ACM India Annual Report (2013-2014)

Abstract:

ACM India flagship Annual event, The ACM India Doctoral Dissertation Award, ACM-W activities to promote Women in Computing, Education Board Activities, Significant growth in membership, Several high quality conferences, Yearly Research Conference Compute, Chapter Summit, ACM Survey on PhD Production in Computer Science in India and Elections for ACM India Council were highlights of the year 2013-14.

ACM India Annual Event

This year once again, ACM India conducted a highly successful ACM India Event in New Delhi from Friday, February 14 to Sunday February 16; 2014.Spread over three days, the event consisted of

- ACM-W Event on Friday, February 14, 2014
- ACM India Annual Event on Saturday, February 15, 2014
- Research Scholar Event on Sunday, February 16, 2014

ACM India Annual Event

This event started off with a welcome by ACM India President, P J Narayanan. Followed by a short report by the ACM CEO, John White. The inauguration concluded with the ACM Presidential address delivered by Vinton G. Cerf.

Next Supratik Chakraborty, presented the ACM India doctoral dissertation which was given to Ramprasad Saptharishi by Vint Cerf and the Best student chapter awards were announced by Srinivas Padmanbhuni. The awards were given out by Vint Cerf. Awardees were BITS Pilani Pilani campus ACM Student Chapter and IIIT Bhubhaneshwar ACM Student Chapter.
The second session consisted of a keynote talk titled “The Cryptographic Lens” by Shafi Goldwasser, a Turing award nominee and an invited talk titled “Myths about MOOCs and Software Engineering Education” by Dave Patterson a Professor at Berkeley and a former ACM President.
The third session consisted of an invited lecture titled “Recent Technical Advances in IBM's Jeopardy! winning IBM Watson System” by Ramesh Gopinath, Director of IBM Research India and a keynote talk titled “Myths, Missteps, and Mysteries in Network Protocols” by Radia Perlman of Intel.

The fourth and the final session consisted of a Panel discussion on “Promoting Computer Science Research in India: Enhancing Quality and Quantity” moderated by Pankaj Jalote, Director IIIT Delhi and concluded with an interactive quiz conducted by Amit Nanavati and Nitendra Rajput, IBM Research. Finally closing remarks were presented by Ponnurangan Kumaraguru of IIIT Delhi.

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 saw a conglomeration of experts speaking on a range of

technical topics. These talks were complemented by sessions designed to discuss and debate on contemporary, socially relevant themes like women in leadership roles and sexual harassment at workplace. There was also a special round-table organized for mentoring students who are the future professionals. All students and professionals who participated in the conference took back an enriching experience.

The program for the event consisted of the following items:

The Research Scholar Event:

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

The target audience was essentially fresh PhD. students in the initial stages of their own research. For those who had not yet fixed an area to work in, this was an excellent opportunity to look for good research problems to work on. For those who had already chosen a topic, these lectures provided a broad exposure to a variety of areas that could help reveal useful connections and trigger new insights in their own areas of specialization.

The program consisted of a plenary talk by Vint Cerf titled “Two Big Problems: Bit Rot and the Insecurity of the Internet of Things”, followed by a series of student talks.

The post lunch session consisted of a poster session followed by two more talks by P. Anandan (Managing Director, Microsoft Research India) on "Research as a Career" and by Manish Gupta (Director, Xerox Research Center India) titled "Great Time to be a Computer Scientist: Opportunities for Societal Impact"

The ACM India Doctoral Dissertation Award 2013

The ACM India Doctoral Dissertation Award was established in 2011 to recognize 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 INR 2,00,000. The call for nominations for the 2013 award was sent to around 100 Indian institutions awarding Ph.D. degrees in Computer Science and related disciplines and was also announced on ACM India's webpage. A total of 9 nominations were received. A jury panel consisting of 9 distinguished computer scientists from around the world was constituted under the Chairmanship of Prof. Narendra Ahuja (University of Illinois at Urbana-Champaign, USA),
to review and evaluate the nominations. Jury members reviewed the nominated dissertations and also sought reviews from external experts. The review process lasted four and a half months. After extensive electronic discussions, the jury unanimously selected Dr. Ramprasad Saptharishi's dissertation titled “Unified Approaches to Polynomial Identity Testing and
Lower Bounds" for the ACM India Doctoral Dissertation Award, 2013. Dr. Ramprasad Saptharishi completed his Ph.D. from Chennai Mathematical Institute (CMI) under the guidance of Prof.

Manindra Agrawal. The ACM India Doctoral Dissertation Award for 2013 was presented to Dr. Ramprasad Saptharishi at the ACM India Annual Event on February 15, 2014 at IIT Delhi. Tata Consultancy Services (TCS) generously sponsored the award. The award was handed over to Ramprasad by ACM President Vint Cerf, ACM India President P J Narayanan, and TCS representative Vijayshekhar Chellaboina.

ACM-W India

Talks by Women IT Professionals

A series of talks is being organized by ACM-W India jointly with Madras Management Association (MMA), an affiliate association of the All India Management Association (AIMA). The talks are in Chennai and the intended audience would comprise company executives, professionals, administrators, consultants and students.

Details of talks organized

- The joint programme was inaugurated on Friday, 20th December 2013 at Hotel Deccan Plaza, Chennai. The first talk on "Managing IT Services" was delivered by Ms Vijayalakshmi Shankar and Ms Venkata Vaijayanthi of Steria India, Chennai. The talk gave an overview of IT Service Management and covered the various models of service management contracts, customer view point and broad expectations.
- The second talk was delivered by Ms.Rashmi Mohan, Senior Engineering Manager, Yahoo, Bangalore on 24th January 2014. The talk was on "Understanding User Engagement - Smart Phones to Wide Screens" . The focus of the talk was on maintaining the attention span of users and how to measure the parts of the website that users were most interested in.
- A next talk on Cloud Computing was scheduled on April 25th, 2014 at Chennai. The talk was delivered by Ms. Hemalatha Bhaskar Senior Cloud Solutions Architect and Technical Leader, Hewlett Packard, Bangalore. The talk broadly covered the following aspects: why Cloud over traditional IT; Cloud Characteristics; Deployment and service models.

CODhER Hackathon

CODhER was a first-of-its-kind initiative to promote participation among women in technical events. This was a one-day event held on 23rd March. The event was organized and hosted by the ACM Student Chapter, College of Engineering, Guindy, Chennai. This event was exclusively for women programmers who have a passion for application development and coding in general. The event was supported by Jugadoo.com and sponsored by ACM-W India and Indix. There were 92 registrations from various colleges all through India. On the actual day, there were only 19 teams (46 participants). The task was to develop either a web application or a mobile application. Time was allotted for each team to present their idea and code. The best three ideas (teams) were awarded prizes.

Announcements

- ACM-W India is happy to announce that the Celebration event of Women in Computing is to be held at GOA, India on September 25-26, 2014. The events planned include All India Programming Contest for women, Poster Sessions for students, tutorials, as well as interesting and inspiring talks and panel discussion. For more details refer to the ACM Goa website at ***http://goa.acm.org/.***

- ACM-W website ***(http://women.acm.org)*** has a new look with new contents and latest updates.
- ACM-W newsletters are being circulated to all members every month. The newsletters are also available in the ACM-W website

ACM-W Student Chapters has formed a Facebook group

The Education Board of ACM India

The Education Committee decided to focus on three areas:

a. Increasing knowledge, ability and interest in computing in schools,
b. Improving teaching methods and content in engineering colleges, and
c. Encouraging the use of on-line material for learning about computing.

Increasing knowledge, ability and interest in computing in schools

ACM India Education held a workshop on Teaching Computer Science in schools hosted at TRDDC, Tata Consultancy Services (TCS) in Pune from 9 AM to 1 PM on 20 July 2013.The workshop brought together educators, 50 heads and senior teachers from 28 selected schools and 27 ACM computer scientists, making it an overall count of 77, to discuss how computing can be taught in schools.
At the workshop, the objectives and content of current syllabuses were discussed and how within these bounds computer science (CS) can be taught. Possible changes in the computing syllabus were also discussed with the aim of bringing them to the notice of policy makers in Maharashtra and at the national level.
Neelima Gupta (Delhi University), curriculum panel member for CS and CBSE and Sridhar Iyer, IITB, author of Computer Masti books, were invited as speakers. Mathai Joseph (Advisor, TCS), Chandrashekhar Sahasrabuddhe (Persistent Systems), Shraddha Joshi (Persistent Systems), Nikhil Karkare, (Director, Millennium School) and Vipul Shah (TCS) were the other speakers. The event was coordinated by Suchita Mantri (TCS).
Summary of discussions:

- India has 42 Educational Boards. Heterogeneity, infrastructure, finding qualified faculty and scale are some of the challenges that need to be tackled, especially in the rural areas.
- The focus should be on developing computer fluency – not just literacy – and developing thinking skills, not just content mastery. There is need to recognize ICT and CS as separate disciplines.
- Should theory and science be taught before they are used, or vice-versa?
- Should CS teaching be formal (with proper grading), semi-formal or informal?
- Should we start in rural areas first or in urban areas? Acceptance would be easier in urban areas but no proposals for changes will be accepted by official boards until shown to work also in rural areas.
- What software should be recommended? Freeware? Or the more popular commercial software?
- Thematic integration with other subjects is important

- Students are excited about learning CS. How do teachers and parents stand up to the children's expectations?
- Focusing at a small level on local activities might help meet larger objectives.
- What should the role of ACM India be? Designing syllabi? Training faculty?

The action items emerging from the workshop discussions included:
1. Creating more groups to study CSTA (Computer Science Teachers Association), CMC (Computer Masti Curriculum) and other curricula; to stress curriculum building, and developing pedagogical guidelines for CS school teachers.
2. To hold ACM workshops for teachers in several areas (Alan Turing, Algorithms, Scratch etc.). A list of topics and speakers should be identified.
3. Computer Masti: interested schools/teachers should be connected directly with Sridhar Iyer.

Improving teaching methods and content in engineering colleges:

1. A five day workshop on Design and Analysis of Algorithms was conducted by the Trivandrum Chapter of ACM, in association with the Indian Association for Research in Computing Science (IARCS) and Indian Institute of Information Technology and Management-Kerala (IIITM-K), Thiruvananthapuram from 6-10 September 2013 at IIITM-K, Technopark, Trivandrum.

Context

The design and analysis of algorithms is a key topic in computer science. The performance of a program depends on its structure of which a critical part is its algorithm. The workshop aimed to empower Engineering College Teachers to teach this core topic more effectively. The topics covered in the discussions included relevant topics in algorithm analysis and design, basic data structures, graphs and traversals, finding the shortest path, and topics in np completeness and dynamic programming.

The participants of the workshop includes teachers from Engineering Colleges and Scientists from R&D organizations. 82 applications were received. 50 applicants were shortlisted and 38 finally attended.

An introductory workshop on the Design and Analysis of Algorithms was conducted on 8 September 2013 for students from nearby engineering colleges and 48 attended the workshop conducted by Dr. Venkatesh Raman and Dr. Neeldhara Misra. They spoke about various aspects of research and gave examples of how to design and analyze algorithms.

2. A 5-day workshop on problem solving in algorithms and complexity was conducted in Pune from 10-14 June 2014 for 30 teachers from engineering colleges (and a few PhD students). The first day covered preparatory material, the next three days focussed on topics suggested by the participants and the last day was used to solve examples and evaluate the progress made by the teachers.

The material used in the workshop was made available for use by the participants in their teaching.

The workshop was taught by Mangesh Gharote (TCS), Shirish Karande (TCS), Sachin Lodha (TCS), Ravindra Metta (TCS) and Maitreya Natu (TCS).

Encouraging the use of on-line material for learning about computing:

Interest has been growing in MOOCs along with the question of their impact on higher education in India. In terms of action on the ground, however, relatively few steps have been taken. The most significant one is that NPTEL, the government project responsible for technology-based dissemination of engineering educational content, is in the midst of preparing a MOOC on CS for

non-CS majors, using Google's MOOC platform.

This initiative has the support of major players in the Indian IT industry as well as NASSCOM, the industry association. This MOOC, prepared a group of IIT faculty, was launched in early 2014, and the initial enrollment figures exceeded 50,000. The MOOC will also be associated with a proctored nationwide exam, which will be run on the TCS iON platform, which already runs other major national exams.

Apart from this effort, IIT Kanpur has successfully run two small-scale MOOCs; the global MOOC run by IIT Delhi on Coursera has run for the 3rd time; this course has now been released in 'self-study' mode for anyone to view, but without certification. IIT Mumbai has formally signed with edX and two courses have been announced for Fall 2014: an introductory programming course and one on introductory thermodynamics.

Finally, workshops and discussions on the subject abound: significant among these are the MOOC workshop at the Indo-French technology summit held in Delhi in October 2013, and a workshop held at the CSI annual convention in December. Additionally, Gautam Shroff spoke at the Coursera user conference in London in April highlighting the Indian experience with MOOCs so far. Hence it was not felt necessary for ACM to hold another such meeting, at least as of now.

Once the MOOCs from NPTEL and IIT Mumbai have been completed, along with certifications, interest will grow and it may be useful to consider holding a workshop based on the experiences in 2015.

ACM-India Special Interest Group in Computer Science Education

At the ACM-India 2014 event, a proposal was discussed to form an Indian chapter of the ACM Special Interest Group (SIG) on Computer Science Education (CSE). Barbara Boucher Owens, past chair of ACM-SIGCSE, led the discussion along with Amardeep Kahlon and Mathai Joseph. SIGCSE is currently an internationally recognized body that brings together Computer Science educators from around the world. The purpose of I-SIGCSE will be to connect CS educators at the post-secondary level to discuss curriculum and best practices, the direction of CS education, curricular evaluation and pedagogy. One of the goals of I-SIGCSE will be to examine how to adapt the ACM Curriculum 2013 for India.

I-SIGCSE will be run, managed, and grown by elected volunteers who will hail from various institutions. Along with professionals from education institutions, membership to I-SIGCSE will also be open to corporate professionals involved as visiting faculty at various institutions.

After the organization has been established and has gained a reasonable number of members, an annual conference can be planned either independently or in collaboration with SIGCSE.

ACM Membership:

Membership numbers	May 2012	May 2013	May 2014
Professional	2270	2847	3997
Students	2185	3637	4055
Total	4455	6480	8052
No. of Professional Chapters		11	10
No. of Student		73	81

Chapters			
No. of SIG Chapters		4	4
No. of ACM-W chapters		4	5

Conference Sponsorships:

Several high quality conferences were conducted or are planned to be conducted with ACM sponsorship or cooperation. These include:

- APCHI '13 (Asia Pacific Conference on Computer Human Interaction)
- CoDS 14 (IKDD Conference on Data Science)
- COMSNETS 14 & 15 (International Conference on Communication System & Networks)
- FIRE 13 (Forum for Information Retrieval Evaluation)
- HiPC 13 & 14 (International Conference on High Performance Computing)
- ICDCN 14 (International Conference on Distributed Computing and Networking)
- ICSE 14 (International Conference on Software Engineering)
- IHCI 14 (India Human Computer Interaction Conference)
- ISEC 14 (India Software Engineering Conference)
- MobiHoc 13 (International Symposium on Mobile Ad Hoc Networking and Computing)
- PerMin '15 (International Conference on Perception and Machine Intelligence)
- POPL 15 (ACM Symposium on Principles of Programming Languages)
- COMAD 13 (Conference on Management of Data)

Distinguished Speakers Program (DSP) & Eminent Speakers Program (ESP)
Under DSP, 15 visits were organized during the year at various Professional and Student Chapters. ACM India is piloting the Eminent Speakers Program (ESP) on the similar lines of DSP. Through this program, Eminent speakers in India will be available to Professional and Student chapters. ESP will be announced soon.

Compute 2013:

For the past five years, Compute, the annual conference organized by various ACM Chapters in India, has provided an excellent forum for computer science and information technology researchers - from both academia and industry - to present and share their work. These meetings have enabled and nurtured many symbiotic relationships between academia and industry and benefited the IT industry, entrepreneurs, investors and academia. This year, Compute, in its sixth edition as an ACM India event, was hosted by ACM Student Chapter, VIT University.

The aim of this conference was to bring together researchers, practitioners, technology market movers, and thought leaders, with a view to advance the state of the art, and the state of the practice in applied research in areas of information management, scalable computing and information security. We believe that these advances will serve as a catalyst in leveraging ICT for the betterment of the society.

This year we received an enthusiastic response with 130 papers submitted by researchers in twelve countries, which after pre-filtering for relevance and preliminary quality was brought down to 96 . Each paper submission was reviewed by at least two-three reviewers and the final selection was made by the Program Committee in extended discussions lasting two weeks. The efforts of the authors and reviewers have resulted in an excellent programme consisting of 24 full papers.

All the PC members and reviewers contributed their time and expertise in spite of having extremely tight schedules. EasyChair made the process of selection simple and collaborative.

We had several keynote speakers at Compute 2013 speaking on the conference themes including:
Prof. U.Dinesh Kumar, Professor Indian Institute of Management (IIM), Bangalore. Speaking on "Business Analytics: Case Studies on Indian Companies."
Dr Lokendra Shastri, Associate Vice President, GM Research and Head, Center for Knowledge Driven Intelligent Systems, Infosys Labs speaking on "Natural Language Processing and Information Technology: Challenges and Opportunities"
Prof. P.J. Narayanan, Director International Institute of Information Technology (IIIT), Hyderabad, and President, ACM India, speaking on "Computation with Accelerators like the GPU"
Dr Pramod Varma, Technology Advisor Unique Identification Authority of India , speaking on "Architectural Perspectives of UID Aadhaar system"
Dr. Raj Kumar Buyya, Professor, University of Melbourne, Australia, , speaking on "Market-Oriented Cloud Computing and the Aneka Platform"

It is indeed a great pleasure to thank these distinguished keynote speakers for accepting our invitation to share their thoughts with the conference participants.

In addition to the keynote addresses and paper presentations we had organized tutorials on areas of topical interest including machine learning, Cloud computing, Web application security, Android development and Hadoop based big data approaches, to benefit the many young students who participated in the conference.
Local organizers at VIT University under Prof. Vishwakarma's leadership, tutorial contributors and keynote speakers and authors all worked hard. Sponsors Google India, and Microsoft Research along with Persistent Systems, and VIT University and ACM India facilitated this conference. As in the past years, ACM Compute 2013 conference was held in cooperation with ACM India Council.

A total of around 200 participants attended the various tutorials and around 100 participants attended the main conference additionally.

Chapter Summit:

For the first time a Chapter Summit was organized along with Compute. Representatives of 58 chapters (Professional and Students) attended the Chapter Summit. Prof. P.J. Narayanan, President ACM India, Srinivas Padmanabhuni, Vice President ACM India and other office bearers addressed the chapter representatives. Plans for Chapter activities were discussed. ACM Goa Chapter made a presentation to host ACM Annual event in 2015 while ACM Nagpur Chapter agreed to host Compute 2015.

ACM Survey on PhD Production in Computer Science in India:

The purpose of this study is to collect reasonably reliable data on PhD production in CS in India, and then use it to identify useful trends. This exercise was motivated by the Taulbee report in the US, and Prof. Pankaj Jalote of IIIT-Delhi has been leading it. The first report was done for the year 2011-2012 (available at http://iiitd.ac.in/news/acm-phd-study/2012). Based on the inputs and experience from the same, the survey and report for academic year 2012-13 has incorporated a few changes. Research-focused institutes produced a total of 148 PhDs and other institutions produced 46. The total number of PhDs produced last year from all institutions is 194.

Detail report is available on ACM India website (http://india.acm.org).

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Elections for ACM India Council:

Nominations Committee consisting of Mathai Joseph, Anand Deshpande and Pankaj Jalote conducted the elections for ACM India Council. After preparing a provisional list and considering the self-nominations and petition candidates, the below slate was announced:

Slate for ACM India Elections:
President: Srinivas Padmanabhuni (Infosys, Bangalore)
Vice-President: (1) Madhavan Mukund (Chennai Mathematical Institute),(2) Deepak Garg (Thapar University, Patiala)
Treasurer: Mukesh Mohania (IBM India Research Lab, New Delhi)
Secretary: (1) Mangala Gauri Nanda (IBM India Research Lab, New Delhi), (2) Maria Choudhary (Oracle Corporation, Goa)

I-Council members whose four-year terms are 2010-2014:
Supratik Chakraborty (IIT Bombay)
Ganesh Ramalingam (Microsoft Research India, Bangalore)

Nominations for five four-year Member-at-Large positions on the I-Council:
M D Agarwal (formerly BPCL, Mumbai)
Abhay Bansal (Amity University, Noida)
Sukumar Bhattacharya (IIT Mandi)
Navin Kabra (ReliScore, Pune)
Hemangee Kapur (IIT Guwahati)
Rashmi Mohan (Yahoo India, Bangalore)
Rohan Murty (Infosys, Bangalore)
Sukumar Nandi (IIT Guwahati)
V Krishna Nandivada (IIT Madras)
Shekhar Patankar (Persistent, Nagpur)
Sateesh Kumar Peddoju (IIT Roorkee)
Gautam Shroff (TCS, Delhi)

Election was conducted during the period May 7, 2014 and June 6, 2014 and following members were declared elected:
President
Srinivas Padmanabhuni
Vice-President
Madhavan Mukund
Treasurer
Mukesh Mohania
Secretary

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Mangala Gowri Nanda

Members-at-Large

Rashmi Mohan

Gautam Shroff

Sukumar Nandi

V Krishna Nandivada

Hemangee Kapur