

# ACM India's Activity Report (2012–2013)

## Abstract

Here is a brief report of the major activities undertaken by ACM India in the past one year—that is roughly from June 2012 until June 2013. To put things into perspective, certain sections contain data about activities since ACM India's formation in 2009.

## 1 ACM India Annual Event

Conducted highly successful ACM India Event in Chennai from January 23–January 25, 2013. Spread over three days, the event consisted of

- Research Scholar Event on January 23, 2013,
- ACM-W Event on January 24, 2013, and the
- ACM India Annual Event on January 25, 2013.

### ACM India Annual Event

- This event was inaugurated by
  - P J Narayanan, IIIT Hyderabad, President, ACM India
  - John White, CEO, ACM
  - Vinton G Cerf, Google, President, ACM
- Then the ACM India Doctoral Dissertation Award was presented to



- Awardee: Ruta Mehta, IIT, Bombay  
Thesis Title: Nash Equilibrium Computation in Various Games
- Honourable Mention: Srikanth Srinivasan, IMSc, Chennai  
Thesis Title: New Directions in Arithmetic and Boolean Circuit Complexity

The Session was conducted by Narendra Ahuja, University of Illinois at Urbana-Champaign, Supratik Chakraborty, IIT Bombay and Gautam Shroff, TCS.

- This was followed by a series of Keynote lectures by



- Vinton G Cerf, Google, President ACM (Turing Award 2004)
- Manindra Agrawal, IIT Kanpur



- Joseph Sifakis, Verimag, France (Turing Award 2007)
- Sriram Rajamani, Microsoft Research, Bangalore

**The ACM-W Event** The ACM-W event has been conceived as a one-stop event that provides an opportunity for young students and professionals to listen to, interact with, and be motivated by leading women professionals across the world. This event consisted of stimulating lectures on technical topics from the experts in the field, and a very engaging panel discussion on the success of women in IT in India.

- Inaugural session



- Inaugural address by Wendy Hall, University of Southampton, UK
- Special address by Reyyan Ayfer, Bilkent University, Ankara, Turkey

- This was followed by a Keynote address and Invited technical lecture by



- Sophie Vandebroek, CTO, Xerox
- Krithika Venkataramani, IIT Kanpur

- And a Panel Discussion on “The phenomenal success of women in IT in India—Keep the graph growing!”. The Panelists were

- Anupama S Ambe, IBM
- Meenakshi D’Souza, IIIT Bangalore
- Akila Krishnakumar, Sungard
- Rashmi Mohan, Yahoo
- Gayathri Parthasarathy, Accenture
- Saundarya Rajesh, AVTAR Career Creators



**The Research Scholar Event** The Research Scholar Event showcased a cross-section of topics in which research is being actively pursued within India. We invited four leading researchers to deliver tutorial presentations on their work.

- Ramesh Hariharan  
Topic: Reading Genomes
- Soumen Chakrabarti  
Topic: Annotating, indexing and searching the Web of entities and relationships
- Sorav Bansal  
Topic: An Overview of Systems Research at IIT Delhi
- Amitabha Mukerjee  
Topic: Learning

## 2 The ACM India Doctoral Dissertation Award

The ACM India Doctoral Dissertation Award was established in 2011 by ACM India with approval from the ACM Awards Committee. The award recognizes the best doctoral dissertation(s) in Computer Science and Engineering from a degree-awarding institution based in India for each academic year. The award consists of a plaque and a cash award of Rs. 2,00,000.

The nomination procedure for the ACM India Doctoral Dissertation Award is identical to that of the (worldwide) ACM Doctoral Dissertation Award, and requires a nomination letter by the dissertation adviser, an endorsement letter from the head of the nominating department and optional supporting letters from individuals familiar with the nominee's work. Normally, dissertations defended in the previous academic year are considered eligible for nomination in a particular year. However, since 2012 was the first year of administration of the award, dissertations successfully defended between August 1, 2010 and July 31, 2012 were considered eligible for nominations.

The call for nominations went out to more than 40 Indian institutions awarding Ph.D. degrees in Computer Science and related disciplines. The call for nominations was also announced on ACM India's webpage. A total of 16 nominations were received from 14 institutions by the nomination deadline of September 30, 2012.

A jury panel consisting of 10 distinguished computer scientists was constituted under the con-venership of Prof. Narendra Ahuja to review and evaluate the nominations. The jury consisted of the following computer scientists, and represented a broad spectrum of research areas in Computer Science and related disciplines.

- Narendra Ahuja (University of Illinois at Urbana-Champaign)
- Prabhakar Raghavan (Google Research)
- Anuj Dawar (Cambridge University)
- Ravi Kannan (Microsoft Research India)
- Neeraj Jha (Princeton University)
- Shivkumar Kalyanaraman (IBM Research)
- S. Muthukrishnan (Rutgers/Microsoft Research)
- Viktor Prasanna (University of Southern California)
- Sriram Rajamani (Microsoft Research India)
- Mathai Joseph (Tata Consultancy Services)

Jury members reviewed the nominated dissertations themselves and also sought reviews from external experts. The review process spanned two and a half months and resulted in detailed expert reviews (some exceeding 10 pages) for all nominations. In fact, most nominations received more than one review in this rigorous process. Based on the reviews and scores, 3 nominations were unanimously shortlisted from the 16 that were received. Subsequently, email and phone discussions between the jury members narrowed it down to two closely competing, top quality nominations. Eventually the jury concluded that both the nominations were of extremely high quality, and deserved to be recognized.

The ACM India Doctoral Dissertation Awards were announced on January 15, 2013. Ruta Mehta was awarded the ACM India Doctoral Dissertation Award for 2013 for her dissertation titled *Computing Nash Equilibria in Various Games*. Dr. Mehta's research leading to her dissertation was done at IIT Bombay. A close second, Srikanth Srinivasan was awarded the ACM India Honourable Mention Dissertation Award for 2013 for his dissertation titled *New Directions in Arithmetic and Boolean Circuit Complexity*. Dr. Srinivasan's work leading to the award was done at Institute of Mathematical Sciences, Chennai.

The ACM India Doctoral Dissertation Awards were formally given at the ACM India Annual event on January 25, 2013. Tata Consultancy Services (TCS) generously sponsored the awards. The awards were handed over to the awardees by ACM President Vint Cerf and TCS Chief Technology Officer Gautam Shroff.

### 3 ACM-W Events

In addition to the ACM-W event conducted during the ACM Annual event, the ACM-W also conducted / co-sponsored several other events.

**ACM-W student chapter launch at Cummins College of Engineering for Women, Pune**  
 ACM-W student chapter launch at Cummins College of Engineering for Women, Pune was held on 6th October 2012. ACM-W student chapter was launched the same day. Ms. Jaya Panwalkar, Director nVIDIA Pune delivered the keynote address. Dr. Manish of Infosys spoke on careers in research and higher education.



**Co-sponsored Grace Hopper India conference** ACM India Co-sponsored the Grace Hopper Celebration India held in Bangalore from December 12 to December 14, 2012. This was the third GHC in India, held long with the Anita Borg Institute.



Sheila Anand and P J Narayanan were speakers in the inaugural function.

Mangala Gowri Nanda was a speaker in the session “Student to Corporate: What Can You Do Beyond Just the Coursework” where she spoke about the advantages of being an ACM member. She also coordinated a session “Alan Turing: The Man Who Asked Whether Machines Think” where she presented a retrospective on the Turing Centenary celebrations held in San Francisco. Deepak D’ Souza, IIS, Bangalore was the other presenter.



The number of participants at the GHC was 850 in person plus 513 virtual participants. The number of students who attended the conference was 245. The number of speakers at the conference was 155.



ACM had a stall at the conference which had many visitors. Printed pamphlets about ACM and its activities given as handouts to the visitors along with a complimentary ACM pen.

One year free membership to ACM was provided for the registered participants. ACM India sponsored 10 faculty members for the conference. Financial support covered registration, stay at Bangalore and travel.

### **The Second International Conference of Women in Computing, Amrita University**

The Second International Conference of Women in Computing was held in January 9-11, 2013 at Amrita University Coimbatore. The conference was organized by Department of Computer Science and Engineering and the Conference Theme: Emerging Trends in Computing.



ACM-W India was one of the chief financial sponsors of the conference. It was a three day event; day 1 for researchers and faculty, day 2 for college students and day 3 for school children. The conference was well attended.

## **4 Regional celebration events**

Regional celebration events were held in Coimbatore, Pune, Vishakhapatnam, New Delhi, Kanpur, Bangalore and many other places. Here is a short review of some of the events.

**ACM Delhi NCR Chapter celebrates Turing Centenary Year on Saturday September 29th, 2012** The program consisted of three talks:

- Prof. S.N. Maheshwari: Understanding Alan Turing and his Scientific Legacy.

- Dr. Gautam Shroff: The MOOC Experience: A First-Hand Account.
- Mr. Rajul Garg: Problem based learning pedagogy delivered socially.

**Alan Turing Centenary Year Celebrations, CSE. IIT Kanpur, Oct 9–10, 2012** As a part of Alan Turing’s Centenary Year Celebrations, the Department of Computer Science and Engineering organized a two day event during October 9-10, 2012. During these two days the department hosted several eminent researchers who delivered keynote lectures on various topics as indicated below:

- Physarum computations—by Prof. Kurt Mehlhorn, Director, Max Planck Institut fr Informatik.
- Modelling the human brain: An unorganized machine—by Prof. T V Gopal, Anna University, Chennai
- Disrupting the classical VPN—by Mr. Indus Khaitan, Co-founder, VP (India), Bitzer Mobile.
- The ACM Turing Centenary Celebrations: a retrospective—by Dr. Mangala Gowri, IBM IRL, New Delhi
- Film Screening : ‘Codebreakers’, Director: Clare Beavan (sponsor: Google Inc.)
- Hilbert’s Entscheidungsproblem the 10th problem and Turing machines—by Prof. Nitin Saxena, Bonn Univ.
- Social media analytics—by Dr. Lipika Dey, Innovation labs, TCS Delhi
- Saluting the Indian IT pioneers—by Ed Nair, Editor, Dataquest, Cybermedia Ltd.
- Turing award winners : an audio visual presentation created by IISc students
- Student presentations from the department

**ALAN TURING Centenary Events, IISc Bangalore, October 6-7, 2012** Organized By Department of Computer Science and Automation, IISc, Supercomputer Education and Research Centre, IISc and Computer Society of India. The program consisted of talks, panel discussions, a quiz, movie screenings and student presentations as detailed below:

- The P <> NP Hypothesis—by Prof. Manindra Agrawal (Indian Institute of Technology, Kanpur)
- Turing, Biological Pattern Formation, and the Molecular Computer—by Dr. Ramesh Hariharan
- Indias Tryst with the Supercomputer—by Mr. Anand Parthasarathy, Online India Tech Pvt Ltd
- Audio Visual Presentation of Turing Award Winners
- The Turing Legacy—by Turing Laureate Prof. Raj Reddy (Carnegie Mellon University, USA)
- Screening of the movie, CODEBREAKER
- Saluting the Indian IT Pioneers—by Mr. Ibrahim Ahmad, Cybermedia
- Physarum computations—by Prof. Kurt Mehlhorn, Director, Max Planck Institut fr Informatik.
- Panel Session on “Computer Science Education in India”
  - Moderator: Dr. Swami Manohar LimberLink Technologies Pvt. Ltd. Bangalore
  - Panelists: Professor Manindra Agarwal IIT, Kanpur, Dr. Rajaram S. Sharma NCERT, New Delhi, Prof. K. Rajanikanth, VTU and Dr. M. P. Ravindra, Formerly Infosys Technologies.
- Turing Quiz
- Disrupting the Classical VPN—by Mr. Indus Khaitan, Bitzermobile
- P3 - A Privacy Preserving Personalization Platform—by Dr. Animesh Nandi, Bell Labs Research India
- Hilbert’s Entscheidungsproblem the 10th problem and Turing machines—by Prof. Nitin Saxena, Bonn Univ.
- Social media analytics—by Dr. Lipika Dey, Innovation labs, TCS Delhi
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## 5 The ACM Turing Centenary Event in California

Travel grants were given to two post-graduate students to attend the Turing centenary event featuring 30 Turing Award winners held in San Francisco in June 2013:

- Abhishek Sankaran of IIT, Bombay and
- Nitin Saurabh of IMSc, Chennai

Mathai Joseph, Anand Deshpande, Mangala Gowri Nanda, and P J Narayanan also attended the momentous event.

## 6 Faculty Summit for Research

A Faculty Summit for Research was conducted jointly by ACM India and Microsoft Research at New Delhi in February 2013. It was attended by about 70 faculty members and researchers from about 40 institutions in the country. The summit focused on the issue of scaling the PhD numbers in the country with an ambitious goal of raising the intake to 1000 in 5 years. A comprehensive list of recommendations of the summit are now available and was submitted to the Honorable Minister for Human Resources Development, Shri Pallam Raju, on May 1st, 2013.



## 7 The Education Committee of ACM India

Mathai Joseph is the Chair of the ACM India Education Committee. An Education Committee of ACM India was formed with the following members:

- Purandar Bhaduri IIT Guwahati
- Mathai Joseph TCS Pune
- Sanjeev Khadilkar
- Uday Khedker IIT Bombay
- Kavi Mahesh PES Institute Bangalore
- Madhavan Mukund Chennai Mathematical Institute

- Hema A Murthy IIT Madras
- Maneesha Shankar Amrita U
- Dheeraj Sanghi IIT Kanpu
- Vipul Shah TRDDC Pune
- Gautam Shroff TCS Delhi
- R Venkatesh TRDDC Pune

The ACM Education Committee met formally on 24 January at the time of the ACM India event in Chennai. Over the period since the Education Committee was formed (in October 2012) there have been a number of e-mail exchanges with members and the work of the committee has evolved. The focus of the discussions has been in three directions:

**1. Teaching CS in Schools** The Committees first aim is to better understand the way in which computing is taught in different kinds of schools: private schools, schools with wider access and municipal schools. The main stakeholders here are of course the students themselves but the nature of the education is often influenced substantially by parents and their feelings about preparing their children for further education and the job market.

A meeting of school heads is planned in Pune for early July 2013 (a preferred time for schools) at which their ideas for computing education will be discussed. A few leading educators have also been invited so that there can be a wide-ranging discussion covering schools in several area ( particularly the NCR where schools are strongly influenced by government bodies). Further action would be decided at the meeting but is likely to include giving talks at schools, teaching short courses to school teachers and linking schools together in a network to allow them to exchange ideas and best practices.

**2. Workshops for College Teachers** ACM India organized its first workshop in collaboration with the Indian Association for Research in Computer Science on training college teachers with a workshop held from 16-20 May in Hyderabad under the auspices of the ACM India Hyderabad chapter. The local organizer was Mohammed Asif with advice and support from PJ Narayanan (ACM India President) and R. Lokanathan (Chair ACM Hyderabad chapter). The lecturers were

- Prof. N.S. Narayanaswamy– Associate Professor, CSE department, IIT Madras.
- Prof. Sounaka Mishra– Assistant Professor, Maths department, IIT Madras.
- Dr. Saket Saurabh– Faculty at IMS, Chennai and professor at University of Bergen, Norway.
- R. Krithika – IIT Madras
- Syed Mohammad Meesum – IMSc

There were 21 participants in the workshop and their feedback at the end of the workshop was as follows:

- The workshop was useful and the course content was relevant to the requirement.
- Further workshops are suggested in Automata Theory, RDBMS and compilers.
- Some suggestions for better logistics like an airconditioned class room, better food arrangements.

**FUTURE WORKSHOPS** Similar workshops are being planned for Trivandrum (early September), Pune (late October) and Hyderabad (December). Each workshop needs careful planning (and persuasion!) and selection of suitable faculty. In addition, the local organizers need to know what

to prepare in terms of lecture rooms, computing equipment, accommodation, meals, transport etc. Organizing the workshops will get easier as more people in a location understand the requirements.

**3. Online Courses** A lot of work has gone into working with major platform providers like Coursera and Google to provide facilities for people in India to offer courses to their own students and those of a few other institutions. Based on the response, the courses could then be made available to a wider audience. The NPTEL leaders are now planning base the new versions of their courses on such platforms.

There is also need to develop more basic ‘feeder’ courses that will equip students with the knowledge that will help them to benefit more effectively from the higher level courses available from other sources. An important initiative has come from Microsoft Research Bangalore which has created online material to support their work with colleges of the Visveswaraya Technological University on improving the teaching of in algorithms.

ACM India has played a role in making some of this happen (especially the NPTEL links with Coursera and Google) and will continue to work with such organizations to help take online courses into widespread use In India.

There are plans to create an ACM India SIG on Education which will cover these and other activities relating to computing education.

## 8 ACM Membership

ACM has seen great growth in professional and student members, professional and student chapters, and in SIGs over the past 3 years. The membership numbers by the year are given below:

Membership Numbers	May 2011	May 2012	May 2013
Professional	2652	2270	2843
Student	1790	2185	3637
Total	4442	4455	6480
No. of Professional Chapters			11
No. of Student Chapters			73
No. of SIG Chapters			4
No. of ACM-W Chapters			4

Today, there are 11 ACM Professional chapters, 73 student chapters, 4 SIG chapters, and 4 ACM-W Chapters in ACM India today, starting with a single Professional chapter in 2009 when ACM India was started. The numbers are also growing steadily.

Among the SIGS, the two active SIGS are iSOFT (SIGSOFT India) and the newly launched iKDD (SIGKDD India).

## 9 Conference Sponsorship

Several high quality conferences were conducted or are planned to be conducted with ACM sponsorship or cooperation, in addition to various ACM Chapter sponsored conferences.

- ISEC 13 (India Software Engineering Conference)
- ICDCN 13 (International Conference on Distributed Computing and Networking)
- AICWiC 13 (Amrita International Conference of Women in Computing)
- IITM 13 (International Conference on Intelligent Interactive Technologies and Multimedia)
- ACAI 13 (International Conference on Advances in Computing & Artificial Intelligence)
- AIR 13 (Advances in Robotics)
- FIRE 13 (Forum for Information Retrieval Evaluation)
- HiPC 13 (International Conference on High Performance Computing)
- APCHI 13 (Asia Pacific Conference on Computer Human Interaction)
- COMSNETS 14 (International Conference on Communication Systems & Networks)

### Previous years:

- 2012:
  - COMSNETS 12: Fourth International Conference on COMMunication Systems and NETworkS
  - Compute 12: INTELLIGENT & SCALABLE SYSTEM TECHNOLOGIES
  - ISEC 12: India Software Engineering Conference 2012
  - India HCI 12: 4th International Conference on Human Computer Interaction
  - IC312 : Fifth International Conference on Contemporary Computing
  - SecurIT2012: International Conference on Security of Internet of Things
  - IWIPS 12: The International Workshop on Internationalisation of Products and Systems
  - SIN 12: 5th International Conference of Security of Information and Networks
  - HiPC 12: The 18th annual IEEE International Conference on High Performance Computing
- 2011:
  - COMSNETS 11: The Third International Conference on Communication Systems and Networks
  - ISEC 11: Indian Software Engineering Conference
  - Compute11: ACM Bangalore Chapter 4th Annual Conference
  - W4A 11: International Cross-Disciplinary Conference on Web Accessibility
  - WWW 11: 20th International World Wide Web Conference
  - India HCI 11 : 3rd International Conference on Human Computer Interaction
  - ACC2011- International Conference on Advances in Computing and Communications
  - ACWR 11: International Conference on Wireless Technologies for Humanitarian Relief
  - HiPC 11: The 18th annual IEEE International Conference on High Performance Computing

## 10 Distinguished Speakers Program (DSP)

There have been more than 40 DSP lectures approved within India. We list below some of the most recent ones. It is heartening to see that many of the lecture requests are for local Indians. We are now planning to start an “Eminent Speaker Program” which will cater to the Indian community.

- Speaker: Dr Mukesh Mohania, IBM India Research Laboratory
  - Event: Compufest 2k13, Yeshwantrao Chavan College of Engineering
  - Title: New Trends in Data Integration, Analytics, and BI

- Date: 15-Mar-2013–16-Mar-2013
- Speaker: Dr Tracy Camp, Colorado School of Mines
  - Event: National Conference on Communications, Swades De jswadesd@ee.iitd.ac.in;
  - Title: Implementing a Wireless Geophysical Sensor Network
  - Date: 17-Feb-2013–18-Feb-2013
- Speaker: Dr Margaret Burnett, Oregon State University
  - Event: Pune Celebrations of Women in Computing, ACM-W India and ACM Pune Chapter
  - Title: Males and Females Developing Software: Are Programming Tools Getting in the Way?
  - Date: 06-Apr-2013–06-Apr-2013
- Speaker: Dr Rudrapatna Shyamasundar, Tata Institute of Fundamental Research
  - Event: Ensuring Computer and Information Security, Hindustan Institute of Technology and science
  - Title: Ensuring Computer and Information Security : Challenge
  - Date: 15-Mar-2013–15-Mar-2013
- Speaker: Dr Ashish Verma, IBM India Research Laboratory
  - Event: PSG-ACM Conference on Intelligent Computing, PSG College of technology
  - Title: WAV (Web Access through Voice): A system to extract information residing on Worldwide Web through Phone
  - Date: 26-Apr-2013–27-Apr-2013
- Speaker: Dr Rudrapatna Shyamasundar, Tata Institute of Fundamental Research
  - Event: ACM-NITJSR, ACM NIT Jamshedpur
  - Title: Multicore and Extreme Scale Computing: Programming and Software Challenges
  - Date: 09-Apr-2013–09-Apr-2013
- Speaker: Dr Sanjay Kumar Madria, Missouri University of Science and Technology
  - Event: Distinguished Speakers Program, Bipin Tripathi Kumaon Institute of Technology
  - Title: A Secure Data Sharing and Query Processing Framework via Federation of Cloud Computing
  - Date: 05-Aug-2013–05-Aug-2013
- Speaker: Dr Rakesh Verma, University of Houston
  - Event: Distinguished Speakers Program, Bipin Tripathi Kumaon Institute of Technology
  - Title: Wireless Sensor Networks: Security, Protocols and Countermeasures
  - Date: 24-Aug-2013–25-Aug-2013

## 11 Conclusions

ACM India is now well set to play a significant role in all aspects of computing in the country: academia, research, and profession.