I-COG Lab) is to first identify and define various information convergence challenges that are relevant to the real world. The current focus of the lab is to start with a study of information convergence challenges specifically targeted at large enterprises and the government. Based on this understanding of the needs and contexts of information convergence, the lab will specify reusable frameworks that address these challenges in a unified and integrated environment. The focus would be to develop standards-based solutions that can be applied widely.

High Density Electronics System Lab - Prof. Madhav Rao

HIDES lab is a part of CEEMS project sponsored by Government of Karnataka. The lab is extensively used by undergraduates (iM.Tech) students for their basic electronics laboratory course and physics course. iM.Tech students build various analog circuits, digital circuits, and sequential circuits. High end Oscilloscopes, function generators, power supplies are available to test the circuits. The lab activities include various projects derived from Arduino controller. Graduate students use this lab to perform research experiments using ABB commercial robot. HFSS, commercial electromagnetic software to design high frequency antenna is also available in the lab.

Graphics-Visualization-Computing Lab – Prof. Jaya Sreevalsan Iyer

The focus is in research and development in scientific and information visualization, GPGPU (general purpose GPU computing) and graphics.

The current domains/data of interest are geosciences/earth observations, medical data, public health data.

GVCL is one of the founding and participating labs of the Center for Data Sciences (CDS) at IIIT-B.

Center for Complex Systems & Soft Matter Physics - Prof. Balakrishnan Ashok

The principal areas of research in physics at IIIT-B at the Centre for Complex Systems & Soft Matter Physics are theoretical soft condensed matter physics, complex systems and dynamical systems theory, with studies of instabilities and synchronization in nonlinear systems (both physical and biological), and polymeric and micellar systems. Problems include modelling nonlinear oscillations of a charged microbubble under ultrasound and the enhancement of the temperature in the gas bubble, dynamics of intermittent force fluctuations in vesicular nanotubulation, studies of synchronization phenomena & instabilities in nonlinear systems, dynamic properties of polyelectrolyte solutions, combustion, phase transitions in computationally hard problems, models of sensory systems, modelling of precipitation phenomena etc.

FUNDED R&D PROJECTS

DST – LAN -Based Interactive Three-Dimensional Visualization of LiDar Data
Project Investigator –Prof. Jaya Sreevalsan Nair
Funding Agency – Ministry of Science & Technology
Gross Amount– INR 15,00,000
Period – 2012 to 2014

Building interactive 3D visualization of time-varying Lidar point cloud data using topological methods to denoise /clean and reduce data, without loss of information of relevant features, and using it on a server-client model to enable remote visualization on a Local Area Network (LAN). The various aspects of the project are:

- Developing multi-scale algorithms for displaying point cloud data (from LiDaR) in order to reduce the complexity of the data – these algorithms involve appropriate feature-detection mechanisms in order to retain the features while sub-sampling the data.
- Building software for a graphical application for running multi-scale algorithms to display point cloud data.
- Building a LAN-based system to model a server-client architecture where the computationally intensive, hence, use of parallel implementation is desired.
- Extending the algorithms for time-varying data is not trivial, as it involves studying which features need to be tracked, and a ground truth against which the algorithm has to be tested.

Visualization for Security Analytics
Project Investigator –Prof. Jaya Sreevalsan Nair
Funding Agency – EMC India
Gross Amount– INR 9,77,500
Period–2013 to 2015

Building proof-of-concept information visualization methods to be plugged into the RSA-product, "Investigator", for visualizing security logs and analyzing activity in the network. Identifying appropriate visualizations for given data models (e.g. multivariate, time-varying, hierarchical), and integrate the routine investigations domain experts/end-users perform using existing simpler techniques (such as bar-charts, pie-charts, timelines, etc.)

Resting Brain Function Characterization through Magnetic Resonance Imaging (MRI) Studies –
Project Investigator –Prof. Neelam Sinha
Funding Agency – Ministry of Science & Technology
Gross Amount– INR 3,12,000

Period – 2011 to 2013

a) The objective of the project applying signal processing and machine learning techniques for characterization of resting brain function.
b) Determine patterns of activity and connectivity that will aid in prognosis of neurological disorders
c) Determine salient differences in structure, connectivity and functional activity of the brain between healthy controls and diseased patients.

DOT Rural Digital Economy Hub Spoke in India (SPOKE) –
Project Investigator –Prof. Srinath Srinivasa
Funding Agency – University of Aberdeen
Gross Amount– INR 7,40,625
Period – 2013 to 2015

This project aims to create wearable computing devices with a backbone information infrastructure to help patients with chronic illnesses to manage their daily lives. Our contribution to this project is in designing a trusted information infrastructure to collect, store, exchange and disseminate personal data, without violating norms of system integrity. Application areas include rural healthcare, natural language generation, and internet engineering.

Developing Electric Current Driven Nanomagnetic Logic device

Project Investigator:Prof. Madhav Rao
Funding Agency:Science & Engineering Research Board (SERB) and Department of Science & Technology (DST)
Gross Amount:INR 22,20,000
Period – 2014 to 2016

The project aims to investigate the setting of logical inputs of an edge driven computational device composed of an array of magnetic dots. In the proposed architecture, the device is made up of an array of magnetic dots which offers low proper dissipation, high integration density, room temperature operation and simple fabrication steps. Current travelling down a nearby wire used to set the magnetic polarity of dots on the input edge. The logical state of a dot is identified with the orientation of the dots magnetic field.

Interactive Three Dimensional Visualization of Large Scale Argo Data (INCOIS)
Project Investigator –Prof. Jaya Sreevalsan Nair
Funding Agency – Indian National Centre for Ocean Information System (INCOIS)
Gross Amount– INR 40,03,000
Period – 2014 to 2016

Building a 3D interactive visualization application to (i) handle large scale, streaming, multivariate, time-varying data from ARGO floats, (ii) which will enable scientists at INCOIS to make informed decisions. A

desktop-based visualization system, scaled to large scale time varying data using high performance computing while building an equivalent we-based application. Regions of interest indicate spatial (locations) or temporal (events) data points where anomalies are seen. Data similar to that obtained from ARGO program (i.e. multivariate, dynamic, large-scale data), e.g. tsunami prediction model data, can be visualized using this tool.

Energy Efficient Radio Access Technologies & Networking for 4G LTE Broadband Wireless Access Network
Project Investigator –Prof. Debabrata Das
Funding Agency – Department of Electronics & Information Technology (DeitY)
Gross Amount – INR 71,09,266
Period – 2014 to 2016

The project aims at exploring and identifying methods of efficient network power management algorithms/protocols of base station without affecting the QoS of applications/services. These models will help to run base station (BS) by conventional power as well as renewable energy source in the context of upcoming 4G LTE.

Technology Driven Foreign Direct Investment (TFDI)
Project Investigator –Prof. Balaji Parthasarathy
Funding Agency – University of Lund, Sweden
Gross Amount - INR 52,15,000
Period – 2011 to 2014

Main objective of the project, "The challenge of globalization: Technology driven foreign direct investment (TFDI) and its implications for the negotiation of International (bi and multilateral) Investment Agreements" is to analyze the characteristics and consequences of the contemporary wave of foreign direct investment by multinational corporations (MNCs)from emerging economies, such as China, India, and Brazil, into Europe with the purpose of accessing new knowledge and technologies. Ultimately, the project will propose policy recommendations for fine-tuning International Investment Agreements that regulate inflows of FDI to Europe.
• The project is a collaborative effort between researchers from Lund University (Sweden), the University of Pavia (Italy), the Fraunhofer Institute for Systems and Innovation Research ISI(Germany), the Chinese Academy of Sciences (China) and IIIT-B.

DocuBhasha
Project Investigator –Prof. RChandrashekar
Funding Agency – Microsoft Research Labs
Gross Amount–INR 40,00,000
Period – 2011 - 2014

The project seeks to develop mechanisms for machine

translation of textbooks from one language to another language. While natural language translation is a well-researched discipline, most of the tools and technologies available fail to retain the formatting features of the text being translated. The development of the solution would mainly involve research in automatic extraction of document structure and format-preserving machine translation.

Kanaja –
Project Investigator –Prof. S. Rajagopalan
Funding Agency – Karnataka Jnana Ayogya / Karnataka Vocational Training and Skill Development Corporation (KVTSDC)
Gross Amount–INR 2,14,00,000
Period – 2010 to 2013

A portal in Kannada, Kanaja, is a freely available and widely accessible electronic information repository. It is intended as a main source of encyclopedic content sourced from authenticated and by known experts in the field, addressing the needs of a wide range of audience. It differs from Wikipedia as (a) it authenticates content and (b) commission creation from many designated governmental and non-governmental organizations and individuals.

Global Shift in R&D Alliances: Multinational Enterprises and the Quest for the 'Base of the Pyramid' marks
Project Investigator –Prof. Balaji Parthasarathy
Funding Agency – National Science Foundation (NSF), USA
Gross Amount– INR 15,43,817
Period – 2012 to 2014

The focus is on the new geography of corporate R&D locations as a combined outcome of product development, innovation process, and organizational innovation. First, the growing interest among MNEs in the BOP market in a new yet under-researched theme in the geography of R&D decentralization. Second, how firms access and cultivate market intelligence (MI) in the innovation process remains surprisingly unknown, especially in the context of emerging markets. Finally, organizational innovation is observed in emerging economies, where MNEs are devising new ways to access market intelligence (MI) by forging alliances with NGOs. The emerging partnership between MNEs and NGOs has implications for both the economic and welfare potential of developing countries.

Global Innovation Networks, Regional Variety and its Impact on the Innovativeness of Firm & Regions
Project Investigator –Prof. Balaji Parthasarathy
Funding Agency – Wallenberg Foundation
Gross Amount– SEK 85,400
Period – 2014 to 2016

The project focuses on the dynamics and processes behind the

globalization of innovation of the ITand new media industry and its impact on firms and regions. The main objective of the project is tounderstand how and explain why firms in different regions around the world use global networks(GINs) to innovate, and their impact. To achieve this objective, the project focuses on the interplaybetween knowledge bases, regional variety and global innovation networks in a global perspective.

Electronic System Design & Management Center (ESDM)
Project Investigator –Prof. Madhav Rao
Funding Agency – Government of Karnataka
Gross Amount–INR 68,82,000
Period – 2013 to 2016

The ESDM Center will be able to foster excellence by nurturing talent and develop skilled manpower to meet the industry requirements. This will be achieved by through training for undergraduate and post-graduate students from the colleges located in Karnataka.
The ESDM center will also be made available for micro, small, and medium companies to fabricate, verify and test their products in the form of consultancy work.
The center will focus on semiconductor manufacturing requirements which will include the processing of silicon and other semiconductor substrates, assembling and packaging of the devices.

SANDESH: A Semantic Data Mesh over Indian Open Data
Project Investigator –Prof. Srinath Srinivasa
Funding Agency – Ministry of Science & Technology
Gross Amount– INR 10,55,000
Period – 2012 to 2014

The purpose of Sandesh is to create a web-based semantic data mesh that will interconnect open data available in disparate datasets. It aims to create an ontological structure that links the data sets together, thus attaching semantics to the datasets. It will use the Linked Data standards to publish the ontology for perusal of Semantic Web applications built on top of the portal. A number of organizations in India are starting to host datasets in the open for public good. These datasets span a wide variety of topics including weather, agriculture, astronomy, education, etc. In addition to the above, large amounts of public utilitarian data exists in unstructured form within news articles and blog posts.

Online Assessment & Evaluation System (OAES) for National Level Certifications Examinations
Project Investigator –Prof. Ramanathan Chandrashekar
Funding Agency – Government of Karnataka
Gross Amount–INR 1,11,90,000

Period – 2013 to 2015

It is a project proposed jointly by International Institute of Information Technology – Bangalore and National Institute of Electronics and Information Technology – New Delhi. Multiple choice questions come under the category of what is known as "selection type" questions.

According to the CBSE Continuous and Comprehensive Evaluation (CCE) Scheme manual, selection type questions are those which the "students are supposed to answer by selecting the correct answer among the provided choices. Such questions are also known as objective type questions. These may be divided into alternative response type, matching type and multiple choice type questions, etc."
The objective of OAES project is to develop a software platform to help create and manage item banks, generate on-demand test instruments and deliver them to specific locations, evaluate the student performance, and generate evaluation reports. The platform is initially targeted for automating the NLIELIT O-Level examinations. This includes the following major activities:

i. Establish sound pedagogical rationale for assessment instruments for O-Level Exams and develop fresh item banks based on this.
ii. Automated assessment instrument generation from large item banks
iii. Online assessment and automated evaluation

Techno-Economic Study of Spectrum of the Commons and Associated PolicyImplications
Project Investigator –Prof. V.Sridhar
Funding Agency – Telecom Centres of Excellence (TCoE)
Gross Amount– INR 4,88,750
Period – 2014 to 2016

The project aims at a comprehensive study of the non-exclusive use of spectrum in India using the following:

i. Development and Empirical analysis of theoretical models
ii. Estimation of the value of unlicensed spectrum in India
iii. Study of Spectrum Management frameworks and international best practices

The aim is to come up with recommendations for India and other similar economies.

Development of a Low-Cost, Low-Power & Compact Gas Sensing Platform –
Project Investigator –Prof.Subhajit Sen
Funding Agency – Department of Science & Technology (DST)
Gross Amount – INR 6,82,000
Period – 2015 to 2017

The objective of the project is to develop a gas sensor for smart-city type applications. Using the expertise of the UK partner institute (Cambridge University), the current focus of the project is to develop DC-DC converters and energy harvesting solutions for such platforms.

Cross-Border Digital Flows and its Economic Impacts–
Project Investigator – Prof. V Sridhar
Funding Agency – South Asia Network of Economic Research Institute (SANEI)
Gross Amount – USD 9660
Period – 2015 to 2017

There is a significant positive relationship between cross border digital flows (i.e. telecom and internet traffic, IT and IT enabled services, and cross border investment in ICT sector) and economic development. The above hypothesis will be tested using a panel data set of select low and upper middle income countries. Analyzing cross border digital flows across countries of South Asia and provide policy prescriptions for augmenting the same. The study also will help answer the following broader questions:

a. What are policy imperatives (e.g. setting up technology parks, incubation fund for entrepreneurs, increasing FDI in the sector) for improving countries' participation in the digital economy? What trade, investment, and immigration policies (i.e. patent and copyright laws, immigration laws) do the countries need?
b. How significant are digital flows to country's economy? What should be the policy interventions to promote the digital flows?
c. Given their comparative advantage (i.e. infrastructure, skilled man power, cost arbitrage),how should the countries participate in digital economy? What should be the focus of policy interventions?
d. Is their economy in a position to capitalize on the growing trend toward digitization?

GUEST TALKS

"Design, Economic Development and Agile Software Development" by Dr. Eswaran Subrahmanian, ICES&EPP, Carnegie Mellon University, Guest Researcher, National Institute of Standards and Technology, USA, Visiting Faculty, IIIT-B.

"Imagining the State through Digital Technologies: A Case of Computerization inthe Indian Public Distribution System" by Dr. Silvia Masiero from the Information Systems at the London School of Economics and Political Science (LSE), London, United Kingdom.

"Decentralized Dynamic Spectrum Learning and Access (DSLA) with Tunable Bandwidth: Contributions to the Design of Variable Digital Filters and DSLA Policy" by Dr.Sumit Darak, post-doctoral researcher at the CominLabs Excellence Center, Université Europèenne de Bretagne (UEB) and Supélec, Rennes, France.

*"Machine Manipulable Models for Informed and Data-Driven Decision-Making"*by Mr. Vinay Kulkarni from Tata Research Development and Design Centre

"Mobile Apps Testing - business, product & technology perspectives" by Mr.Srinivasan Desikan and Mr. Vivek Bhatt, HP Strategic Enterprise Services.

"Factors Affecting the Cues for Concurrent Vowel Identification: Vowel Level, Age and Hearing Loss" by Dr. Ananthakrishna Chintanpalli.

"Basics of Cancer and Cancer Genomics" by Dr. Sriganesh Srihari, Post-doctoral research fellow at the Institute for Molecular Bioscience, The University of Queensland, Australia.

"Energy-Efficient Multihop Progressive Estimation and Distributed Adaptive Quantization for Ad-hoc Wireless Sensor Networks" by Dr. Santosh Shah, Ph.D. in Information Technologies, Communications and Computational Mathematics from the University of Valencia, Spain.

"It's All about the Data: Data-Driven Content Creation and Human Pose Estimation" by Dr. Arjun Jain, Post-doctoral researcher at the Computer Science department at New York University's Courant Institute.

"Delivery of services by government agencies - achieving greater accountability and transparency using ICTs" by Mr. B. A. Harish Gowda, IAS (retd.), Former Secretary, Department of Food, Civil Supplies and Consumer Affairs, Government of Karnataka.

"Integrating price responsive demand into the unit commitment problem" by Dr.Vamsi Krishna Tumuluru, Assistant Professor, Amrita School of Engineering, Amrita Viswa Vidyapeetham, Bangalore.

"Creating Synergy: Bringing out the best in Processors and FPGAs" by Dr.Madhura Purnaprajna, Research Associate, IISc., Bangalore.

"Optimum controller design for generic pole placement using graph-theoretic techniques" by Ms. Rachel Kalpana Kalaimani, Research Scholar, IIT Bombay.

"What went behind setting up a trading infrastructure for dematerialized stock markets in India" by Mr. C. B. Bhave, Former Founder and CEO of NSDL, former Chairman of SEBI.

"IT infrastructure for a large bank like ICICI Bank" by Mr. Murali Mahalingam, CIO of ICICI Bank.

"On planning one's career through introspection" by Mr. Satyen Parikh, - CEO & Founder e2-Bridge.

"IT in Defense" by Capt. Prabhala, former CMD, Bharat Electronics Ltd.

"Proximity and Learning in Internationalization: Small Swedish IT firms in India" by Dr. Kristina Westermark, Department of Human Geography, University of Stockholm.

"ESDM scene in India" by Mr. Vidyashankar, IAS, Former Additional Chief Secretary to the Government of Karnataka, currently President of the India Electronics and Semiconductor Association (IESA).

"Body-touching: An Embodied Interaction Technique for Health & Information Systems in Developing Regions" by Prof. Markku Turunen, Head of the Pervasive Interaction research group, at Tampere Unit for Computer Human Interaction (TAUCHI),University of Tampere.

"Essence-Based, Goal-Driven Adaptive Software Engineering" by Prof. June Sung Park, faculty member at the Industrial and Systems Engineering / Computer Science, in Korea Advanced Institute of Science and Technology (KAIST) and Chairman, Software Engineering Method and Theory (SEMAT).

"Secure Silicon: Enabler for the Internet of Things" by Dr. Walden Rhines, CEO of Mentor Graphics Corporation.

"Cluster-based Design for Multihop Cellular Wireless Networks" by Dr. Hrishikesh Venkataraman, Editorial board member of Transactions on Emerging Telecommunication Technologies.

"Dark side of Metcalf's Law" by Mr. Sascha Meinrath, Director (X-Lab) and Open Technology Institute (Founder).

"Computing the relative stabilities and the per-residue components in protein conformational changes" by Dr. Arijit Roy, a postdoctoral researcher at Laufer Center, Stony Brook University.

"Issue-based Variability Management" by Dr. Anil Kumar Thurimella, Lead for Requirements Engineering at Harman Automotive Division and senior researcher at the chair for applied software engineering at Technische Universitat Munchen, Germany.

"Consumer Internet Trends, Opportunities and Challenges", by Mr. Jeyandran Venugopal, Founder & CEO -Eclinic247; Former VP of Cloud Platform Group, Yahoo.

"Safely harnessing remote computing resources across the Internet Programmability and composability of distributed systems in a datacentre", by Dr. Sachin Goyal, Ph.D., from The School of Computing, University of Utah.

"State of the Net: Challenges and Opportunities for Telcos", by Mr. S. J. S.Selvinson, CTO, Bharti Airtel Karnataka.

Energy Efficient Task Scheduling for Multi-Core Systems", by Dr. Abhishek Mishra, Ph.D. in Computer Science & Engineering from Indian Institute of Technology (Banaras Hindu University), Varanasi.

"Evidence based Public Policy in India", by Mr. Sridhar Pabbisetty, CEO, Namma Bengaluru Foundation.

"Entrepreneurship", by Mr. Ashwin Ramesh, CEO, Synup.

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M

Using Direct Numerical Simulations (DNS) of Three-dimensional Magnetohydrodynamic (3D-MHD)Turbulence", by Dr. Shiva Kumar Malapaka, ERC Postdoctoral Researcher at University of Rome Tor Vergata.

"When robots are your co-workers, how does one ask for a raise?" by Mr. Akbar Ladak, Director of Client Solutions & Innovation and Senior Consultant & Innovation Evangelist -CTO Office Wipro.

"Service Systems Engineering", lecture by Prof. A. Ravi Ravindran, Penn State University.

CONFERENCES

IEEE CONNECCT 2015

IIIT-B organized and hosted the *3rd IEEE International Conference on Electronics, Computing & Communication Technologies (CONECCT)* in the IIIT-B campus on July 10-11, 2015.

Professors, Dr. Debabrata Das and Dr. V. Sridhar were the General Co-chairs of the conference. The Technical Programme Chairs, Professors, Dr. Subir Roy, Dr. Jyotsna Bapat, Dr. V. N. Muralidhara, and Dr. Dinesh Jayagopi, managed the four tracks (Electronics, Communication, Computing, and Signal Processing) of the conference and coordinated the review of more than 900 technical papers.

92 papers were accepted and presented in technical sessions over two days along with 6 posters in poster session. The conference received papers submitted from 8 countries. Keynote speakers of the conference included: Dr. Kumar Sivarajan, CTO, Tejas Networks; Prof. Yegnanarayana, IIIT-Hyderabad; Dr. Ramamurthy Badrinath, Chief Research Scientist, Ericsson Research; and Prof. Bharadwaj Amrutur, ECE Dept., IISc.

IEEE Conecct Conference 2015; L to R - Prof. Debabrata Das (Dean Academics and R&D, IIIT-B), Prof. Subir Roy (Professor, IIIT-B), Mr. Ravikiran Annaswamy (Chairman, IEEE Bangalore & Founder, Innohabit Venture Labs), Prof. K. V. S. Hari (Chairman, Department of ECE, Indian institute of Science, Bangalore), Prof. V. Sridhar (Professor, IIIT-B)

STUDENTS THESES

Submitted during Aug 1st, 2014 to July 31st, 2015

Master of Technology (M. Tech)

Student	Thesis	Supervisor
Amit Tomar	Augmenting nodetrix for effective small world network visualization	Prof. Jaya Sreevalsan Nair
Deepthi M	Aspect-based opinion mining from product reviews	Prof. G Srinivasragahavan
Paspulati Leelaram	Application of formal techniques in robust design of digital circuits	Prof. Subir K Roy
Pavithra	Machine learning in automated opinion extraction	Prof. Srinivasa Ragahavan
Rahul R	Research and development of a visually programmable robot integrated with augmented reality engine for academic users	Prof. Madhav Rao
Shivam Agarwal	Visualization of hard clustering of document collections	Prof. Jaya Sreevalsan Nair
Srinivas R Vaidya	Visibility driven focus + context visualization of multimodal volume data	Prof. T K Srikant

Master of Science by Research (M. S. by Research)

Student	Thesis	Supervisor
Bivas Bhattacharya	Study of software defined network to enhance quality of service of internet	Prof. Debabrata Das
Ameneh Pourmoghaddas Langroudi	Study of two methods for improving energy efficiency of LTE advanced networks	Prof. P G Poonacha
Jog Chinmay Sanjeev	Distributing a trusted utilitarian knowledge exchange framework to enable inter-organizational collaborations	Prof. Srinath Srinivasa
Vivek Yadav	Automated layout preservation in cross language translation of document	Prof. Chandrashekar Ramanathan
Putluru Sravani	Design of 3D antennas for 24 GHz ISM band applications	Prof. Madhav Rao

Doctor of Philosophy (Ph.D.)

Student	Thesis	Supervisor
Manju Nanda	Novel functional availability analysis technique using system algebra for safety critical systems	Prof. Shrisha Rao
Subramanian N	Threat-Aware intrusion detection approach for dynamic network environments	Prof. Shrisha Rao
Vivek Shanbag	Locating lock order violations in Java libraries - A scalable static analysis	Prof. Dinesha K V
Sashirekha G V K	Bayesian risk management in emergency cognitive radio Ad Hoc networks	Prof. Jyotsna Bapat
Aparna Lalingkar	Ontology for developing smart learning environment for teaching word problems in mathematics	Prof. Srinivas Ramani and Prof. Chandrashekar Ramanathan
Raghu Anantharangachar	Novel techniques for extraction of structured information from unstructured text	Prof. Srinivasan Ramani and Prof. S Rajagopalan
Vyshnavi Malathi Ramesh	A framework for tutoring rules	Prof. N J Rao and Prof. Chandrashekar Ramanathan

AWARDS

Institute Gold Medal for Best *Academic* Performance – Harsha N Bhushan

Institute Medal for Contribution to IIIT-B *Community* Life – Pavitra A

Sir M. Vishveswariah *Scholarship* Award– Harsha N. Bhushan & Patil Sanjivani Rajiv

DEAN'S LIST

The Dean's list recognizes students for excellent academic performance. M.Tech. students with a CGPA 3.75 or higher, and iM.Tech students with CGPA of 3.60 or

higher find a place in the list.

M.Tech2013

Amrutha M, Gopal Shukla, Harsha N.Bhushan, Patil Sanjivani Rajiv, Shivam Upadhyay

M.Tech2014

Ankit Arora, Gaurav Pandey, Himanshu Verma, Shah Dhruvik Jitendra, Shifali Chittkara, Shubham Mani

Sponsored M.Tech2013

Gaurav Kumar Jain, Giridhar Bachalli Maruthy

iM.Tech2012

Ananth Murthy, AnushaP. S, Chandan Yeshwanth, Rejiul Sachdev, Tanmayee Narendra

iM.Tech 2013

Aditya SanjayPaliwal, B.Laasya, Devarsh K. U, Komaragiri Vasundhara, Kumaresh Krishnan, Simran Bimal Dokania

iM.Tech 2014

Ahmad Shayaan, Anshul Aalok Gupta, G.Neha, Gaurav Kole , Harsha Raj Kothapally, Indu Ilanchezian,Akshay Jindal, MeghanaKotagiri, Tadepalli Sandeep.

PLACEMENTS

Name	Internship	Full time Placement
Abhijit Bagchi	Ittiam Systems	Ittiam Systems
Abhijith Madhav	Amex(Bangalore)	Infibeam
Abhishek Bhol	Intel	Citibank
Ajay Tiwari	HSBC	Yantriks
Allada Dhanunjaya Prasad	Mobi Boot Camp	Opted Out
Allu Pramod Reddy	Cisco	Cisco
Amit Tomar	Thesis	Opted Out
Amrutha M	Intel	Microsoft IT
Ananth Krishna Hegde	Tyfone	Tyfone
Ankesh Kumar Sengar	Netapp	BloomReach
Ankesh Sharma	Cisco	Cisco
Ankit Gumber	Fiberlink	TCS R&D
Ankit Narang	Cisco	Cisco
Ankit Sharma	Cerner	DSquare
Ankita Sharma	Intel	HSBC
Ankur Ashok Rathi	Tyfone	Tyfone
Ankur Kumar	Overture Networks	Cisco
Annu Singh	USEReady	Ittiam Systems
AnshulKarasi	Cisco	Cisco
Anumula Kavya Sree	Cisco	Cisco
AnushaModwal	Intel	TCS R&D
Apoorwa Mishra	Cerner	Kaybus
Arjun S Bharadwaj	Fiberlink	Ittiam Systems
Ashish Garg	Fiberlink	Ytrre
Ashish Kumar Gupta	Amazon	Walmart Labs
Ashutosh Trivedi	USEReady	Thorogood
Ashutosh Vyas	Cerner	Mphasis
Bakori Niravkumar Govindbhai	Intel	Informatica
Balmukund Agrawal	Fiberlink	Fiberlink
Bhardwaj Ramkumar	Tyfone	Tyfone
Bhuvanesh Kumar Srivastava	Amex	TCS R&D

Name	Internship	Full time Placement
C Sai Bhaskar Krishna	Intel	Invati Insights
Charan Shetty	USEReady	Evive HealthCare
ChavanLaxmikantAbasaheb	HP	Johnson & Johnson
Chavvakula Rose Rani	Fiberlink	eDreamsEdusoft
ChillalKashinath Basanna	Intel	Fiberlink
Deepthi M	Thesis	Opted Out
Devesh Singh Rawat	Intel	Essex Lake Group
Dipesh Joshi	Kvantum	Essex Lake Group
DivyaMaharshi	Intel	HSBC
Divya Rawat	Accenture Labs	Essex Lake Group
Duggineni V Krishna Chaitanya	Infosys	MathWorks
Garisa Venkata Sowmya	Tyfone	Tyfone
Gaurav Chugh	Cisco	Cisco
Gollahalli Venkata Sai Krishna	Cisco	Cisco
Gopal Shukla	Amazon	Amazon
Harsha K C	DreamWorks	eDreamsEdusoft
Harsha N Bhushan	National Instruments	National Instruments
Heena Sharma	HP	Cisco
Joshi Dnyanesh Madhav	Thesis	Infibeam
Joydeep	HP	Fiberlink
Kanchan Gupta	HP	Cisco
Kanduluru Kishore	Netapp	Kaybus
Kaushik Ranjan	Amazon	Flipkart
Khamar Bhargav Harishkumar	Fiberlink	National Instruments
Koduru Sindhuja	Fiberlink	Microsoft IT
Komal Gupta	Amex	Amex
Koppisetti Rakesh Kumar	Tyfone	Tyfone
Kumudini Kakwani	Amazon	Amex(Bangalore)
Lahankar Pushkaraj Jayant	Infosys	Cisco
Mayur Patidar	Amex	TCS R&D
Michael Peter	Citibank	Citibank
Mitesh Gupta	Invati Insights	Invati Insights
Mitta Hari Krishna	Mobi Boot Camp	Cisco
Mohnish Bhatt	USEReady	Opted Out
Monika Sharma	Intel	HSBC
Muhammed Hunaif P	Nottingham	Essex Lake Group

Name	Internship	Full time Placement
	University	
N. L. Prathyusha	Intel	Fiberlink
Nallu Naveen	Cisco	Cisco
Nandyala Ravi Kishore	Tata Power	Kodiak
Naveen Pai	DreamWorks	BloomReach
Neetika Panwar	Amex	IBM ISL
Nikhil Agrawal	Cerner	DSquare
Nikita	Kvantum	Scienaptic Systems
Nisha Basia	Intel	Amex
Nitesh Konkar	HSBC	IBM ISL
P Saipriya	Siemens	Cisco
Pankaj Kumar Agrawal	Tyfone	Tyfone
Paras Mittal	Intel	Morgan Stanley
Parul Gupta	Amazon	Invati Insights
Parush Agarwal	Cisco	Cisco
Paspulati Leelaram	Thesis	Cisco
Patil Sanjivani Rajiv	Intel	Walmart Labs
Patil Vivek Madhavrao	Intel	Cisco
Patwari Abhijeet Bapurao	Fiberlink	Scienaptic Systems
Pavithra	Thesis	MathWorks
Pawan Kumar Rajpoot	Infosys	HSBC
Pereira Hammond Alphonse	Amazon	Morgan Stanley
Pillalamarri B V Ramana	Riverbed	Opted Out
Piyush Kaushik	Cisco	Cisco
Prakash Vijay Kharche	Flipkart	Flipkart
Prashant Jhaba	HP	O9 Solutions
Prashant Prabhakar Nagansure	USEReady	Scienaptic Systems
Prashant Ruwali	Amex	HSBC
Prasun P	Intel	Applied Materials
Priyamvadha	Infosys	Cisco
Priyanka Shukla	Intel	National Instruments
R Prashanthkumar Reddy	Fiberlink	IBM ISL
Rahul R	Thesis	Opted Out
Rajaram Rahul Ramchandra	Cisco	Cisco
Rajat Bansal	Cerner	VmWare
Rakesh Rajpurohit	Siemens	Azul Systems

Name	Internship	Full time Placement
Robin Sharma	Informatica	Informatica
Ruchita Jain	Siemens	Mphasis
S Anvith	DreamWorks	Mphasis
Sadariya Ankit Pravinbhai	Fiberlink	Essex Lake Group
Sagar Sanjay Sabale	HP	IBM ISL
Sandipan Saha	Citibank	Citibank
Sanju Haragapure	Zivame	Kodiak
Saraiya Chirag Manoj	Mobi Boot Camp	TaxiForSure
Satya Prakash	Fiberlink	Citibank
Saumya Tayal	Tyfone	Tyfone
Shah Ankitkumar	Citibank	Citibank
Shah Nikita Rajan	HP	Infibeam
Shefali Singla	Cerner	Opted Out
Shivam Agarwal	Thesis	Amex
Shivam Upadhyay	Intel	Microsoft IT
Shreyas N	Intel	Sasken
Shrimant Chakrabarti	HP	O9 Solutions
Shubham Karodiya	Fiberlink	HSBC
Siddhesh Dosi	HP	IBM ISL
Soumit Das	Amex	Fiberlink
Srinivas R Vaidya	Thesis	IBM ISL
Subin Thomas	Fiberlink	ANZ
Sumit Kumar Dutta	Morgan Stanley	Scienaptic Systems
Sumit Singh Chauhan	Citibank	Citibank
Sunkari Raja Shekhar Reddy	Fiberlink	IBM ISL
Surabhi Taluja	National Instruments	Citibank
Thangella Venkat Reddy	Netapp	TaxiForSure
Tuli Kundu	Cisco	Cisco
Uday Bhan Singh	Invati Insights	Invati Insights
Varun Singh	Intel	Fiberlink
VenkateshVishwarup	Fiberlink	Citibank
Venu Gopal Peddi	MathWorks	MathWorks
Vishesh Jain	InMobi	InMobi
Yash Thadani	USEReady	Azul Systems
Zadbuke Apurva Jagdish	Morgan Stanley	Morgan Stanley

Exchange Programmes

The Institute over the years has developed academic / research collaboration with several global universities & corporations. The students who visited the collaborating Universities in this year are:

- **Nottingham University**, United Kingdom (Muhammed Hunaif, M.Tech)
- **Massachusetts Institute of Technology Media Lab(MIT)**, USA (Tanmayee Narendra & Reijul Sachdev, Integrated M.Tech)
- **University of Minnesota**, USA (Sahiti Reddy Asireddy, Integrated M.Tech)
- **University of Michigan**, USA (Anisha Nazareth, Integrated M.Tech)
- **University of Alabama**, USA (Yashvanth Mohan Kondi, Integrated M.Tech)
- **Konstanz University**, Germany (Chandan Yeshwanth, Integrated M.Tech)
- **Otto-von-Guericke University Magdeburg**, Germany (Ananth Murthy, Integrated M.Tech)
- **Royal Melbourne Institute of Technology (RMIT)**, Australia (Abhijay V & Vikram Singh, Integrated M.Tech)

International Students

No.	Name	University
1	Christian Krauss	Hof University
2	Torsten Roland Krauss	Hof University
3	Monck Hauke Jurgen	Free University of Berlin
4	Fels Robert Fritz	Free University of Berlin

WE WELCOME

In the year 2014-15 (August 2014 to July 2015) the following Faculty / Staff joined the Institute

- **Prof. Ramesh Sundararaman**

is an Adjunct Faculty and runs the I-MACX Accelerator program at the IIIT-B Innovation Centre; he is a startup mentor and mobility consultant, who helps ISVs and businesses understand and deploy contextual technologies. During his 19+ years of industry experience working with Motorola Mobility, Aperto Networks and Symbol Technologies, Prof. Ramesh successfully managed and rolled out multiple mobile and software products – for both consumers and enterprises. Currently, as part of CSR-AID (Center for Socially Relevant Apps on Intelligent Devices) and I-MACX (IOT-to-Mobility Apps for Community Excellence) @ IIIT-B Innovation Center, Prof. Ramesh works with both students and startups in addressing the software needs of social/government organizations. He is a gold-medalist from the Indian Institute of Management Bangalore (MBA in software enterprise management) and holds a Master's degree in computer science from the Indian Institute of Science.

- **Prof. Janaki Srinivasan**

is an Assistant Professor; her research is focused on the political economy of information-based development initiatives. Her research interests include the political economy of development, social theory, critical information studies, ICTD, and qualitative research methods. Prof. Janaki has a Ph.D. in Information Management and Systems from UC Berkeley and Master's degrees in Physics and in Information Technology from IIT Delhi and IIIT-B.

- **Prof. Jillet Sarah Sam**

is an Assistant Professor; her research interests include digital caste and religious mobilization, social geography, globalization, and sociological theory. She received her doctorate in Sociology from the University of Maryland College Park, USA (2014). In her doctoral thesis, Dr. Jillet examined how both caste and regional identification are invoked as part of transnational caste mobilization on a digital group. She received an MA in Sociology from the University of Maryland College Park (2011) as well as the University of Hyderabad (2007). Dr. Sam's Masters' research focused on the spatial interplay between globalization and glocalization in technological enclaves in India, and was later published in

- Perspectives on Global Development and Technology (2012).

- **Mr. S V Subrahmanya**

is an Adjunct Faculty; he was with Infosys Limited as Vice president and Research fellow. He is an active Educator and Researcher with a combination of applied research and fundamental researcher. He has Functional expertise of 28 years of work experience encompassing Teaching, Research and Development. His technological expertise spans through wide range of technologies. He has to his credit 4 US Patents, Author & Co-Author of 6 Books, 5 Journal articles & 25 Conference papers of international repute. Currently his research focus area includes Application of IT in Water area. He teaches course on Software architecture and Software Engineering.

- **Mr. V. S. Prakash**

joined as the Registrar and, prior to IIIT-B he was the Special Director, Karnataka State Natural Disasters Monitoring Centre, an autonomous body affiliated to the Department of Science & Technology, Government of Karnataka, India. He has served in various capacities

in Government of India and Government of Karnataka since 1973. He started his career as a field assistant in Department of Mines and Geology in 1973, served as a Lecturer in K.G.F. First Grade during 1973-74, as a Geologist in Department of Mines and Geology during 1974 to 1979, Joined Central Services and served as Scientist, Central Groundwater Board, Ministry of Water Resources, Government of India during 1979 to 1996; as a senior faculty in Rajiv Gandhi National Institute for Groundwater Research and Training during 1996 to 1999; as Director, Drought Monitoring Cell, Government of Karnataka during 1999 to 2007; as Special Director, Karnataka State Natural Disaster Monitoring Centre from 2007 to 2014.

- **Ms. G. V. K. Sasirekha**

is a Senior Scientific Officer, she has more than 20 years of experience in research & development in the areas of embedded systems, wireless communication, networking, security in communication and networking currently working as a freelance consultant/ researcher in the areas of wireless communication, networking and embedded systems

- **Ms. Cynthia D'Mello**

is the Staff Officer to Dean; prior to joining IIIT-B, Ms. Cynthia has worked for 4 years in St John's Medical College Hospital, 3.5 years in National Assessment and Accreditation Council (NAAC), and 24 years in Karnataka State Council for Science and Technology, IISc. campus.

- **Mr. Sumukh Rao**

is the Officer Outreach (Information); he aggregates and co-ordinates content (Online & Offline) within the organization. Prior to IIIT-B, Sumukh worked with two start-ups, MentorSquare which was in the Management Consulting space and Nispaara Solutions Pvt. Ltd., in the web solutions space.

OUTREACH

IIIT-B has had close association with the IT industry ever since its inception at the turn of the millennium. Industry continues to play a big part in the growth and development of the Institute even as it draws on the Institute for IT talent and joint research.

The outreach program at IIIT-B has the following activities:

Joint Research & Consultancy

Since its inception, outreach has played a vital role in bringing together government agencies, universities, industry, faculty and students resulting in important contributions to design and development of the implementation of ICT in the country and across the world. The consultancy service of IIIT-B facilitates, coordinates and administers Sponsored and Consultancy projects. It also identifies and protects IP rights and manages transfer of technology and commercialization. Various types of consultancy are undertaken including:

- Technology assessment / management, project assessment
- Product / Process design / development
- Simulation / Modeling / Optimization
- Software Development
- Retainership of faculty in advisory capacity over specified periods
- Troubleshooting / testing

Internship and Placement

M.Tech students undertake six months of internship in their fourth term prior to graduation and full time placements. With the support and interest of leading IT companies, IIIT-B has a track record of 100% placement of our students.

Alumni Program

Alumni are key stakeholders in the institute and its future. The Institute has more than 2000 alumni who are in leading companies as well as successful entrepreneurs. Links with alumni are fostered through research collaborations, star lectures by distinguished achievers, mentorship activities and knowledge sharing sessions with students. Alumni activities are run by the Alumni Council, a body elected by the registered alumni.

Continuing Education

IIIT-B has customized and calendared executive education programmes for the working IT professionals.

Analytics Essentials – Professional Certificate Course in Business Analytics

Analytics Essentials is a weekend program targeting working professionals & students who want get the core skills required to start an Analytics career.

Scholarships

The students are asked to apply for the scholarships that they are interested in. The selection is done by the Sponsor's representatives; based on the academic achievements, need and interview performance.

Scholarships for iM.Tech students are supported by IIIT-B. These scholarships are in two categories, merit based and need based. The merit scholarships are awarded based on student's academic achievements such as CGPA, scholarly research activities, publications. Merit scholarships entail one time stipend. Need based scholarships are offered in two categories; full and half. Full scholarships provide complete tuition waiver, while half scholarships provide half tuition waiver.

- AICTE – 48 (Based on GATE Rank)
- Societe Generale – 8 (Need Based Scholarship)
- Infosys Ltd – 5
- J&K Special Scholarship Scheme – 1
- IIIT-B Alumni Sponsored– 1 (Need Based Scholarship)

INNOVATION

In line with its endeavor to foster innovation, support entrepreneurship and build robust connects with the industry, IIIT-B has set up a Sec 8 company, **IIIT-B Innovation Centre**.

The major objectives of this Company are:

i. To encourage Industry to set up R&D Centres in which their staff can work closely with faculty and students of the institute on joint R&D projects

ii. To promote commercialization of IP generated by faculty and students of the Institute by incubating their ventures

iii. To support and incubate new ventures from those outside IIIT-B which can realize a synergetic partnership with the institute faculty and students

The Innovation Centre offers space, connectivity and other infrastructure facilities at a nominal cost. In addition students are encouraged to work in the enterprises or R&D Centres in the Innovation Centre.

The incubation activities at IIIT-B are carried out through the Centre
The incubation policy of the Institute encourages proposals from both within and outside of IIIT-B.

i. Highest priority is accorded to proposals based on the work already carried out at the institute, which has a commercial potential. The faculty and students who have worked on the concept will be encouraged to establish an enterprise.

ii. A second priority is to support ideas that have commercial potential, but so far have not been researched at the institute, provided faculty and students of the institute are willing to partner with the promoter of the idea and establish an enterprise.

iii. The Centre will support ideas which has clear exit plan and within a three to five year period

iv. In a few cases the Centre may provide seed capital assistance.

Incubation

The incubation policy of the institute encourages proposals from both within and outside of IIIT-B. The IIIT-B Innovation Centre also networks the entrepreneurs with consultants in the domains of Finance, Strategy, Marketing, Legal Compliance, etc. and also introduces them to angel investors and other investments avenues. IIIT-B Innovation Centre arranges visits of leading consultants to meet with the entrepreneurs on one on one basis. In addition to this support, the Centre also provides seed funding support (not exceeding INR 25 Lakhs) as equity to one or two promising new ideas every year.

Facilities

IIIT-B Innovation Centre provides incubation assistance to new ideas right from the seed stage. The support includes working space, internet connectivity, access to library, meeting rooms, cafeteria, and the opportunity to hire our post graduate students as interns, and part time employees. Besides, the faculty is also available for consultation, guidance and advice.

Eligibility

Anyone or a group of professionals with interesting ideas can approach us for incubation in the area of Information Technology & ESDM. Though preference will be given to students, faculty and alumni of the institute, others with interesting ideas are encouraged to apply.

Idea Selection

The Centre looks for novelty, non-triviality and usefulness of the ideas. These need to be original and not mere extensions of already existing businesses. The proposed idea must be capable of creating intellectual property, with an entry barrier for competition, to ensure commercial value. The idea should also be capable of reaching the market and earning revenue within two years.

Additional Criteria

In addition we also look for the possibility of post graduate students to work as interns with the enterprise. The idea should be intellectually challenging to attract our students and faculty. The interaction between the institute community and the enterprise must also result in teaching material, by way of case studies etc.

Seed Funding

The IIIT-B Innovation Centre provides to one or two enterprises in a year, a seed funding not exceeding INR 25 lakhs. The Centre provides this as equity and takes about 12% stake in the enterprise. If funds required are less, the stake taken will be pro rata reduced. The decision to invest is taken by an investment

committee and requires a business plan. The process takes about four months. Currently preference is given to ideas which involve a new hardware/embedded system design.

Financial Conditions

Incubation facility is provided for a period of two years that may be extended by a year. The incubation facilities are based on open plan interiors and incubating companies share a room of about 25 work desks.

The Centre charges INR 5,000 per month per desk. Payment can be deferred for a period of 6 months in case the incubating enterprise is boot strapping and does not have financial resources in the initial stages.

Incubated companies

Chipmonk	Chipmonk designs and manufactures Electronic products and solutions. Primary area of business is in Industrial Automation and Smart grid. Chipmonk delivers total solution from Data Acquisition, Storage, Computation & Reporting
Srishti ESDM Pvt. Ltd *Taking the Common Man to the Zenith*	Srishti ESDM designs hi-tech Electronic products for rural and semi-urban India. Products being designed are Micro-ATM, Point of Sale / Public Distribution System Terminals and associated services and solutions.
hudooku simply dooku	Hudooku provides a platform for users to discover and connect with peers on topics of mutual interest. Unlike regular search engines, Hudooku strives at providing the user with processed first-hand information by connecting users to other users sharing similar interests and also allows users to directly interact through chat.
Scienaptic	Scienaptic is a technology and analytics company, created to infuse robust decision science in organizations. Scienaptic specializes in Big Data Analytics, Machine Learning, Multichannel Customer Management, and Risk Management, Artificial Intelligence.

Accelerator (AXLE)

This is a 100-day programme that helps entrepreneurs to: Convert Proof-of-Concept to a Minimum Viable Product, focus on product refinement and market validation (Market-Product Fit), deploy and run a limited pilot to acquire their first customer(s), possibly secure the first round of angel / seed funding.

1) AbSimpl	AbSimpl is a technology platform to facilitate real-time discovery and delivery of services in a user-friendly manner. This platform can be used to deliver different kinds of services including Healthcare, Education, Retail, Governance etc.
2) EasyM2M	EasyM2M is an Internet of Things company providing products such as ThirdEye™ - A solution for safety, security and surveillance of employee using iWristPhone geo-tracking, health monitoring device on cloud.
3) OnlineRTI	OnlineRTI is a facilitator for filing and receiving replies under the RTI Act.
4) QueryHome	QueryHome is a platform for technical questions and answers for technical collaboration and networking.
5) Clytics	Clytics is an Energy-analytics firm that offers a 'personalized recommendation' on electricity consumption. Clytics caters to households, governments and organizations.

6) TradeDoot 	TradeDoot is a marketplace for agricultural produce and also lists the EXIM (Export/Import) pricing among other information.

I-MACX

I-MACX (***I****OT -to- **M**obility **A**pps for **C**ommunity **E**xcellence*) was born out of Government of Karnataka's Vision 2020 initiative that aims to jumpstart the mobility focused entrepreneurial ecosystem within the state.

This initiative envisions the creation of an ecosystem that encourages responsible startups that would make a lasting impact on the technology adoption by government and social sectors.

Through an intensive and structured program, I-MACX aims to create such an ecosystem and also help idea-stage and seed-stage startups get the technological, operational, strategic and financial support they need to succeed.

Eligibility

With the increasing proliferation of mobile devices and wider access to the Internet, the way in which we engage with society, enterprises, civic agencies and government is increasingly channeled through technology. This means that there is a tremendous opportunity for entrepreneurs, innovators, researchers to create and launch new products / ventures that address the SMB / social / civic needs while also making the experience more like the consumer web / applications.

I-MACX seeks startups that would accelerate the usage of digital technologies by SMEs, social organizations, civic agencies, communities and cities. Of interest are startups that focus on creating solutions for the healthcare, education, agriculture, culture, government verticals and small-medium businesses such as offline retailers, food-chains, trucking, etc.

The first batch had startups that focus on Healthcare, Aadhaar, Industrial IOT, Filing RTI, Agriculture Marketplace, Energy Analytics, First Responder Solutions, Tele-medicine, B2G / C2G Forum.

Accessibility

- Enterprises will receive training and guidance from a variety of leaders and mentors in the technology and social, public administration spaces. The participants will benefit from over

100 hours of training and mentoring on topics such as customer research, design, product management, GTM and fundraising.

- Access to IIIT-B's extensive alumni, investor, social and government network, including an opportunity to present, as well as participate in the bi-annual I-MACX Summit, a social sector and

- governance focused technology event are other benefits.

- Plug-n-Play Infrastructure: Selected companies have access to our co-working space and meeting rooms @ IIIT-B Innovation Center, IIIT-B Campus, Electronics City, Bangalore.

Additional Benefits

- Awareness Programs
- Boot camps, Trainings and Workshops - both for developers and for user-organizations
- Customer and Investor Connect
- App / Software Testing and Certification
- App Store for showcasing the App developers and their offerings
- Market Place for discovery of social / civic needs, App vendors and ecosystem players

Offerings

The participants benefit from the following offerings:

- *Showcase @ IKonz:* A Demo day / Graduation event where startups pitch their creations to a distinguished audience of investors, business and academic leaders, influencers & press in order to raise funds, explore collaborative opportunities & generate business leads.

- *Learn @ MPower:* An Academy where startups get connected with a panel of mentors, advisors, faculty and learn the fundamentals of technology, product and business.

- *Create @ UPnP:* A Plug-n-Play co-working space and technical infrastructure that helps start-ups get plugged within the IOT-to-Mobility ecosystem and enables them to create their products.

- *Connect @ Axes:* A Forum that brings together key personnel including Customers, Angels / VCs, System Integrators, Influencers, Corporates.

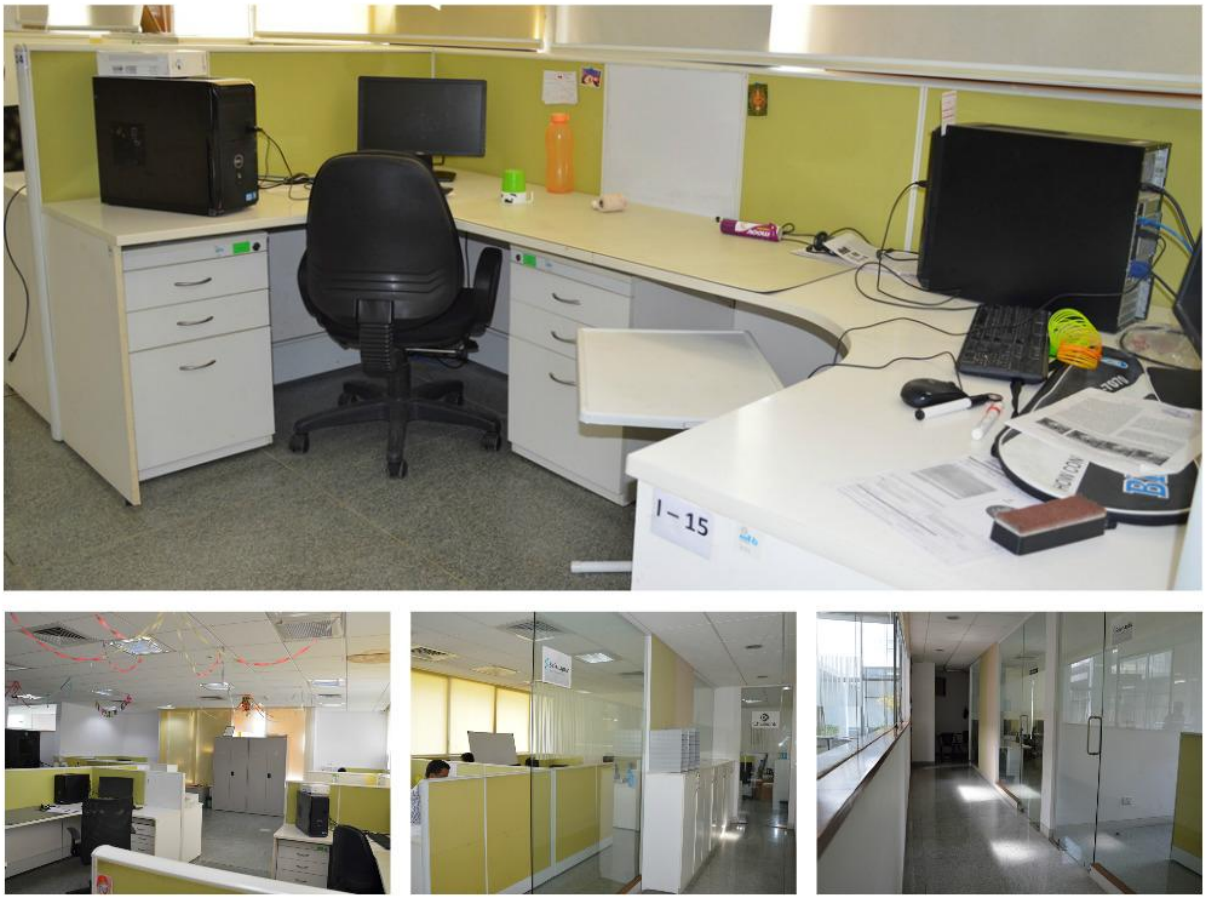
The I-MACX Summit

- The I-MACX Summit is a civic-tech focused event that intends to bring together innovators from government and social organizations along with civic-minded startups, activists, investors and entrepreneurs.

- The I-MACX Summit will also showcase the offerings that are being created by the civic-tech

startups nurtured at IIIT-B Innovation Center.

- The I-MACX Summit is a thought-leadership forum that delves into how the various players in the civic-tech ecosystem could potentially transform governance and society, using the emerging technologies (IOT, Data Analytics, Sensors, Mobile, and Cloud).



IIIT-B Innovation Centre

FINANCIAL SNAPSHOT

Income	Rs (lakhs)	**Expenditure**	Rs (lakhs)
Student Receipts	1,015.65	Faculty & Staff Expenses	927.06
Consultancy Income	2.11	Library Expenses	43.27
Income from Hostel & other facilities	172.64	Scholarship and other Student Expenses	118.07
Project, Seminars & Workshops' Receipts	19.28	Operations & Maintenance	295.84
Interest on Bank Deposits	102.80	Depreciation	165.53
Other Receipts	236.13	Excess of Expenditure over Income	1.16
Total	**1,548.61**	**Total**	**1,548.61**