# Amar Nath and Shashi Khosla School of Information Technology

The Amar Nath and Shashi Khosla School of Information Technology was established in 2004, under the aegis of IIT Delhi, with an endowment from the distinguished IIT alumnus, Vinod Khosla (B.Tech., EE 1976). The objective of the School is to foster inter-disciplinary, goal-oriented research, innovation and post-graduate education in information technology.

The School undertakes research in diverse interdisciplinary areas where there is a significant application of Information Technologies. It has state-of-the art laboratories for use by all students and faculty working in related areas, and encourages the participation of researchers from different disciplines and departments in such sponsored research activities.

The School runs a small number of specialized graduate level courses and modules for the benefit of research scholars but open to other students as electives.

In addition, the School runs workshops and thematic summer schools in areas where IT has a significant impact.

Salient features

- Interdisciplinary research
- Real-world problems with significant IT/ICT involvement, broad social impact
- PhD and MS (Research) programmes
- School provides infrastructure support for any group of interested faculty
- School encourages facilitates and catalyzes collaboration with external partners
- Supports research scholars with diverse academic backgrounds
- Funding is sought from external agencies.

---

**Funding**

- **Khosla Foundation**. Initial Grant of USD 5,000,000 from
  - (US 2,250,000 received till September 2013; USD 2,000,000 has been requested)
- **Anil and Vera Kripalani**: Rs 10,000,000 (1 crore) for establishment of *Shirish Chandra & Vidya Mathur Seminar Hall*, and *Tolaram & Sunita Kripalani Applied Technology Laboratory*.
- **ILS Technologies, USA**. Donation of Software Licenses
- **Project funding.** *[Details in Appendix F]*

---

## Academic Programmes

- **PhD.**
  - Minimum 6 credits of courses.  Usually far more, based on advice.
  - Thesis
    - Monitored regularly by a committee of advisor, 2 experts and chairperson
    - Evaluated by 2 external examiners, one from India, one from abroad.

  a. **Current Enrolment**: 21
     i. **Full-time**: 13
     ii. **Part-time**: 8
  b. **Alumni:**  3
     Areas: Embedded systems; eGovernance; Data Mining
     Placement:   Industry: 1
                  Academia: 2
  c. **Submitted**: 1 (Uncertainty in Decision Making)

  First admission: c. 2003/4  (converted from CS later)
  First Graduate: February 2010.
  Male-Female:  14-11

  **Admission criteria**:
  2013-14: M. Tech.   GPA > 7.75 or 71%.  PT: > 8.0/72.5%
  2012-13: M. Tech.   GPA > 8.0 or 72.5%.        PT: > 8.0/72.5%
  2011-12: M. Tech.   GPA> 7.5/70%         PT: > 7.5/70%
  2010-11: M. Tech.   GPA>7.8/72%          PT: > 7.8/72%
  2009-10: M. Tech.   GPA>7.8/72%          PT: > 7.8/72%
            B. Tech. GPA> 8.0/72.5% [+ > 550 GATE in CS/IT]


  **[Details of Ph.D. Scholars in Appendix B]**



- **M. S. (Research)**
  - 60 credit over 2 years (Full-time) / 3 years (Part-time)
  - 20 credits of course work (selected for each student)
  - 40 credits thesis
    - Monitored by advisers and committee of experts
    - Evaluated by an external examiner.

  a. **Current Enrolment**: 8
     i. **Full-time**: 3
     ii. **Part-time**: 5
  b. **Alumni**: 14

Areas: Vehicular networks; Network Security (2); Computational Biology (3); IT solutions for Hydrology; Embedded systems for biology; Energy efficiency in Data Centres; Physical security based on Computer Vision; Speech recognition; Mining; Natural Language Processing; Applications of Vision&Graphics.

First admission: July 2006
First Graduate: 2008/9
Full-time: 11+1
Part-time: 2
Foreign alumni: 1

**Admission criteria**:

| | | | |
|---|---|---|---|
| 2013-14: B. Tech. | GPA> 6.75/60% | [+ > 690 GATE in CS/IT/...] |
| | PT: > 7.5/70% | |
| 2012-13: B. Tech. | GPA> 6.75/60% | [+ > 750 GATE in CS/IT/...] |
| | PT: > 7.5/70% | |
| 2011-12: B. Tech. | GPA> 6.75/60% | [+ > 700 GATE in CS/IT/...] |
| | PT: > 7.5/70% | |
| 2010-11: B. Tech. | GPA>7.8/72% [+ > 650 GATE in CS/IT/...] |
| | PT: > 7.8/72% | |
| 2009-10: B. Tech. | GPA> 7.8/72% [+ > 550/600 GATE in CS/IT/...] |
| | PT: > 7.8/72% | |

**[Details of M.S. (Research) Programme in Appendix C]**

---

**Courses**

Each student/research scholars is individually advised on what courses he/she should register for in order to acquire the necessary expertise and background for their proposed research work. These are from across the Institute, but usually include a strong CS component.

SIT has in addition 10 courses approved so far. More are being planned, based on interest expressed by faculty and students. 1 or 2 courses offered each semester + project/dissertation courses.

- 700 level courses: 2 (4 credits)
- Special Topics Courses: 3 (3 credits)
- Special Modules: 3 (1 credit)
- Dissertation/Project courses: 2

**[Detailed Listing of Courses in Appendix E]**

---

## Research

In the Prospectus, it is stated that

> *"The School promotes research in any area where Information Technology plays a significant role, including, but not limited to:*
>
> *Dependable Computing, Information Security, Information Storage and Retrieval, High Speed Networks, Web Based Computing, Multimedia Systems, E-Commerce, Human-Computer Interfaces, Robotics and Intelligent Systems, Image Processing, Biometrics, Soft Computing, Computer Vision, Embedded Systems and Sensor Networks, Geographical Information Systems, Optical Information Processing, Nano-technology Modeling and Bio-informatics."*

## Projects

The School through its associated faculty and students is involved in a variety of externally funded research projects, many of which involve external collaborations with other institutions.

Currently SIT is involved in **28 Funded Research Projects** in **diverse areas** which have a **total worth Rs 44.33 crores** *(not all coming to IIT)*

**[Project Details in Appendix F]**

## Active Research Areas

(Based on PhD students' research topics, publications and funded Projects).

- Assistive Technologies, including sensors
- Medical Applications of Computing, including Neurosurgery skills training, mobile-based Healthcare.
- ICT for Development
- Information Security
- Computational Biology
- Information retrieval
- Machine Learning, Data Mining, Fuzzy Systems
- Embedded systems, with a focus on power efficiency

- Networks, network security, M2M
- eGovernance
- Image analysis, forensics, video coding/decoding

## Publications

Over 70 Research publications in refereed conferences and journals by students and SIT associated faculty in the last 4 years.

**[Detailed listing of publications in Appendix D]**

## Faculty

Khosla School of IT has not appointed faculty unless they have a prior appointment in a parent department or centre at IIT Delhi. A small number of faculty members have applied for a formal joint appointment. Any IITD faculty member guiding a research scholar on a problem of interest or working on an interdisciplinary funded project may express a desire to be associated with the School of IT. In addition, the School actively desires to collaborate formally with experts in many fields from outside IIT; a formal Adjunct Faculty position is accorded to those who have had a long-term association with IITD in interdisciplinary research under the purview of the School of IT.

**Faculty with Joint Appointment: 4**

**Adjunct Faculty (from outside IIT): 3 (+2 being processed)**

**Associated Faculty: 23** (3 have left IIT)

**Post-Doctoral Fellows: 1**

Departments: CSE, EE, Math, DMS, Mech Engg, Civil Engineering, CARE


**[Detailed Faculty listing in Appendix A]**

## Outreach

### Workshops and Schools Organized

1. Indo-US Workshops on Pervasive Communications and Computing Collaboration (PC3)
   March 9-11, 2011
   Sponsors: School of IT, CSE Department, Department of Information Technology, GoI, NSF

2. India-France Workshop in ICST "BIG DATA & CYBER-PHYSICAL SYSTEMS"
   April 4-5, 2013
   Sponsors: School of IT, IFCPAR (DST, DIT)

3. Resonance India Program 2013
   June 24-July 6, 2013
   Sponsors: School of IT, MIT, Harvard University, +AIIMS

4. Formal Methods Update Meeting
   July 27-28 2013.
   Sponsors: School of IT, Department of CSE, IARCS.

5. Indo-Dutch Workshop on Pervasive Communication and Computing Collaboration
   March 19-20, 2014
   Sponsors: School of IT, CSE Department, DIT (GoI), NWO

### Conference Travel

15 Scholars/students have been supported to attend conferences

**[Details in Appendix H]**

### Visitors

School of IIT encourages and partially supports visitors to visit the School and present seminar talks.

**[Details in Appendix G]**

## Benchmarking

- Not many comparable entities in India or abroad, in size or in the model of operation.
- Most international Research Schools in IT are of much larger size and employ permanent faculty.
- No similar institution in India, with the exception of KReSIT IIT Bombay, which is now defunct.
- IIITs are not an appropriate comparison since they have a large teaching component.


- **KReSIT, IIT Bombay (1998-2006).**
  - **Goals**
    - *Interaction with Industry (Joint R&D, technology transfer)*
    - *Large developmental projects*
    - *Entrepreneurship; training leaders for IT*
    - *Continuing and Distance education; manpower training*
  - **Faculty**
    - *Hired specifically for school*

  - **Research Scholars: 29**

  - **Interdisciplinary research areas**
    - Databases and Data mining
    - Data Communication and Networks
    - Web Technologies
    - Embedded Systems

  - **Education Programmes**
    - Ph.D.
    - M. Tech
    - PGDIIT

  - **Business Incubation**

<u>**Vision**</u>

**Rationale for a School of Information Technology.**

- Interesting and real-world problems do not neatly fit in disciplinary silos.
- Multi-disciplinary teams (collaboration between faculty in different departments) may be formed to address these problems, but successes rare and moreover not often transformative either in generation of new knowledge or in the generation of innovative manpower skills or new disciplines.
- Interdisciplinary is distinct from multidisciplinary. The problems require bringing in different abstractions and thinking paradigms from different disciplines -- new ways of addressing the problem.
- PhD Students: While being uncompromising about quality, need to be flexible about background. Cannot only work within their disciplinary silos. Coursework and Qualifiers processes need to be innovative, individualized and flexible.
- Focus of their research and publication will transcend the parameters and evaluation criteria that are applied by a "parent department".
- Collaborating faculty members need a locus outside their departments to engage with other faculty from other disciples. School of Information Technology acts as a catalyst.
- Innovative interdisciplinary research can only happen when engaging with external partners. SIT facilitates such interactions
- Alumni and industrial donors like to fund new activity and innovation that transcends the old categories/disciplines. An entity distinct from a single or group of departments facilitates activity in areas that they would like to promote.
- School provides an experimentation ground for exploring and developing new research programs, new disciplines, e.g., Computational Biology, Medical Applications of Computation, Computational Neuroscience, etc.

**Targets**

- **Focused Research in 3-5 Interdisciplinary areas**
    - Assistive Technologies
    - Neurosurgery Training and Evaluation
    - Healthcare using mobile technology and modeling the human body.
    - Computational Biology
    - ICT for Development: Community Information Systems.
    - Monitoring of infrastructure for efficiency and security (including sensors, networks, analytics)


- **Active Cadre of Doctoral and Post-doctoral researchers**
    - **3|8 PhD Scholars graduating *in each focus area* in the next 3|6 years.**
    - Similar number of Masters' thesis and/or conversion of Masters' to PhD.
    - **2-5 Researchers in each focus area hired on 2-5 year contracts**

- **Deliverables.**
    - **At least 3 significant technological interventions/innovations *in each focus area* in the next 3 years.**
    - **Educational material for developing new interdisciplinary programmes.**

- **Outreach**
    - **Increase visibility of the School and its activities**
    - **Attract more PhD students**
    - **Regular Workshops and Summer Schools**
    - **Regular Visitor Programmes**
    - **Exchanges of PhD students and Post-docs with other institutions.**

# Appendix A

## Amar Nath and Sashi Khosla School of Information Technology

## Faculty

### Coordinator

Sanjiva Prasad, Ph.D. (Stony Brook)
Distributed Systems, Programming Languages, Semantics, Verification.
Dept of Computer Science & Engineering

### School Faculty

Aaditeshwar Seth, Ph. D. (Waterloo)
Computer Networks, Social Network analysis, ICT for Development
Dept of Computer Science & Engineering

Sorav Bansal, Ph. D. (Stanford)
Operating System, Compilers, Virtualization
Dept. of Computer Science & Engineering

Vinay Ribeiro, Ph. D. (Rice)
Networks
Dept of Computer Science & Engineering

### Adjunct Faculty

Sakti Srivastava, M. D. (AIIMS)
Applications in medicine
Stanford University

Mahesh Chowdhary, Ph.D.
Geometrics and Wireless Sensor Technologies
ST Micro Electronics Inc., Santa Clara (formerly at CSR Technology USA)

Manik Verma, Ph. D.
Machine Learning.
Microsoft Research and Dept. of Computer Science & Engineering

### Associated Faculty

Anoop Chawla., Ph.D. (IITK),
CAD, CAE, Dynamics, Biomechanics, AI & Expert Systems for Design and
Manufacturing,

Dept of Mechanical Engineering

AK Gosain, Ph.D. (IITD),
Integrated Watershed Modelling, GIS Hydrological Modelling, Irrigation
Management, Environmental Impact,
Dept of Civil Engineering

Anshul Kumar, Ph.D. (IITD),
CAD of VLSI, Computer Architecture,
Dept of Computer Science & Engineering
Arun Kumar, Ph.D.,
Centre for Applied Research in Electronics

B Chandra. (Ms.), Ph.D. (Delhi),
Distributed Databases, Neural Networks for NLP, Adaptive Control Models
Dept of Mathematics

*Bijendra N Jain, Ph.D. (Stony Brook),
Computer Networks
BITS Pilani and Dept of Computer Science & Engineering

Huzur Saran, Ph.D. (UC Berkeley),
Wireless Networks, Network Performance Analysis, Algorithms
Dept of Computer Science & Engineering

Kolin Paul, Ph.D. (BEC),
Embedded Systems, Reconfigurable Computing
Dept of Computer Science & Engineering

M Balakrishnan., Ph.D. (IITD),
CAD of VLSI, Computer Architecture,
Dept of Computer Science & Engineering

M. Hanmandlu, Ph.D.
Dept of Electrical Engineering

MP Gupta, Ph.D. (IITD),
MIS, e-Governance
Dept of Management Studies

*Manish Sharma, Ph. D.
Centre for Applied Research in Electronics

PVM Rao Ph.D. (IITK),
Product Design & Realization, Computer Aided Design & Manufacturing
Dept of Mechanical Engineering

*Pankaj Jalote, Ph. D. (UIUC)
Software Engineering
IIIT Delhi and Dept of Computer Science & Engineering

PK Kalra, Ph.D. (EPFL, Switzerland),
Computer Graphics, 3D Animation,
Dept of Computer Science & Engineering

Ranjan Bose , Ph.D. (Pennsylvania),
Wireless Communication, Information Theory, Error Control Coding,
Dept of Electrical Engineering

Subhashis Banerjee., Ph.D. (IISc.),
Computational Vision, Real Time Systems,
Dept of Computer Science & Engineering

Santanu Choudhury., Ph.D. (IIT Kgp),
Computer Vision, Multimedia Systems, Computational Intelligence
Dept of Electrical Engineering

S.K. Gupta, Ph. D. (IITD)
Graph Theory, Data Mining
Dept of Computer Science & Engineering

S.N. Maheshwari, Ph.D. (Northwestern),
Algorithms, Parallel Processing, Information Systems,
Dept of Computer Science & Engineering

Smruti Ranjan Sarangi, Ph.D. (University of Illinois),
Computer architectures, OS jitter aware systems, futuristic storage platforms
Dept of Computer Science & Engineering

Subrat Kar, Ph. D. (IISc)
Department of Electrical Engineering

Sumantra Dutta-Roy, Ph. D. (IIT Delhi)
Department of Electrical Engineering

**Post-Doctoral Researchers**

Rohan Paul, Ph.D. (University of Oxford),
Assistive Technologies

[* Not currently at IIT Delhi]

## Coordinators and their tenure

| Sl. No. | Period | Name |
|---|---|---|
| 1. | 1.9.2003 – 31.8.2004 | Prof. Anshul Kumar |
| 2. | 1.9.2004 – 31.8.2005 | Prof. B. N. Jain |
| 3. | 1.9.2005 – 31.8.2006 | Prof. B. N. Jain |
| 4. | 1.9.2006 – 31.8.2007 | Prof. Huzur Saran |
| 5. | 1.9.2007 – 31.8.2008 | Prof. Huzur Saran |
| 6. | 1.9.2008 – 31.8.2009 | Prof. Huzur Saran |
| 7. | 1.9.2010 – 31.8.2011 | Prof. Sanjiva Prasad |
| 8. | 1.9.2011 – 31.8.2012 | Prof. Sanjiva Prasad |
| 9. | 1.9.2012 – 31.8.2013 | Prof. Sanjiva Prasad |
| 10. | 1.9.2013 – 31.8.2014 | Prof. Sanjiva Prasad |

**Appendix B**

# Amar Nath and Shashi Khosla School of Information Technology

## List of Ph.D. Alumni

| | Name & Entry Number & Status | Date of Registration | Date of Pre-Ph.D Seminar/ Submission of Synopsis | Date of submission of Thesis | Date of Viva-Voce Examination | Thesis Title | Name & Address of Current Institutions/ Industries | Programme/ Designation | Supervisor |
|---|---|---|---|---|---|---|---|---|---|
| 1. | Anant Vishnoi 2003CSZ0006 Full-Time | 08.08.03 | 12.02.10 | 26.05.10 | 03.12.10 | Efficient Cache State Dumping for Post-Silicon Processor Validation | SYNPOSYS BANGALORE | Sr. R&D Engineer | P. R. Panda (CSE) |
| 2. | Rakhi Tripathi 2005ANZ8292 Full-Time | 10.01.06 | 19.10.10 | | 23.05.12 | Select Study of Interoperability Adoption for One-stop Government Portal in India | FORE School of Management B-18, Qutub Institutional Area, New Delhi | Professor | M. P. Gupta (DMS)  Jaijit Bhattacharya |
| 3. | Shalini Bhaskar 2008ANZ8412 Full-Time | 05.01.09 | 10.02.12 | | 22.01.13 | Novel Algorithms and their applications for mining static, structured temporal data and data stress | ITM University, Gurgaon | Associate Professor | B. Chandra (Maths) |
| 4. | Manish Aggarwal 2009ANZ8576 Full-Time | 01.01.10 | 08.08.13 | 20.12.13 | Awaited | Fuzzy Sets Variants for handling Uncertainty in Decision Making | | | K. K. Biswas (CSE) M Hanmandlu (EE) |

# Current Research Scholars

| | Name | Thesis Title | Date of admission | Date of SRC | Date of Comprehensive & Research Plan | Date of Synopsis Submission | Supervisor |
|---|---|---|---|---|---|---|---|
| 1 | Richa Sharma 2008ANZ7535 Part-time | Knowledge Representation for Requirement Engineering | 21.07.11 | 06.06.12 | 15.05.13 | | K K Biswas (CSE)<br><br>Santanu Chaudhury (EE) |
| 2 | B. Sharat Chandra Verma 2008ANZ8224 FT | Architecture Exploration of Accelerators for Bioinformatics Applications | 26.07.08 | 29.12.08 | 26.02.10 | | M Balakrishnan (CSE) Kolin Paul (CSE) |
| 3 | Nivedita Yadav 2008ANZ8413 FT | Validation Studies of Forensic Document Examination | 05.01.09 | 26.02.10 | 22.12.10 | | Santanu Chaudhury (EE)<br><br>Prem Kalra (CSE) |
| 4 | Aditi Kapoor 2009ANZ8577 FT | Detection of salient objects in images and videos | 02.01.10 | 19.11.10 | 14.06.11 | | K K Biswas (CSE)<br><br>M Hanmandlu (EE) |
| 5 | Namita Sharma 2010ANZ8165 FT | Low Power Architectures | 22.07.10 | 17.03.11 | 18.01.12 | | P R Panda (CSE) |
| 6 | Sunita Sharma 2010ANZ8166 Part-time | Developing techniques for personalized exempted location based spot recomme- nded system using profile enrichment methods | 22.07.10 | 24.10.11 | 25.01.12 | | Saroj Kaushik (CSE) |
| 7 | Gayathri A. 2010ANZ8829 FT | Power optimizations for future many core processors | 03.01.11 | 13.04.11 | 24.05.12 | | Smruti Sarangi (CSE)<br><br>M Balakrishnan (CSE) |
| 8 | Piyus Kumar Kedia 2010ANZ7537 FT | Dynamic Binary Translation for the Kernel and its Applications | 21.07.10 | 12.11.12 | 25.04.13 | 07.02.14 | Sorav Bansal |
| 9 | Dipanjan Chakraborty 2010ANZ7538 FT | Informations and Communication Technology for a better government | 21.07.11 | 23.04.12 | 25.02.13 | | Aaditeshwar Seth (CSE) |
| 10 | Puneet Agarwal 2011ANZ7529 Part-time | Database Systems | 21.07.12 | 26.04.13 | 16.01.14 | | Maya Ramanathan (CSE)<br><br>Gautam Shroff (TCS) |
| 11 | Priti Jagwani 2011ANZ8133 Part-time | Attribute Based Privacy Control and Anonymization Techniques for Location Privacy | 21.07.11 | 07.08.12 | 21.03.13 | | Saroj Kaushik (CSE) |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 12 | Aruna Bansal 2011ANZ8221 FT | Provenance of Data in the Medical Domain | 21.07.11 | 01.02.12 | 14.03.13 | | Sanjiva Prasad (CSE) |
| 13 | Nidhi Arora 2011ANZ8287 FT | Inpainting (Video Inpainting) | 29.07.11 | 28.09.12 | Extended upto 31.01.2014 | | P K Kalra (CSE) |
| 14 | R. S. Mani 2011ANZ8292 Part-time | | 21.07.11 | | | | |
| 15 | Arvind Kumar Mahla 2011ANZ8418 Part-time | Internet Measurements | 02.01.12 | 12.12.12 | | | Aaditeshwar Seth (CSE)<br><br>Vinay Ribeiro (CSE) |
| 16 | Anusha Shubramony Iyer 2011ANZ8466 FT | Mapping DNA an Approach using Graphene Sensors | 02.01.12 | 10.07.12 | 03.10.2013 | | Kolin Paul (CSE) |
| 17 | Ram Sewak Sharma 2012ANZ8166 Part-time | Data Analytics | 21.07.12 | 12.08.13 | | | M P Gupta (DMS) |
| 18 | Piyush Chanana 2012ANZ8203 FT | Electronic Travel Aids for Visually Impaired | 21.07.12 | 23.07.13 | | | M Balakrishnan (CSE)<br><br>P.V.M. Rao (Mechanical Engg.) |
| 19 | Sumit Negi 2012ANZ8417 Part-time | Social Media Analytics | 01.01.13 | 12.08.13 | | | Santanu Chaudhury (EE) |
| 20 | Ankit Singhal 2013ANZ8011 FT | Algorithmic Computational Biology | 22.07.13 | 12.08.13 | | | S. N. Maheshwari (CSE) |
| 21 | Shashank Sharma 2013ANZ8012 FT | Computational Biology | 30.08.13 | 19.11.13 | | | S. N. Maheshwari (CSE) |

# Appendix C

## List of M. S. Research Alumni

| | Name, Entry, Status | Date of Registration | Date of Pre-Ph.D Seminar/ Submission of Synopsis | Date of submission of Thesis | Date of Viva-Voce Examination | Thesis Title | Name & Address of Current Institutions/ Industries | Programme/ Designation | Supervisor |
|---|---|---|---|---|---|---|---|---|---|
| 1. | Ashwin Satish Rao 2006SIY7513 Full-Time | 26.07.06 | 02.07.08 | 02.07.08 | 14.01.09 | Performance Evaluation of Secure Communication in vehicular networks | INRIA Sophia Antipolis Planète Project Team 2004 route des Lucioles BP-93 06902 Sophia Antipolis France | Ph.D Student | Anirban Mahanti (CSE/ UNSW) |
| 2. | Priyanka Nath 2006SIY7515 Full-Time | 26.07.06 | 14.07.09 | July 09 | Dec 09 | Prediction of Precursor MiRNAs | MORGAN STANLAY MUMBAI | Sr. IT Associate | S. N. Maheshwari (CSE) |
| 3. | Chetan Aneja 2007SIY7510 Full-Time | 27.07.07 | 21.07.10 | 27.07.10 | 07.12.10 | Development of tools for alignment and single mutation discovery using short read sequencing and a study of their application to small RNA deep sequencing data | Microsoft India R&D Pvt. Ltd., Hyderabad | Software Development Engineer | S. N. Maheshwari (CSE) |
| 4. | Saurabh Gupta 2009SIY7554 Full-Time | 26.07.09 | 16.05.11 | May 2011 | 25.07.11 | Mitigation of Routing Attacks in Mobile ad hoc Networks | Intel Technology India Pvt. Ltd., ITPL Road Embassy Paragoan Bangalore | Software Developer | Subrat Kar (EE) S.Dharmaraja (Math) |
| 5. | Chakresh Sahu 2007SIY7518 Full-Time | 26.07.08 | 09.11.11 | Nov 2011 | 31.01.12 | Enabling Business Intelligence in Heterogeneous Hydrological Repositories: An OLAP Approach | | Degree awarded in Oct 2012 | A K Gosain (Civil) S Banerjee (CSE) |
| 6. | Sohan Lal 2008SIY7533 Full-Time | 01.01.09 | 20.06.11 | 05.09.11 | 01.09.11 | A methodology for accelerating metabolic networks simulation using GPUS | | Degree awarded in Oct 2012 | Kolin Paul (CSE) |
| 7. | Rajkumar Vishwakarma | 02.01.10 | 09.01.12 | 04.09.13 | 28.06.13 | Security Profiling of Land | | Degree awarde | Prem Kalra (CSE) |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 2009SIY7568 Part-Time | | | | | Mass using Intelligent Analysis of Aerial Images | | d in Oct 2012 | |
| 8. | Shashank Sharma 2009SIY7552 Full-Time | 25.07.09 | 23.07.12 | 24.07.12 | 24.07.12 | De Novo Assembly of Short Reads using Minimal Overlap Model | Research Scholar Khosla School of IT | | S. N. Maheshwari (CSE) |
| 9. | Manoj Kumar Santubhai Jain 2009SIY7553 Full-Time | 25.07.09 | 05.05.12 | June 2012 | 05.09.12 | Power Supply Efficiency Aware Resource Allocation in Data Centers | | Degree awarded in Oct 2012 | P. R. Panda (CSE) |
| 10. | Roh Jackeun 2010SIY7501 Full-Time Foreign student | 22.07.10 | 15.06.12 | Aug 2012 | 11.10.12 | Language Independent Keyword Spotting from Speech and Automatic Metadata Insertion | Executive / PMO Samsung India Software Operation | Degree awarded in Oct 2012 | Aaditeshwar Seth (CSE) |
| 11. | Sumit Negi 2009SIY7567 Part-Time | 02.01.10 | 07.09.12 | | 26.12.12 | Characterizing Flicker Groups using Topic Models | Research Scholar Khosla School of IT | Degree awarded in Oct 2012 | Santanu Chaudhury (EE) |
| 12. | Kinshuk Sarabhai 2010SIY7536 Full-Time | 22.07.10 | 22.07.13 | | 28.10.13 | Multi-view Reconstruction using relaxation labeling | | Degree awarded Nov 2013 | Prem Kalra (CSE) S. Banerjee (CSE) |
| 13. | Pratibha Jagnere 2011SIY7527 Full-Time | 21.07.11 | 16.05.13 | 02.08.13 | 17.08.13 | Reconstruction of Private key of RSA using Cold Boot Attacks | | Degree awarded Nov 2013 | Ragesh Jaiswal (CSE) |
| 14. | Jaspreet Bhatia 2011SIY7528 Full-Time | 21.07.11 | 04.06.13 | Aug 2013 | 18.10.13 | Ambiguity Detection in Natural Language Requirements Specification | | Degree awarded Nov 2013 | K. K. Biswas (CSE) |

# Current M.S. (Research) Students

| | Name | Entry No. | Status | Date of admission | Thesis Title | Supervisor |
|---|---|---|---|---|---|---|
| 1 | Shah Maulik Hasmukhabhai | 2008SIY7534 | Part-time | 01.01.09 | GPU Modelling for Virtual Platforms | Anshul Kumar (CSE) Prem Kalra (CSE) Filip Thoen |
| 2 | Ajay Kumar Gupta | 2010SIY7555 | Part-time | 22.07.10 | Detection and Tracking of Events in News Articles | Aaditeshwar Seth (CSE) Maya Ramnath (CSE) |
| 3 | Ierum Shanaya | 2010SIY7570 | Part-time | 03.01.11 | Heterogeneous Systems: QoS of video encoding/ decoding | Kolin Paul (CSE) |
| 4 | Prajjwal Prem Jamdagni | 2012SIY7501 | FT | 21.07.12 | Web Image Search | Manik Verma (Microsoft Research) |
| 5 | Nishant Bugalia | 2012SIY7502 | Part-time | 21.07.12 | Augmented Reality in Immersive Environment | Prem Kalra (CSE) Subhashis Banerjee (CSE) |
| 6 | Sukharaj Singh | 2012SIY7526 | Part-time | 21.07.12 | Real Time Interaction with remote 3D Scenes | Subodh Kumar (CSE) Prem Kalra (CSE) Sumantra Dutta Roy (EE) |
| 7 | Vijay Kumar | 2013SIY7513 | FT | 22.07.13 | Bio-Medical Devices | Kolin Paul (CSE) |
| 8 | Neetu Jindal | 2013SIY8302 | FT | 22.07.13 | Post silicon validation methodologies | Preeti Ranjan Panda (CSE) Smruti Ranjan Sarangi (CSE) |

## Amar Nath and Shashi Khosla School of Information Technology

## List of Publications (2010-2014)

1. Anju Kansal, Avval, Kolin Paul and Sanjiva Prasad. *"mDROID - An Affordable Android based mHealth System"*. Proceedings of **HEALTHINF 2014**, Angers, France, March 3-6, 2014. *(Being considered for Best Student Paper)*

2. Payal Jotwani, Ashish Suri, Prem Kalra*, Sanjiva Prasad*, Subhashis Banerjee*, Subodh Kumar*, Kolin Paul*, Sumit Bansal, Anand VK (Department of Neurosurgery, AIIMS, and *Department of Computer Science and Engineering, IIT Delhi) *"Computerized Evaluation Vs. Apprenticeship Method-based Evaluation: Effectualness of Micro-suturing Neurosurgery Skills Training"*. **15th Annual Conference of Delhi Neurological Association (DNACON 2013),** February 16-17, 2013, New Delhi. *(Best Paper Award)*

3. P Jotwani, A Suri, AK Mahapatra, S Prasad*, S Banerjee*, S Kumar*, PK Kalra*, S Bora, A Singh, *"Supplementing education and training in Neurosurgery: Web based education and Tele-education"*, **8th Biennial National Conference of Medical Informatics by Indian Association of Medical Informatics (IAMI),** New Delhi February 3-5, 2012. *(Awarded best paper)*

4. Preeti Ranjan Panda, Sourav Roy, Srikanth Chandrasekaran, Namita Sharma, Jasleen Kaur, Sarath Kumar Kandalam and Nagaraj N. , *High Level Energy Modeling of Controller Logic in Data Caches*, **GLSVLSI 2014.**

5. Namita Sharma, Preeti Ranjan Panda, Min Li, Prashant Agrawal, and Francky Catthoor, *Energy Efficient Data Flow Transformation for Givens Rotation Based QR Decomposition*, **DATE 2014.**

6. Faisal Alam, Preeti Ranjan Panda, Nikhil Tripathi, Namita Sharma, and Sanjiv Narayan, *Energy Optimization in Android Applications through Wakelock Placement*, **DATE 2014.**

7. Preeti Ranjan Panda, Namita Sharma, Arun Kumar Pilania, Gummidipudi Krishnaiah, Sreenivas Subramoney, and Ashok Jagannathan, *Array Scalarization in High Level Synthesis*, **ASP-DAC 2014.**

8. Namita Sharma, Tom Vander Aa, Prashant Agrawal, Praveen Raghavan, Preeti Ranjan Panda, and Francky Catthoor, *Data Memory Optimization in LTE Downlink*, **ICASSP 2013.**

9. Prashant Agrawal, Praveen Raghavan, Matthias Hartmann, Namita Sharma, Liesbet Van der Perre, and Francky Catthoor, *Early Exploration for Platform Architecture Instantiation with Multi-mode Application Partitioning*, **DAC 2013.** *(Awarded the HiPEAC paper award)*

10. Vivek Srinivasan, Vibhore Vardhan, Snigdha Kar, Siddhartha Asthana, Rajendran Narayanan, Pushpendra Singh, Dipanjan Chakraborty, Amarjeet Singh, Aaditeshwar Seth. *Airavat: An Automated System to Increase Transparency and Accountability in Social Welfare Schemes in India*. **ICTD '13** Proceedings of the Sixth International Conference on Information and Communications Technologies and Development: Notes - Volume 2, 2013

11. Dipanjan Chakraborty, Indrani Medhi, Edward Cutrell, William Thies. *Man Versus Machine: Evaluating IVR Versus a Live Operator for Phone Surveys in Ind*ia. **ACM DEV '13** Proceedings of the 3rd ACM Symposium on Computing for Development, 2013

12. Dipanjan Chakraborty, Aaditeshwar Seth. *"A Participatory Video and Audio Platform for Community Interaction using DVDs and IVR Systems"*. **ACM DEV '13** Proceedings of the 3rd ACM Symposium on Computing for Development, 2013

13. Anirban Mukherjee, Sarbartha Sengupta, Dipanjan Chakraborty, Anirban Sen and Utpal Garain. *"Text-to-Diagram Conversion: A Method for Formal Representation of Natural Language Geometry Problems"*. IASTED International Conference on Artificial Intelligence and Applications (**AIA 2013**), Innsbruck, Austria, February, 2013

14. Gayathri Ananthanarayanan, Geetika Malhotra, M. Balakrishnan, and Smruti R. Sarangi. *Amdahl's Law in the Era of Process Variation.* International Journal of High Performance Systems Architecture (**IJHPSA**) 2013 Vol. 4 No.4 pp.218-230

15. Smruti R. Sarangi, Gayathri Ananthanarayanan, and M. Balakrishnan. "*LightSim : A Leakage Aware Ultrafast Temperature Simulator"*. Design Automation Conference **(ASP-DAC)**, 2014 19th Asia and South Pacific , Jan. 2014

16. Hameedah Sultan, Gayathri Ananthanarayanan, and Smruti R. Sarangi. *Processor Power Estimation Techniques: A Survey.* **International Journal of High Performance Systems Architecture**.

17. Anshul Singhal, Pranay Jain, Piyush Chanana, Dhruv Jain, Rohan Paul, M. Balakrishnan and P.V.M. Rao, *"Application of Shape Memory Alloy (SMA) based actuation for refreshable display of braille"*, **ASME/IEEE International Conference on Mechatronic and Embedded Systems and Applications, 2013**.

18. Taneja Yogesh, Gupta Anuraag, Chanana Piyush, Sanyal Saurabh, Das Supriya, Paldhe Manas, Eswaran Siddharth, Ranjan Sidharth, Maji Sayantan,Mehra Dheeraj, Dhakar Sanjay, Singh Vaibhav, Sharma Vasudev, Manocha Dipendra, Rao P.V.M, Paul Rohan, Balakrishnan M, ,*"Study of challenges faced by visually impaired persons in accessing public buses and design and user testing of an affordable bus identification and homing system for the visually impaired."* Presented in the 13th International Conference on Mobility and Transport for Elderly **a**nd Disabled Persons (**TRANSED 2012**)(**Honorable Mention).** Also presented at Transportation research board meeting (**TRB -2013**) in Jan 2013, Washington DC

19. Dhruv, Agrawal Prabhav, Maheshwari Kartik, Mittal Aman, Gupta Akshay, Ollagnier Amaury, Goyal Arpit, Paul Rohan, Ranjan Ashish, Gupta Anuraag, Paldhe Manas, Das Supriya, Sanyal Saurabh, Taneja Yogesh, Manocha Dipendra, Balakrishnan M, Rao P.V.M, *Design and user testing of an affordable cell-phone based indoor navigation system for visually impaired,* Presented in the 13th International Conference on Mobility and Transport for Elderly **a**nd Disabled Persons (**TRANSED 2012**)(**Best Paper Award)**

20. E. Hassan, S. Chaudhury, N.Yadav, P. Kalra,M. Gopal, *" Off-line Hand Written Input based Identity Determination using Multi Kernel Feature Combination"*, **Pattern Recognition Letters (PRL)**, April 2013

21. N. Yadav, S.Chaudhury, P. Kalra, *" Most Discriminative Primitive Selection for Identity Determination Using Handwritten Devanagari Script"*, 12th International Conference on Document Analysis and Recognition (**ICDAR**), USA, Aug 2013

22. N. Yadav, S.Chaudhury, P .Kalra,*"Offline Skilled Forgery Detection on Handwritten Devanagari Script"*,Fourth National Conference on Computer Vision, Pattern Recognition, Image Processing and Graphics (**NCVPRIPG)** in India,  Dec 2013

23. Sahu Chakresh, Gosain A. K., Banerjee S. (2011), "SwatCube: An OLAP approach for managing Swat Model results", 11th SWAT International Conference, Toledo, Spain.

24. Gosain A.  K., Patil Nagraj S., Sahu Chakresh, Srinivasan Raghavan, Rao Sandya, Thakur D. C. (2011), "Geospatial Infrastructure for Water Resources Planning & Assessment", 11th SWAT International Conference, Toledo, Spain

25. N. Yadav, N. Pahal, P. Kalra, B. Lall, S.Chaudhury, *"A Novel Approach for Securing Forensic Documents Using Rectangular Region-of-Interest (RROI),"* Second International Conference on Emerging Applications of Information Technology (**EAIT**) in India, Feb 2010

26. Sharma, R. and Biswas, K.,K., *"Resolving Inconsistency and Incompleteness Issues in Software Requirements"*, In: **Managing Requirements Knowledge**, Edited by:  Malej, W. and Thirumella, A.,K., 2013, pp. 245-263, Springer Berlin Heidelberg.

27. Sharma, R. and Biswas, K.,K., *"A Semi-automated Approach towards Handling Inconsistencies in Software Requirements"*, In:  **Evaluation of Novel Approaches to Software Engineering Communications in Computer and Information Science**, Edited by: Maciaszek A., L. and Filipe, J., Volume 410, 2013, pp. 142-156, 2013, Springer Berlin Heidelberg.

28. Bhatia, J., Sharma, R., Biswas, K., K. and Ghaisas, S., *"Using Grammatical Knowledge Patterns for structuring requirements specifications"*, Proceedings of 3rd IEEE International Workshop on Requirements Patterns **(RePa'2013)**, in conjunction with 21st IEEE International Requirements Engineering Conference (RE'13), pp. 31-34, July 2013.

29. Sharma, R. and Biswas, K.,K., *"Handling Inconsistency in Software Requirements"*, Proceedings of 7th Evaluation of Novel Approaches to Software Engineering **(ENASE' 2012)**, SciTePress, June 2012.

30. Sharma, R. and Biswas, K.,K., *"Using norm analysis patterns for automated requirements validation"*, Proceedings of 2nd IEEE International Workshop on Requirements Patterns **(RePA'2012)**, in conjunction with 20th IEEE International Requirements Engineering Conference (RE'12), pp. 23-28, September 2012.

31. Sharma, R. and Biswas, K.,K., *"Using courteous logic based representations for requirements specification"*, Proceedings of 4th International Workshop on Managing Requirements Knowledge **(MaRK 2011)**, in conjunction with 19th IEEE International Requirements Engineering Conference (RE'11), pp. 12-16, September 2011.

32. Negi, Sumit, Balasubramanyan, Ramnath, Chaudhury, Santanu, *Characterizing User-Subgroups in Flickr Group : A Block LDA Based Approach*, Proc.  21st International Conference on Pattern Recognition,

November 11-15, 2012, Tsukuba International Congress Center, Tsukuba, Japan

33. Negi, S.; Chaudhury, S. *Finding Subgroups in a Flickr Group*, Multimedia and Expo **(ICME)**, 2012 IEEE International Conference on, 2012

34. Negi, Sumit; Chaudhury, Santanu, *Predicting User-to-content Links in Flickr Groups*, Advances in Social Networks Analysis and Mining (**ASONAM)**, IEEE/ACM International Conference on,2012.

35. Kapoor, Aditi; Biswas, K.K.; Hanmandlu, M,: *Fuzzy video summarization using key frame extraction*, In IEEE National Conference on Computer Vision, Pattern Recognition, Image Processing and Graphics (**NCVPRIPG**), 2013(to be published)

36. Kapoor, Aditi; Biswas, K.K.; Hanmandlu, M.: *Salient object detection using a fuzzy theoretic approach*. **ICVGIP 2012**: 9 ([link](link))

37. Kapoor, Aditi; Pandey, Parul; Biswas, K.K.: *Fuzzy Rule Based Document Image Segmentation for Component Labeling*, Computer Vision, Pattern Recognition, Image Processing and Graphics (**NCVPRIPG**), 2011 Third National Conference on , vol., no., pp.11-14, 15-17 Dec. 2011 doi: 10.1109/NCVPRIPG.2011.10. ([link](link))

38. Kapoor, Aditi; Biswas, K. K.: A case-based reasoning approach for detection of salient regions in images, **ICVGIP '10** Proceedings of the Seventh Indian Conference on Computer Vision, Graphics and Image Processing, ACM New York, USA 2010, 48-55. ([link](link))

39. Gosain A. K., Patil Nagraj S., Sahu Chakresh, and Thakur D. C (2010), "Research on Water Management Technologies in India" Proceedings of the 3rd Indo-German Conference on Research for Sustainability: Water and Waste Management", New Delhi, India.

40. Gosain A. K., Patil Nagraj S., Sahu Chakresh, and Thakur D. C (2010), "An Integrated Framework for Managing Water Resources in a Sustainable Manner', Proceedings of the National Seminar on Water Security, Organised by Water & Food Equityable Distribution Organisation, Chennai, pp 27-35.

41. Sunita Tiwari, Saroj Kaushik, *'Evolving Personalized Recommendation of Unvisited Tourist Places Using Multi Users GPS Logs'*, accepted for publication in **ICAART 2014**, 6-8 March 2014 Loire Valley, France.

42. Sunita Tiwari, Saroj Kaushik, *'Mining Popular Places in a Geo-Spatial Region Based on GPS Data Using Semantic Information'*. **DNIS 2013,** LNCS 7813, pp. 262–276, 2013. © Springer-Verlag 2013.

43. Sunita Tiwari, Saroj Kaushik, *'Location Based Recommender Systems: Architecture, Trends and Research Areas'*, The IET International Conference on Wireless Communications and Applications **ICWCA 2012**, October 2012 Kuala Lumpur, Malaysia, IEEE.

44. Shivendra Tiwari, Saroj Kaushik, Priti Jagwani, Sunita Tiwari, *'A Survey on LBS: System Architecture, Trends and Broad Research Areas'*, **DNIS 2011**, LNCS 7108, pp. 223–241, 2011 © Springer-Verlag.

45. P. Goyal, V. Ribeiro, H. Saran, and Anshul Kumar, *'Strap-down pedestrian dead-reckoning system'*, **IPIN 2011**.

46. M. Agarwal, K. K. Biswas, M. Hanmandlu, *Handling Fuzzy Models in the Probabilistic domain*, in: **Computational Intelligence, Studies in Computational Intelligence (SCI)**, Madani et al. (Eds.), Springer, Berlin, pp. 137 - 151, 2013.

47. M. Agarwal, K. K. Biswas, M. Hanmandlu, *Generalized intuitionistic fuzzy soft sets with applications in decision-making,* **Applied Soft Computing** (Elsevier, IF: 2.53), Vol. 13, Issue 8, 2013, pp. 3552 - 3566. Top 25 Hottest (most downloaded) Elsevier article in 2013.

48. M. Agarwal, M. Hanmandlu, K. K. Biswas, *A Probabilistic and Decision Attitude Aggregation Operator for Intuitionistic Fuzzy Environment.* **International Journal of Intelligent Systems** (Wiley, IF: 1.42), Vol. 28, Issue 8, 2013, pp. 806 - 839.

49. M. Agarwal, K. K. Biswas, M. Hanmandlu, *Intuitionistic fuzzy soft preference relations and application in decision making*, IEEE International Conference on Fuzzy Systems (**FUZZ-IEEE, 201**3) , pp. 1 - 8, 7 - 10 July 2013.

50. M. Agarwal, K. K. Biswas, M. Hanmandlu, *Choquet integral vs. TOPSIS: An intuitionistic fuzzy approach*, IEEE International Conference on Fuzzy Systems (**FUZZ-IEEE, 2013**), pp. 1 - 8, 7 - 10 July 2013

51. M. Agarwal, K. K. Biswas, M. Hanmandlu, *Probabilistic Intuitionistic Fuzzy Models*, 5th International Conference on Automation, Robotics and Applications (**ICARA, 2011**), pp. 214 - 219, Dec. 6 - 8, Wellington, New Zealand, 2011.

52. M. Agarwal, K. K. Biswas, M. Hanmandlu, *Fuzzy Model Building using Probabilistic Rules*, International Conference on Fuzzy Computation Theory and Applications, IJCCI (F**CTA, 2011**), Scitepress, pp. 361 - 369, Paris, France, 24 - 26 Oct. 2011. Nominated for best paper award.

53. M. Agarwal, K. K. Biswas, M. Hanmandlu. *Relations in Generalized Intuitionistic Fuzzy Soft Sets*, IEEE International Conference on Computational Intelligence for Measurement Systems and Applications (**CIMSA, 2011**), Sep 19 - 22, Ottawa, Canada, 2011.

54. M. Agarwal, M. Hanmandlu, K. K. Biswas. *Generalized intuitionistic fuzzy soft set and its application in practical medical diagnosis problem*, IEEE International Conference on Fuzzy Systems (**FUZZ-IEEE, 2011**), pp. 2972 - 2978, Taipei, Taiwan, 27 - 30 June 2011.

55. B. Chandra, Shalini Bhaskar. *A Novel Approach for Finding Frequent Item sets in Data Stream.* I**nt. J. Intell. Syst.** 28(3): 217-241 (2013)

56. B. Chandra, Shalini Bhaskar, *"A new approach for generating efficient sample from market basket data".* Expert Syst. Appl. 1321-1325 ,2011

57. B. Chandra, Shalini Bhaskar: *A new algorithm for graph mining.* IJCNN 2011: 988-995

58. B. Chandra, Shalini Bhaskar: *A new approach for classification of patterns having categorical attributes.* Proc. of IEEE SMC 2011: 960-964

59. B. Chandra, Shalini Bhaskar: *Patterned Growth algorithm using Hub-Averaging without pre-assigned weights.* Proc. of **IEEE** SMC 2011: 3518-3523

60. B. Chandra, Shalini Bhaskar: *A novel approach of finding frequent itemsets in high speed data streams.* Proc. of International Conference on Fuzzy Systems and Knowledge Discovery 2011: 40-44.

61. Gosain A.K., Patil Nagraj S., Sahu Chakresh, Thakur D. C (2009), *"Geospatial Web Portal for Hydrological Information",* Proceedings of the 4th Indian International Conference on Artificial Intelligence, **IICAI 2009**, Tumkur, Karnataka, India, pp 1327-1338

62. Gosain A. K., Patil Nagraj S., Sahu Chakresh (2008), *"Hydro Data Model for Hydrological Infrastructure*, **13th National Symposium on Hydrology** with focal theme on 'Inflow Forecasting during Extremes"*, sponsored by INCOH (Indian National Committee on Hydrology), New Delhi

63. Z. Koradia, G. Mannava, A. Raman, G. Agarwal, V. Ribeiro, S. Triukose, S. Ardon, A. Mahanti, and A. Seth, *First Impressions on the State of Cellular Data Connectivity in India*, **ACM DEV-4** 2013.

64. D.J. Mathew and A. Seth, *Jury: An Automation Framework for Protocolised Primary Healthcare Delivery*, **ACM DEV-4 2013**.

65. Z. Koradia, P. Aggarwal, G. Luthra, and A. Seth, *Gurgaon Idol: A singing competition over Community Radio and IVRS*, **ACM DEV 2013**.

66. A. Mahla, D. Martin, I. Ahuja. Q. Niyaz, and A. Seth, *Motivation and Design of a Content Distribution Architecture for Rural Areas*, **ACM DEV 2012**.

67. Z. Koradia, K. Dadheech, Balachandran C, M. Shivam, and A. Seth, *Experiences of Deploying and Commercializing a Community Radio Automation System in India*, **ACM DEV 2012**.

68. Z. Koradia and A. Seth, *Phonepeti: Exploring the Role of an Answering Machine System in a Community Radio Station in India*, **ICTD, 2012**

69. Z. Koradia, A. Premi, B. Chandrasekharan, and A. Seth, *Using ICTs to Meet the Operational Needs of Community Radio Stations*, **ACM DEV, 2010**.

70. *P. Kedia, S. Bansal,* "Fast Dynamic Binary Translation for the Kernel", ACM Symposium on Operating Systems Principles (*SOSP*), November 2013.

71. P. Kedia, S. Bansal, D. Deshpande, S. Iyer, *"Building Resilient Cloud Over Unreliable Commodity Infrastructure"*, IEEE Cloud Computing for Emerging Markets (*CCEM*), Bangalore, India. October 2012.

# Appendix E

# Amar Nath and Shashi Khosla School of Information Technology

## Approved Courses

| Sl.No. | Course No. | Title | L-T-P | Faculty |
|---|---|---|---|---|
| 1. | SIL765 | Network & System Security | 3-0-2 | Prof. Huzur Saran Dr Sorav Bansal |
| 2. | SIL769 | Internet Traffic – Measurement, Modelling & Analysis | 3-0-2 | Prof. Huzur Saran Dr Vinay Ribeiro Dr Aaditeshwar Seth |
| 3. | SIL801 | Special Topics in Multimedia Systems | 3-0-0 | |
| 4. | SIL802 | Special Topics in Web Based Computing | 3-0-0 | |
| 5. | SIV813 | Applications of Computer in Medicine | 1-0-0 | Dr Sakti Srivastava |
| 6. | SIV861 | Information and Communication Technologies for Development | 1-0-0 | Dr Aaditeshwar Seth |
| 7. | SIV864 | Special Module on Media Processing and Communication | 1-0-0 | Prof. Prem Kalra |
| 8. | SID880 | Minor Project in Information Technology | 0-0-6 | Prof. Sanjiva Prasad |
| 9. | SID890 | MS Research Project | 0-0-80 | Prof. Sanjiva Prasad |
| 10. | SIV895 | Special Module on Intelligent Information Processing | 1-0-0 | Prof. Prem Kalra |

## SIL 765: NETWORK & SYSTEMS SECURITY

| L-T-P | 3-0-2 |
|---|---|
| Credits | 4 |
| Status | Programme Elective for SIY, CSY, MCS and CS5 Department Elective for CS (B.Tech) |
| Pre-requisites | CSL/CSL672 or equivalent_CSL373/CSL633 or equivalent |
| Faculty who will teach the course | Prof. Huzur Saran, Dr Sorav Bansal |
| Course objective:<br>The course will provide a flavor of how systems and network security is done in practice. We will discuss different types of security attacks at various layers of the system and network stacks. We will also discuss techniques to defend against such attacks. In practical work, students will be given programming assignments to write some types of attacks, and also write defenses against them. ||
| Course contents:<br>The goal of this course is to introduce challenges in securing computer systems and networks. We will discuss various types of vulnerabilities in existing software interfaces, such as buffer overflows, unsafe libc functions, filesystem design issues, etc. We will also discuss modern-day defenses against attacks exploiting these vulnerabilities. In network security, we will discuss security problems in network protocols and routing, such as sniffing, denial of service, viruses, worms, etc. and defenses against them. The course will involve reading research papers on relevant topics, programming assignments, and projects. ||

## SIL 769: INTERNET TRAFFIC – MEASUREMENT, MODELLING & ANALYSIS

| L-T-P | 3-0-2 |
|---|---|
| Credits | 4 |
| Status | Programme Elective for SIY, MCS, CSY, CS5 Department Elective for CS (B. Tech) |
| Pre-requisites | CSL374/CSL672 Computer Networks or equiv. |
| Faculty who will teach the course | Prof. Huzur Saran, Dr Vinay J. Ribeiro, Dr Aaditeshwar Seth |
| Course objective:<br>This course will familiarize and expose students to the state-of-the-art in Internet performance. Students will study current and next-generation networking applications (e.g., social networking sites, video-on-demand, Peer-to-Peer files sharing, IP-TV etc.), with the specific goal of understanding how these applications perform on the Internet. Relevant tools and techniques developed by experts in the performance evaluation and Internet measurement communities will be discussed. In this course, we will study how the Internet is evolving and influencing the development of next-generation applications. We will study the Internet's architecture, current generation of Internet applications, and the characteristics of traffic generated by these applications. The course will stress on the tools and techniques used to understand the Internet's structure and measure its performance. ||
| Course contents:<br>Internet architecture: overview of TCP/IP protocol stack. Mathematics for studying the Internet: Review of basic probability and statistics, analytic modeling approaches. Practical issues in Internet Measurements: Challenges, tools and techniques for measuring performance. Internet Traffic Characterization: Poisson models for Internet traffic, self-similarity in network traffic. Web Performance: workload characterization, caching, content distribution networks. Multimedia Systems: Video-on-Demand, IP-TV, Peer-to-Peer file sharing, Peer-to-Peer Streaming. Social Networks. Network Security. ||

## SIV 813: APPLICATIONS OF COMPUTERS IN MEDICINE

| L-T-P | 1-0-0 |
|---|---|
| Credits | 1 |
| Status | Open Elective |
| Pre-requisites | None |

| Faculty who will teach the course | Dr Sakti Srivastava |
|---|---|

Course objective:
The goal of this course is to familiarize students with present day medical training methodologies and clinical practice. A wide variety of technologies that are being developed or are already in use today for medical education and clinical practice will be presented and discussed. Creative thinking will be encouraged and the interdisciplinary nature of this field will be highlighted.

Course contents:
This course will consist of 14 lecture-hours that focus on information and communication technologies (ICT) that are being developed and used in medical education and clinical practice today. Various technologies ranging from computer aided instruction (CAI), simulations, and networked applications at one end to electronic medical records (EMR), telemedicine, and robotic surgery at the other end will be described. The process of research, development, and evaluation in the designing and making of these applications and tools will be detailed. Writing assignments, creative thinking, and interactive discussions will form an integral part of this course.

## SIV 861: INFORMATION AND COMMUNICATION TECHNOLOGIES FOR DEVELOPMENT

| L-T-P | 1-0-0 |
|---|---|
| Credits | 1 |
| Status | Programme Elective for MCS, CS5, SIY and JCA |
| Pre-requisites | None |
| Faculty who will teach the course | Dr Aaditeshwar Seth |

Course objective:
ICT for development is an emerging area of research that combines high-tech CS/IT skills, and put them to uses to solve social development problems. Some of the topics we will explore include the design of low cost communication technologies for rural areas, agriculture consultancy systems, techniques for surveys and data collection to maintain health records, artificial intelligence to guide farmers on cropping patterns, and security schemes for financial inclusion and branchless banking.

## SIV 864: SPECIAL MODULE ON MEDIA PROCESSING AND COMMUNICATION

| L-T-P | 1-0-0 |
|---|---|
| Credits | 1 |
| Status | Programme Elective for MCS, CS5, SIY, JCA |
| Pre-requisites | None |
| Faculty who will teach the course | Prof. Huzur Saran, Prof. Prem Kalra |

Course objective:

The goal of this course is to familiarize and expose students with current issues of media processing in relation to communication. A variety of technologies that are being developed or are already in use today for multimedia (image, video, audio and graphics) processing and communication protocols will be presented and discussed. Cross fertilization of multimedia technologies and communication and network systems will be emphasized and the interdisciplinary nature of this field will be highlighted.

Course contents:
Communication today has rich multimedia contents. Under the varying bandwidth attention is required for appropriate processing of the media contents satisfying desired quality of service. This course will focus on bringing the two broad areas of multimedia processing and communication together. In media processing fundamental concepts of media processing and compression will be introduced with exposure to current techniques and standards. In communication protocols and algorithms for both wired and wireless networks will be discussed in relation to multimedia communication.

## SIV 895: SPECIAL MODULE ON INTELLIGENT INFORMATION PROCESSING

| L-T-P | 1-0-0 |
|---|---|
| Credits | 1 |
| Status | Programme Elective for MCS, CS5, SIY, JCA |
| Pre-requisites | None |
| Faculty who will teach the course | Prof. Amit Kumar, Prof. Huzur Saran and Prof. Prem Kumar Kalra |

Course objective:
The goal of this course is to familiarize and expose students with current issues of intelligent information processing. A variety of technologies that are being developed or are already in use today for computational intelligence and machine learning will be presented and discussed. Relevant applications in engineering and science will also be presented.

Course contents:
This course will focus on presenting conclave of methods which are being practiced for intelligent computing – learning techniques, classification methods, embedding intelligence, neural networks, soft computing and evolutionally methods. Emphasis will also be given on the variety of multidisciplinary applications of such techniques.

## SIL801: Special Topics in Multimedia Systems
*3 Credits (3-0-0)*
*Pre-requisites: Course Coordinator's Permission*
Objective of the course is to expose students to the advanced concepts in Multimedia Systems. Content of this course, depending upon the teacher, will be focused on some aspect(s) of multimedia systems like content based retrieval, multimedia communication, compression, techniques, speech and audio technology, etc.

## SIL802: Special Topics in Web Based Computing

*3 Credits (3-0-0)*
*Pre-requisites: Course Coordinator's Permission*
Objective of the course is to expose students to the advanced concepts in Web Based Computing. Content of this course, depending upon the teacher, will be focused on some aspect(s) of web based computing like semantic web; web based distributed computing, search methods, etc.

**SID880: Minor Project in Information Technology**
*3 Credits (0-0-6)*
*Pre-requisites: Course Coordinator's Permission*
Objective of the course is to provide an opportunity to the students to work on development/research project in his/her area of specialization as part of M.S. degree.

**SID890: Major Project for M. S. (Research)**
*40 Credits (0-0-80)*
*Pre-requisites: Course Coordinator's Permission*
Objective of the course is to provide an opportunity to the students to work on development/research project in his/her area of specialization as part of M.S. degree.

# Semesterwise Course Offerings Details

**Semester II, 2007-08**
SIV 895: Special Module on Intelligent Information Processing                Prem Kalra


**Semester I, 2008-09**
SIL 802: Special Topics in Web based Computing                Huzur Saran
SID 890: MS (Research) Project                Huzur Saran
SIV 864: Special Module on Media Processing and Communication                Prem Kalra


**Semester II, 2008-09**
SID 880: Minor Project in Information Technology                Huzur Saran
SID 890: MS (Research) Project                Huzur Saran


**Semester I, 2009-10**
SIV 813: Applications of Computers Medicine                Huzur Saran/SS
SIV 864: Special Module on Media Processing & Communication                Huzur Saran


**Semester II, 2009-10**
SID 880: Minor Project in Information Technology                Huzur Saran
SID 895: Special Module on Intelligent Information Processing                Prem Kalra

**Semester I, 2010-11**
SID 880: Minor Project in Information Technology                Sanjiva Prasad
SID 890: MS (Research) Project                Sanjiva Prasad
SIV 864: Special Module on Media Processing and Communication                Prem Kalra
SIV 861: Information and Communication Technologies for Development                Aaditeshwar Seth

**Semester II, 2010-11**
SID 895: Special Module on Intelligent Information Processing                Prem Kalra

**Semester I, 2011-12**
SIL 765: Network & System Security                Huzur Saran
SIV 864: Special Module on Media Processing and Communication                Prem Kalra
SID 890: MS (Research) Project                Sanjiva Prasad

**Semester II, 2011-12**
SID 880: Minor Project Information Technology                Sanjiva Prasad
SIV 895: Special Module Intelligent Information Processing                Prem Kalra
SID 890: MS (Research) Project                Sanjiva Prasad

**Semester I, 2012-13**
SIL 765: Network and System Security                Huzur Saran
SIV 864: Special Module Media Processing and Communication                Prem Kalra
SID 890: MS (Research) Project                Sanjiva Prasad


**Semester II, 2012-13**
SIV 895: Special Module Intelligent Information Processing                Prem Kalra


**Semester I, 2013-14**
SIV 813: Applications Computer Medicine                Sanjiva Prasad/SB

SIV 864: Special Module Media Processing and Communication Prem Kalra
SID 880: Minor Project Sanjiva Prasad
SID 890: Major Project Sanjiva Prasad

# Appendix F

## Amar Nath and Shashi Khosla School of Information Technology

### Research Projects

| | Project Title | Funding Agency | Amount in Rs | Duration | SIT Faculty | External Collaborators | Area |
|---|---|---|---|---|---|---|---|
| 1 | E-Governance Innovation Lab | EGIL | 1,800,000 | 14.03.2008 - 30.06.2012 | PI: Huzur Saran (CSE) | | eGovernance |
| 2 | Opportunistic Communication for eGovernance | EGIL | 1,800,000 | 14.02.2008 to 31.03.2011 | PI: Huzur Saran (CSE) | | eGovernance |
| 3 | Managing Secured Documents | National Institute for Smart Government, | 1,100,000 | 22.06.2007 to 30.09.2011 | PI: B. N. Jain (CSE) CI: Vinay Ribeiro (CSE) | | eGovernance |
| 4 | Design and Implementation of a Content Distribution Architecture for Rural and Remote Areas | Australia-India Strategic ResearchFund | 1,490,000 | 20.01.2011 to 19.01.2014 | PI: Aaditeshwar Seth (CSE) CI: Vinay Ribeiro (CSE) & Huzur Saran (CSE) | | ICTD |
| 5 | Development of Indian Human Body Finite Element Human Body Model for use in impact, Textile and Medical Applications | MCIT | 14,998,000 | 2014 | PI: Anoop Chawla (ME) CI: Sudipto Mukherjee, (ME) & Subodh Kumar, (CSE) | | Modelling, Health |
| 6 | Design and Development of Retinal Image Based Wireless Sensor Module for Affordable Mobile Health-care | TCIL | 1,500,000 | | PI: Kolin Paul (CSE) CI: Manish Sharma (CARE) | | Health |
| 7 | RP02597. Foundations for | Department of Electronics & | 11,040,000 | 15.4.2012 - | PI: Sanjiva Prasad (CSE) | David Kotz (Dartmouth) | Health |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 7 | Trusted and Scalable 'Last Mile' Healthcare | Information Technology, Govt of India | 11,040,000 | 15.4.2012 - <br><br> 14-04-2014 | PI: Sanjiva Prasad (CSE) <br><br> CI: Kolin Paul (CSE) & <br><br> Manish Sharma (CARE) | David Kotz (Dartmouth) <br><br> Ashutosh Sabharwal (Rice) <br><br> Ashish Suri (AIIMS) | Health |
| 8 | Position and Personalize Advanced Human Body Models for Injury Prediction | European Union | 22,591,740 | 2017 | PI: Anoop Chawla (ME) <br><br> CI: Subodh Kumar (CSE) & Sudipto Mukherjee (ME) | | Medical |
| 9 | Affordable Refreshable Braille Displays based on Shape Memory Actuation | WELLCOME TRUST, UK | 60,000,000 | Expected <br><br> Apr. 2014 – <br><br> Mar. 2016 | PI: M Balakrishnan (CSE) <br><br> CI:  PVM Rao (ME) <br><br> & Kolin Paul (CSE) | Saksham Trust, <br><br> Phoenix Medical, KritiKal Solutions | Assistive Technology |
| 10 | ePSD: Personal Safety Device | DeITY | 4,800,000 | Aug. 2013 to Nov. 2014 | PI: M. Balakrishnan (CSE) <br><br> CI: Kolin Paul (CSE) | | Personal Safety |
| 11 | Development of a Low-cost Electronic Braille Display for the Visually Impaired | TIDE, DST | 4,750,000 | Sep. 2013 to Aug. 2015 | PI: PVM Rao (ME) <br><br> CI: M Balakrishnan (CSE) | | Assistive Technology |
| 12 | Design and development of an Assistive Device for Public Bus Access for the Visually Impaired | TIDE, DST | 4,200,000 | Sep. 2013 to Feb.. 2015 | PI: <br><br> M Balakrishnan (CSE) <br><br> CI: <br><br> PVM Rao (ME) | | Assistive Technology |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 13 | Development of Smart Cane - An Affordable knee-above Obstacle Detection and Warning System for the Visually Impaired | WELLCOME TRUST, UK | 30,000,000 | Dec. 2010 – Mar. 2014 | PI: M Balakrishnan (CSE) CI: PVM Rao (ME) & Kolin Paul (CSE) | Saksham Trust, Phoenix Medical | Assistive Technology |
| 14 | Design and Implementation of Content Distribution Architecture for Rural and Remote Areas | DST | 2,450,000 | Jan. 2011 - Dec 2013 | PI: Vinay Ribeiro (CSE) CI: A. Seth (CSE) & H. Saran (CSE) | | ICTD |
| 15 | India -UK advanced technology centre (IU-ATC Phase - 2) of excellence in Next generation networks systems and service | DST | 2,550,000 | Sept. 2012 – May 2015 | PI: Vinay Ribeiro (CSE) CI: Huzur Saran (CSE) | | Networks |
| 16 | Tracking Human Motion via Sensor Fusion | C S R Technology(India) Pvt. Ltd. | 1,224,000 | Apr. 2013- Apr 2014 | PI: Vinay Ribeiro (CSE) CI: H. Saran (CSE) | | Networks Sensors |
| 17 | Structured Sharing of Networks and Computer Resources in a Community & Devices | Intel USA | 4,027,000 | July 2013 – July 2016 | Vinay Ribeiro (CSE) CI: S. Sarangi (CSE) & H. Saran (CSE) | | ICTD |
| 18 | Setting up of a Programme in Autonomous | BRNS | 73,270,000 | 5 years; starting May 2010 | PI: Santanu Chaudhury (EE) | | RObotics |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | Robotics (operated as collection of five sub-projects) | | | | | CI: Subir Saha (ME) & Prem Kalra (CSE) & I. N. Kar (EE) & Sumantra Dutta Roy (EE) & Sudipto Mukherjee (ME) & Subodh Kumar (CSE) & Kolin Paul (CSE) | |
| 19 | Deciphering RNA 'regulons": construction, analysis and validation of a miRNA based regulatory network | DBT | 50,000,000 | 2006-2011 | CI: Sachin Maheshwari, (CSE) & Sanjiva Prasad, (CSE) | PI: Alok Bhattacharya, School of Life Sciences & Information Technology, JNU  CI: Ram Ramaswamy, School of Physical Sciences & Information Technology, JNU  CI: Ashwin Srinivasan, IBM-IRL  CI: Sunil Mukherjee, ICGEB  CI: Sudhir Sopory, ICGEB | Biology |

| # | Title | Funder | Amount | Duration | PI/CI | Co-Investigators | Area |
|---|-------|--------|--------|----------|-------|------------------|------|
|  |  |  |  |  |  | CI:<br><br>Pawan Malhotra ICGEB<br><br>CI: Suman Dhar, Special Centre for Molecular Medicine,<br><br>JNU<br><br>CI: Lalit Kumar AIIMS |  |
| 20 | Design and deployment of a content distribution architecture for rural areas | DEITY | 7,400,000 | 2009-2013 | PI: Aaditeshwar Seth (CSE)<br><br>CI: Huzur Saran (CSE)<br><br>CI: Sanjiva Prasad (CSE) |  | ICTD |
| 21 | Rural Internet Measurements for Telecom Provider Auditing | Ford Foundation | 7,500,000 | 2012-2014 | PI: Aaditeshwar Seth CI: Vinay Ribeiro (CSE)<br><br>CI: Huzur Saran (CSE) |  | ICTD |
| 22 | Use of social network semantics to aid content distribution | DST/ Indo-Australia Strategic Research Fund | 3,000,000 | 2010-2013 | PI: Aaditeshwar Seth (CSE)<br><br>CI: Vinay Ribeiro (CSE)<br><br>CI: Huzur Saran (CSE) |  | Social Networks |
| 23 | Evaluation of development of neurosurgery skills by hands - on skills training and interactive virtual training modules (web based, tele-education and real time simulation) | ICMR | 14,992,375 | 01-03-2012 to<br><br>28-02-2015) | Prof. Sanjiva Prasad (PI)<br><br>Prof. Subhashis Banerjee<br><br>Prof. Prem K. Kalra<br><br>Prof. Kolin Paul | Prof. Ashish Suri (Neurosurgery) (PI)<br><br>*Co-Investigators:*<br><br>Prof. A K Mahapatra (Neurosurgery)<br><br>Prof. S Wadhwa (Anatomy) | Neurosurgery |

| | | | | | | Prof. Subodh Kumar | Prof. Tara Sankar Roy (Anatomy)<br><br>Dr. Renu Dhinghra (Anatomy)<br><br>Dr Sanjeev Lalwani (Forensic Medicine)<br><br>Prof. D N Bhardwaj (Forensic Medicine) | |
|---|---|---|---|---|---|---|---|---|
| 24 | Expansion of DST + DBT Sponsored Neurosurgery Skills Training Facility and Development of Stereoscopic (3 Dimensional - 3D) Virtual Training Modules for Neurosurgery Skills Training | Department of Health and Research, (DHR) | 14,836,799 | 31-03-2012 to<br><br>30-09-2013 | PI: Sanjiva Prasad (CSE)<br><br>CI: Subhashis Banerjee (CSE) &<br><br>Prem K. Kalra (CSE) &<br><br>Subodh Kumar (CSE) &<br><br>Kolin Paul (CSE) | PI: Prof. Ashish Suri (AIIMS Neurosurgery) (PI)<br><br>*Co-Investigators:*<br><br>Prof. A K Mahapatra (Neurosurgery)<br><br>Prof. S Wadhwa (Anatomy)<br><br>Prof. Tara Sankar Roy (Anatomy)<br><br>Dr. Renu Dhinghra (Anatomy)<br><br>Dr Sanjeev Lalwani (Forensic Medicine)<br><br>Prof. D N Bhardwaj (Forensic Medicine) | Neurosurgery |
| 25 | FIST sponsored Expansion of Neurosurgery Skills Training Facility and Development of E-Learning Platform | Department of Science and Technology | 65,000,000 | 2013-2018 | PI: Sanjiva Prasad (CSE)<br><br>CI: Subhashis Banerjee | Prof. Ashish Suri (AIIMS Neurosurgery) (PI)<br><br>Prof BS Sharma (Neurosurgery | Neurosurgery |

| | | | | | (CSE) & | | |
|---|---|---|---|---|---|---|---|
| | | | | | Prem K. Kalra (CSE) & | | |
| | | | | | Subodh Kumar (CSE) & | | |
| | | | | | Kolin Paul (CSE) | | |
| 26 | Collaborative Indo-German Program for Development of Procedure based Microscopic and Endoscopic Modules and Interactive E-learning Platform for Advanced Neurosurgery Skills Training Curriculum. | ICMR | 14,945,070 | 2 Years<br><br>(Project sanctioned) | PPI: Sanjiva Prasad (CSE)<br><br>CI: Subhashis Banerjee (CSE) &<br><br>Prem K. Kalra (CSE) &<br><br>Subodh Kumar (CSE) &<br><br>Kolin Paul (CSE) | Prof. Ashish Suri (AIIMS Neurosurgery) (PI)<br><br>Prof BS Sharma (Neurosurgery)<br><br>Prof. Tara Sankar Roy (Anatomy)<br><br>Dr. Renu Dhinghra (Anatomy)<br><br>Dr Sanjeev Lalwani (Forensic Medicine)<br><br>Prof. D N Bhardwaj (Forensic Medicine)<br><br>Prof. Sunil K Gupta (Neurosurgery-PGIMER, Chandigarh)<br><br>Prof. Manoj K Tiwari (Neurosurgery-PGIMER, Chandigarh)<br><br>Prof. Sanjay Behari (SGPGI, Lucknow)<br><br>Prof. S. Sampath (NIMHANS, Bengaluru)<br><br>Prof. V Rajshekher (CMC, Vellore) | |

| | | | | | | Prof. Ari G Chacko (CMC, Vellore) | |
| | | | | | | Prof. Suresh Nair (SCTIMST, Trivandrum) | |
| | | | | | | Prof. Atul Goel (KEM, Mumbai) | |
| | | | | | | *German Side* | |
| | | | | | | Prof Martin Bettag (Neurosurgery) (PI) | |
| | | | | | | Prof. Jörg Lohscheller (CoPI, Bioinformatics, University of Applied Sciences, Trier, Germany) | |
| 27 | Development of 3D/stereoscopy based virtual reality simulation platform for endoscopic neurosurgery training and pre-operative neurosurgical planning. | ICMR | 21,124,463 | 3 Years (Project sanctioned) | PI: Subhashis Banerjee (CSE) CI: Sanjiva Prasad (CSE) & Prem K. Kalra (CSE) & Kolin Paul (CSE) & Subodh Kumar (CSE) | Prof. Ashish Suri (AIIMS Neurosurgery) (PI) *Co-Investigators:* Prof. Tara Sankar Roy (Anatomy) Dr. Renu Dhinghra (Anatomy) Dr Sanjeev Lalwani (Forensic Medicine) Dr. D N Bhardwaj (Forensic Medicine) Prof. N.R.Jagannathan (NMR) Dr. Virendra Kumar (NMR) Dr. Ajay Garg (Neuro-radiology) | Neurosurgery |

| | | | | | | Dr. S.Leve Joseph Devarajan (Neuro-radiology) | |
|---|---|---|---|---|---|---|---|
| 28 | Development of Open Source Screen reading Software (NVDA) | CIS Bangalore | 1,000,000 | 26/2/2013-25/2/2015 | PI: M. Balakrishnan (CSE)  CI: Saroj Kaushik (CSE) | | Assistive Technology |

**Appendix G**

**Amar Nath and Shashi Khosla School of Information Technology**

## List of Visitors

1. Dr. Kanav Kahol, Assistant Professor, Arizona State University USA
   (July 2009)

2. Prof. Subhash Bhalla, Professor, University of Aizu, Japan
   (July 2009)

3. Prof. Krishnaiyan Thulasiraman, Professor and Hitachi Chair in Computer Science, University of Oklahoma, USA
   (11-17 Dec 2009)

4. Prof. K. V. S. Hari, Department of ECE, IISc Bangalore
   (29-30 Nov 2009)

5. Dr Brayan Alexander Ford, Assistant Professor,  Department of Computer Science, Yale University, CT, USA
   (6-26 Aug 2010)

6. Dr Simon Kramer, Institute of Mathematical Sciences, (IMSc) Chennai
   (18-24 March 2011)

7. Dr. S. R. M. Prasanna, Professor, IIT Guwahati
   (10-11 October 2012)

8. Prof. Ravi Jain, Professor of the School of Engineering and Computer Science, University of Pacific, Stockton, California State University

9. Prof. Devdatt Dubhashi, University of Goteborg, Sweden
   (11-12 May 2013)

10. Nadeem Akhtar, EWIT, IIT Madras
    (4-5 August 2013)

11. Aarathi Prasad, Dartmouth College, Hanover, NH, USA
    (August 2013)

12. Prof. Kaleem Siddiqi, Department of Computer Science, McGill University, Montreal CA
    (August 2013)


13. Prof. Madhavan Mukund, Chennai Mathematical Institute
    (23-24 October 2013)


14. Prof. Mathai Joseph, ex-TCS, Pune.
    (5 Dec 2013)


15. Prof. David Kotz, Dean & Champion Professor, Dartmouth College, Hanover NH, USA
    (6 Jan 2014)


16. Prof. Ian Munro, University of Waterloo, Canada
    (5-6 Feb 2014)

**Appendix H**

**Amar Nath and Shashi Khosla School of Information Technology**

**<u>Research Scholar Conference Travel Supported by SIT</u>**

1. Ms. Aditi Kapoor (2009ANZ8577)
ICVGIP 2010
IIT Madras
12-15 December 2010

2. Ms. Shalini Bhaskar (2008ANZ8412)
8$^{th}$ International Conference on Fuzzy Systems and Knowledge Discovery (FSKD 2011)
China
26-28 July 2011

3. Mr. Saurabh Gupta (2009SIY7554)
7$^{th}$ IEEE International Conference on Innovation in IT
Abu Dhabi
24-29 April 2011

4. Mr. Chakresh Sahu (2008SIY7518)
2011 International SWAT Conference & Workshops
Toledo, Spain, 2011

5. Ms. Nidhi Arora (2011ANZ8287)
WSCG2012 International Conference on Computer Graphics, Visualization & Computer Vision
Plzen, Czech Republic
25-28 June 2012

6. Ms. Aruna Kumari (2011ANZ8221)
Second IEEE International Conference on Parallel, Distributed and Grid Computing (PDGC-2012)
Jaypee University of Information Technology, Waknaghat, Solan, Himachal Pradesh

7. Ms. Pratibha Jagnere (2011SIY7527)
Second IEEE International Conference on Parallel, Distributed and Grid Computing (PDGC-2012)
Jaypee University of Information Technology, Waknaghat, Solan, Himachal Pradesh

8. Ms. Aditi Kapoor (2009ANZ8577)
ICVGIP2012
16-19 December 2012

9. Mr. B. Sharat Chandra Varma (2008ANZ8224)
IEEE International Symposium on Field-Programmeable Custom Computing Machines
Seattle, Washington
28-30 April 2013

10. Ms. Nivedita Yadav (2008ANZ8413)
International Conference on document analysis and recognition (ICDAR 2013)
Washington, DC
25-28 August 2013

11. Ms. Jaspreet Bhatia (2011SIY7528)
RePa Workshop
Brazil

12. Ms. Gayathri Ananthanarayanan
19<sup>th</sup> Asia and South Pacific Design Automation Conference (ASP-DAC) 2014
Cape Town, South Africa
7-10 December 2013

13. Mr. Dipanjan Chakraborty (2010ANZ7538)
6<sup>th</sup> International Conference on Information and Communication Technology and Development (ICTD2013)
Cape Town, South Africa
7-10 December 2013

14. Ms. Aditi Kapoor (2009ANZ8577)
NCVPRIPG 2013
Jodhpur
19-21 December 2013

15. Ms. Namita Sharma (2010ANZ8165)
19<sup>th</sup> Asia and South Pacific Design Automation Conference (ASP-DAC 2014)
Singapore
20-23 January 2014

9. Mr. B. Sharat Chandra Varma (2008ANZ8224)
IEEE International Symposium on Field-Programmeable Custom Computing Machines
Seattle, Washington
28-30 April 2013

10. Ms. Nivedita Yadav (2008ANZ8413)
International Conference on document analysis and recognition (ICDAR 2013)
Washington, DC
25-28 August 2013

11. Ms. Jaspreet Bhatia (2011SIY7528)
RePa Workshop
Brazil

12. Ms. Gayathri Ananthanarayanan
19th Asia and South Pacific Design Automation Conference (ASP-DAC) 2014
Cape Town, South Africa
7-10 December 2013

13. Mr. Dipanjan Chakraborty (2010ANZ7538)
6th International Conference on Information and Communication Technology and Development (ICTD2013)
Cape Town, South Africa
7-10 December 2013

14. Ms. Aditi Kapoor (2009ANZ8577)
NCVPRIPG 2013
Jodhpur
19-21 December 2013

15. Ms. Namita Sharma (2010ANZ8165)
19th Asia and South Pacific Design Automation Conference (ASP-DAC 2014)
Singapore
20-23 January 2014

**Appendix I**

**Amar Nath and Shashi Khosla School of Information Technology**

**Workshops and Summer Schools**

1. Indo-US Workshops on Pervasive Communications and Computing
   Collaboration (PC3)
   March 9-11, 2011
   Sponsors: School of IT,  CSE Department,  Department of Information
   Technology, GoI, NSF

2. India-France Workshop in ICST "BIG DATA & CYBER-PHYSICAL SYSTEMS"
   April 4-5, 2013
   Sponsors: School of IT,  IFCPAR (DST, DIT)

3. Resonance India Program 2013
   June 24-July 6, 2013
   Sponsors:  School of IT, MIT,  Harvard University, +AIIMS

4. Formal Methods Update Meeting
   July 27-28 2013.
   Sponsors:  School of IT, Department of CSE, IARCS.

5. Indo-Dutch Workshop on Pervasive Communication and Computing
   Collaboration
   March 19-20, 2014
   Sponsors: School of IT, CSE Department, DIT (GoI), NWO