Association for Computing Machinery
ACM India Annual Report (2015-2016)

The Association for Computing Machinery (ACM), originally founded in 1947, is currently the topmost body of computer science professionals and researchers in the world. ACM India was founded to further ACM's mission of advancing computing as a science and a profession in the Indian context. The report has been collated from contributions by various ACM India people who have led the activities.

ACM India Annual Event

The ACM India Annual Event was organized by the ACM Trivandrum Professional Chapter in association with the Indian Institute of Information Technology and Management-Kerala (IIITM-K), Trivandrum. The first day featured the co-located event IRISS 2016: 10th Inter-Research-Institute Student Seminar in Computer Science, which provided a platform for research scholars to present their research to the research community and potential employers. It received good participation from leading academic institutions and industrial R&D organizations. At the inaugural session IRISS steering committee chair M. Balakrishnan (IIT Delhi) delivered the introductory talk, and ACM India President Srinivas Padmanabhuni provided felicitation. A keynote talk, "The Evolution of Algorithms and Data" by Ramesh Hariharan, Chief Technology Officer at Strand Life Sciences, followed, with insights on the wide applications of algorithms in vast areas of science starting from primordial discernments. The talk was followed by oral and poster technical presentations.

ACM India Doctoral Dissertation Award 2015 recipient Aritra Hazra from Indian Institute of Technology Madras delivered a talk on "Formal Methods for Power Intent Validation in Integrated Circuits." The day closed with a mesmerizing cultural event followed by banquet.

The second day's activities, held at Al Saj Convention Centre, Kazhakoottam, saw participation from around 25 colleges and 600 participants. The inaugural ceremony was opened by the welcome address delivered by Sabu M. Thampi, Chair, ACM Trivandrum Chapter. The session included informative presentations by ACM CEO Bobby Schnabel and ACM President Alexander L. Wolf on ACM global perspectives. Srinivas Padmanabhuni next presented a report on ACM India, and ACM-W India activities were summarized by ACM-W India Executive Council member Arati Dixit. IIITMK Director Rajasree M.S. offered felicitation.

The ACM India Best Student Chapter Award was declared by ACM India Chief Operating Officer Shekar Sahasrabudhe and presented by Bobby Schnabel and Alex Wolf. The BITS Pilani-Rajasthan ACM Student Chapter received the award with Amity University Student Chapter the runner-up.

Enlightening talks given by ACM luminaries included:
- Edward A. Feigenbaum, Professor of Computer Science and Co-Scientific Director of the Knowledge Systems Laboratory, Stanford University and 1994 ACM A.M. Turing Award co-recipient. Feigenbaum is a pioneer in the field of artificial intelligence and is often known as "the father of expert systems." He spoke on "How to Find Great Research Problems in Artificial Intelligence."

- Jennifer Widom, Fletcher Jones Professor, Computer Science and Electrical Engineering, Stanford University, talked about "Inflection Points in Research and Teaching." Widom is the 2015 ACM-W Athena Lecturer.

- Anuj Dawar, Professor of Logic and Algorithms, University of Cambridge, UK offered a very informative talk on "Abstraction, Complexity and Symmetry." Dawar was Chair of the selection committee for the ACM India Doctoral Dissertation Award and serves on the ACM SigLOG executive committee.

Turing laureate Edward Feigenbaum celebrates his 80th birthday with ACM CEO Bobby Schnabel, ACM President Alexander L. Wolf, and ACM India President Srinivas Padmanabhu

ACM India Research Board

P.J. Narayanan, IIIT Hyderabad

The ACM India Research Board (AIRB) has been involving itself in a number of activities including the ACM India Doctoral Dissertation Award, ACM India Survey on PhD Production, MSR-ACM India Academic Research Summit, IARCS-ACM India Student Conference Travel Awards, etc.
Supratik Chakraborty, IIT Bombay

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 200,000. Tata Consultancy Services is the founding sponsor of the award.

The call for nominations for the 2016 award was sent to more than 100 Indian institutions awarding Ph.D. degrees in Computer Science and related disciplines and was also announced on ACM India's webpage in June 2015. A total of 10 nominations were received from 7 academic institutions from across India. A jury panel consisting of 5 distinguished computer scientists from around the world was constituted with Prof. Anuj Dawar (Cambridge University, UK) as the Chairperson to review and evaluate the nominations. Starting from this year, jury members have agreed to serve on the ACM-India Doctoral Dissertation Award panel for multiple years with staggered tenures. Jury members reviewed the nominated dissertations and also sought reviews from external experts. The review process lasted three months, and resulted in at least 2 or 3 reviews for almost all nominated dissertations. The top ranked dissertations were shortlisted after extensive electronic discussions. Finally, after additional rounds of discussions, the jury selected Dr. Aritra Hazra's dissertation titled “Formal Methods for Architectural Power Intent Verification and Functional Reliability Analysis” for the ACM India Doctoral Dissertation Award, 2016. Dr. Hazra completed his Ph.D. from Indian Institute of Technology, Kharagpur under the guidance of Prof. Pallab Dasgupta and Prof. Partha Pratim Chakrabarti.

The ACM India Doctoral Dissertation Award for 2016 was presented during the ACM India Annual Event on January 22, 2016 at Technopark, Trivandrum in Kerala. Tata Consultancy Services (TCS) generously sponsored the awards. Dr. Aritra Hazra, currently a faculty member in Department of Computer Science and Engineering at Indian Institute of Technology Madras, was present in person to receive his award.

The ACM India Doctoral Dissertation Award recognizes the best doctoral dissertation from a degree-awarding institution based in India for each academic year, running from August 1 of one year to July 31 of the following year. The award is accompanied by a prize of INR 200,000, and the winning dissertation is published in the ACM Digital Library. This award is additionally supported by Tata Consultancy Services Limited (TCS), the founding sponsor.
Aritra Hazra of IIT Madras receives 2016 ACM India Best Doctoral Dissertation Award from ACM CEO Bobby Schnabel, ACM India President Srinivas Padmanabhuni and ACM President Alexander L. Wolf.

ACM Survey on PhD Production in India for Computer Science and Information Technology - 2014 – 2015

Sachin Parkhi and Gautam Shroff
Tata Consultancy Services

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 Dr Gautam Shroff, Vice President and Chief Scientist, Tata Consultancy Services has been leading this year’s survey. Based on the inputs and experience from the survey conducted in last couple of years, the survey and report for academic year 2014-15 has been incorporated.

Institutes Included

Last year, the study attempted to include all institutions which have a PhD program in CS/IT.

A list of 2507 institutes from all over India was obtained from AICTE. According to the data available on the websites, of these institutes, 73 institutes stated that they have a PhD in CS or IT. We added to these, other institutions (IITs, NITs, etc.) which are known to be granting PhDs in computer science – inputs for this was taken from various researchers and faculty and from the previous study. Additional institutes were obtained from the partner institutes to TCS Research Scholar Program. This gave a total of 145 institutes which claims to have a PhD program and which could be included in this study.

Data Collection

For this year’s report, we have grouped the institutions as follows:
• Group 1: Institutions which provided the data about number of faculty, PhDs enrolled, and PhDs awarded. (33)
• Group 2: Institutes which provided data last time but did not do so for this year’s report. (18)
• Group 3: Institutions which did not submit the filled form, but the number of faculty, and the total number of PhDs enrolled was available on their website. (6)
• Group 4: Institutions which did not submit the form and we could not find information about the PhD students enrolled on their websites, but obtained information about the number of faculty. (24)

For group 2, we took the data from last year’s study – assuming that it would not have changed significantly this year.

Analysis

PhD Production

The number of students who completed their PhD from August 2014 to July 2015

Group 1 institutes: 139
Group 2 institutes (estimated): 43
Group 3 institutes (estimated): 25
Group 4 institutes (estimated): 56

To better understand where these PhDs are being produced, we divide the institutions in two categories: those that have 80% or more faculties with PhDs, and others. Presumably the first category represents the more research-focused institutions, while the second category is likely to be the more teaching-focused institutions. There are 41 institutions in the first category (List of these institutions and their data ids given in Appendix E), and 39 institutions in the second category (Appendix F). With this classification, we have the following for PhD production:

Research-focused institutes produced a total of 174 PhDs and other institutions produced 89. The total number of PhDs produced last year from all institutions is 263.

Based on the detailed data provided by Group 1 institutions, we can say:

Of the total PhDs produced, 76% were male and 24% were females.

Overall, keeping in mind the likelihood of overestimation for institutions in group 2 and 3, we can say that the PhD production in the Academic Year 2014-15 was around 263, and that PhD production is likely to grow gradually to about 450 per year in about 5 years.

For detail report please visit: http://india.acm.org/ACM-India-PhDProductionReport2014.pdf
MSR-ACM India Academic Research Summit

The Academic Research Summit was held on January 29th and 30th, 2016 at the Infosys Campus, Pune. A key objective of the summit is to create a mechanism for the Indian research community to have a common platform to come together and foster collaboration in cutting-edge research areas in Computer Science (CS) and related domains. The theme of this year's summit was ‘Innovate for a Digital India’. The summit was an ideal platform for the CS academic research community to get together with industry researchers and government representatives to discuss and collaborate on exciting trends in computer science research. The agenda of the summit included keynote talks and lectures from distinguished researchers like Jeannette Wing, Corporate Vice president and Head of Microsoft Research labs, Rajat Moona, Director General, Centre for Development of Advanced Computing (CDAC), among others. There were also break out tracks on themes like Smart Cities, Analytics and Social India which enabled discussions and ideas on important issues and solution areas to address prevalent challenges in these domains. The range of topics and the breadth of the technical areas covered provided a unique experience for the attendees.

The summit saw participation from faculty and students representing all the premier CS research institutes in the country and will be immensely beneficial in their ongoing and future research studies. This Academic Research Summit has laid a strong platform among the research community for exciting new ideas and innovations. It is hoped that these will result in important technical breakthroughs in the journey towards a Digital India of the 21st century.

IARCS-ACM India Student Conference Travel Awards

Supratik Chakraborty, IIT Bombay

ACM India has collaborated with IARCS (http://www.iarcs.org.in/) for providing travel grants to students for presenting papers in International Conferences.

We received 355 applications between April 2015 and March 2016. Of these, 27 applications were accepted. The total amount granted was: Rs. 19.2 lakhs. Below are a few conferences supported (this is not a complete list)

- International Joint Conference on Artificial Intelligence (IJCAI)
- AAAI Conference on Artificial Intelligence (AAAI)
- International Conference on Machine Learning (ICML)
- Pacific Asia Knowledge Discovery and Data Mining Conference (PAKDD)
- International Conference on Data Mining (ICDM)
- Conference on Empirical Methods in Natural Language Processing (EMNLP)
- European Symposium on Security and Privacy (ESSP)
- EUROCERT
- ASIACRYPT
- ACM Multimedia Conference (ACMMM)
The ACM India education committee has identified three main areas for immediate focus. These are – Faculty Development programs (FDP), UG curriculum design and Computing in schools. One FDP on teaching algorithms was organized in Chennai, which was attended by several UG faculties. Senior faculty experienced in teaching algorithms spoke on teaching of various topics including algorithmic problem solving, framework for algorithm analysis, algorithm design techniques and some specific algorithms. Similar FDPs are planned in Pune and other cities.

A team of ACM volunteers have also initiated a process to adapt the ACM UG curriculum for schools in India. As a first step the operating systems curriculum will be adapted to act as a template for other curriculum. The aim of this exercise is to ensure that the UG curriculum stays modern and also to ensure that the number of topics being covered is aligned with the number of lectures available for the subject. It also ensures that key topics are covered in depth.

To help schools transition from teaching office technologies to teaching computing as a science the education committee has embarked on a new initiative – CSpathshala. As part of this initiative a new curriculum for standards 1-12 will be designed, content created to help teachers deliver the curriculum and teacher training workshops will be conducted across the country to help teachers deliver the curriculum. Fourteen schools have signed up for the first pilot to be conducted in Pune. The section on CSpathshala gives more details of this initiative.

The ACM education committee seeks volunteers from ACM chapters to help make each of these initiatives a success. Please do get in touch with Dr. Sachin Lodha (sachin.lodha@tcs.com) or Prof. Chitra Babu (chitra@ssn.edu.in) if you are interested in organizing a FDP or with Vipul Shah (v.shah@tcs.com) in case you would like to contribute to CSPathShala. You may also contact Mr. R. Venkatesh (r.venky@tcs.com) with any suggestions or a desire to contribute to CS education in India.
Computing is ubiquitous and people from every walk of life will need to be familiar with computing in some form or the other. This will lead to huge gap between computing skills availability and demand. To address the skills demand created by the industrial revolution, the Sciences and Mathematics were included in the school curriculum in the early 19th century. Now as we participate in the digital revolution, we need to train our children on skills for the digital age. We need to train our children to be creators and inventors of technology and teach them to be socially responsible citizens. It is therefore imperative to teach computing, which promotes problem solving, computational thinking and critical reasoning skills, at par with Mathematics and Sciences.

Computer Science Teachers Association (CSTA-US), www.code.org, Computing at School (CAS-UK), and Computer Masti (IITB), are some of the notable efforts to develop a Computer Science (CS) based curriculum for K-12 education. In the US, CS has now been included as part of the STEM initiative and UK has adopted CS as part of the national curriculum. Nations such as France, Spain and South Africa are in the process of adopting a national CS curriculum. If India does not transition to a CS based curriculum now, she will be left behind!

The Association for Computing Machinery (ACM) India has started a national education initiative, CSpathshala (www.cspathshala.org), to teach computing as a science in all schools by the year 2030. This would require influencing policy level changes to bring about shift from ICT to CS oriented curriculum, developing a robust CS curriculum and putting in place a scalable teachers development and training programs. Industry (Tata Consultancy Services, Google) and top academic institutions (IITs, Delhi University, Chennai Mathematical Institute) are putting their heads together to achieve the desired goal.

An application was made to Google, and seed funding has been received from Google. Starting with 15 schools in the 1st year, the plan is to enlist 75 schools in the 2nd and 250 schools in the 3rd year into a pilot program. Full scale deployment will begin in the 4th year and will target all by 2030.

Progress so far:

- A brainstorming meeting was organized on 9th April 2016 in Pune. Dr. Chris Stephenson, former founding executive director CSTA and currently head of Google Computer Science Education Program, delivered a keynote. The meeting was attended by ACM India Education Council,
industry, academicians from IIT, DU, IMSc and senior computing teachers from schools across the country.

- A national curriculum committee has been setup and is developing CS curriculum with detailed lesson plans and activity sheets.
- Pune Chapter organized a workshop on 16th April, 2016 to announce an ambitious pilot project to roll-out 1-5 CS curriculum for 15-20 schools in 2016-17. The workshop had 105 participants including 80 teachers from 38 schools. A press briefing was also held prior to the event. Prof. Abhiram Ranade and Prof. Mathai Joseph were guest speakers at the workshop. 14 schools have already signed up for the pilot for grades 1-5 in 2016-17.
- Delhi Chapter is organizing a workshop on 20th June, 2016. Prof. Pankaj Jalote will be delivering the keynote address.
- Bangalore chapter is organizing workshop in August, Kochi and Ahmedabad in October 2016.

ACM-W India

Sheila Anand/Arati Dixit

2015-16 was a busy year for ACM-W India. A gamut of activities was organized to help enrich and engage women students and professionals.

NYUAD Women in Computing in the Arab World Conference May 2015

Across the world, as diverse as our appearance and tongues are, women in computing are still bound together by the unique need to make progress in the world of technology. It is this common binding factor that took Dr. Arati M. Dixit and Maria Chaudhary to represent ACM-W at the NYUAD WIC event in Abu Dhabi during May 17-18, 2015. Dr. Arati M. Dixit delivered a keynote in a Panel-‘Prominent International Women in Computing Organizations and Venture Capitalists’ on ‘ACM-W and Global Women in Computing (ACM-W India and Europe)’.

All the members gave insight on their organizations role towards women in computing and general perspective with statistics on women in their country and globally. Arati M. Dixit’s talk highlighted on the vision, activities and benefits of ACM & ACM-W. She also discussed about special events organized by ACM-W India and ACM-W Europe. She discussed about Women in Computing in India with respect to Education, IT work-force, Research domain and Entrepreneurship. This conference explored the preliminary research findings focusing on representations, the opportunities as well as the diverse challenges faced by women in computing in the Arab world.

ACM-W India Annual Event (AICWIC), October 2015

All India celebration of women in computing was organized by AESICS, ACM-Women Chapter of Ahmedabad University in association with ACM Ahmedabad during October 1 – 3, 2015 under the theme “Entrepreneurship and Career Development in Computer Science and Information Technology”.
The inaugural ceremony started with prayer and e-lighting a lamp. Ms. Heena Timani, Vice Chairman, ACM Ahmedabad welcome and introduced all guests to the audience. Dr. Arati Dixit, Member, ACM-W India Executive Council spoke about ACM and how it strives to help computing professionals and students in terms of career resources, mentoring, workshops, conferences and publications.

(L to R) Ms. Heena Timani, Ms. Sweta Chawla, Dr. Arati M. Dixit, Ms. Bhagyesh Soneji, Mrs. Maria Choudhary, Mrs. Smriti Dagur

The chief guest for the inaugural function Ms. Bhagyesh Soneji, Chairperson – Western Region ASSOCHAM (Associated Chamber of Commerce and Industries), threw a light on e-commerce business. She emphasized creativity and higher success ratio at younger age.

Expert talks were delivered by Ms. Shweta Chawla Head and Chief Investigator at SC Cyber Solutions, Forensic Investigations Pune, and Mrs. Smriti Dagur an Entrepreneur. A Panel Discussion was organized on the theme “On choosing Career Path: Academics, IT, Research and Entrepreneurship”. The Expert Panelists were Mrs. Vandana Raj, Director, Vama Communications, Mrs. Maria Choudhary, Chief Engineer, Oracle Systems, and Ms. Sweta Chawla. The Panel Discussion was moderated by Dr. Arati M. Dixit.

Events included a Programming Contest, IT Quiz and Poster session on Work-in-Progress. Prizes were awarded to the winners and certificates to the participants.
Regional Celebration of Women In Computing (East & North East), November 2015

ACM-W India “Regional Celebration of Women in Computing, East and North-East” was organized and hosted by Department of CSE, IIT Guwahati during November 2-3, 2015. This event provided a forum for the lady researchers and faculty members in the region to showcase their work in the form of posters and also get exposure to recent trends in industry and academia.

The event began with the key organizers Dr. Hemangee K. Kapoor and Prof. Sukumar Nandi giving an overview of the conference. Prof. Sheila Anand, Chair of ACM-W India gave the welcome address. The event had talks delivered by eminent lady academicians, researchers and industry leaders. During the two day event participants got to interact with eminent personalities and had the opportunity to know what is happening in academic and how the research outcomes can finally get converted to industry deliverables.

Ms. Kumud Srinivasan spoke about the "Accelerating Transformation in Today's Digital World". She compared industry trends in India and abroad. She motivated the participant ladies by advising them to ask the question "Why?" first and that the "How" and "What" will follow. Dr. Valentina gave an excellent talk on various cloud computing methodologies and virtualization techniques.

Prof. Susmita gave a talk on the challenges in synthesizing quantum computers. The other talks were in the area of authenticated encryption, Big-Text and Big-Data, Use of thermography to detect breast cancer, Bio-computing and on the data and cloud setup at IISc SERC. Rowena Robinson, Professor of sociology gave an energetic talk on "Girls who play with fire? Women in computing and on the Internet in India". There was good interaction from the participants and heated discussions on social and family
restrictions faced by women in technology. There was also debate on whether it was required to have reservation for girls in higher education institutions.

A panel discussion was held on the theme "On Choosing Career Path: Academics, IT, Research and Entrepreneurship". The panelists were Dr. Lakshmi, IISc Bangalore, Dr. Valentina, Arati Dixit, University of Pune, Prof. Susmita and Prof. Dipanwita. The discussion, moderated by Arati, focused on the panelists’ careers, how they achieved their goals and the challenges they faced in their respective fields.

Another big attraction for the participants was the poster session. The posters were evaluated by faculty from the department of CSE, IITG and three best posters were recognized by giving a certificate and cash prize. Free ACM membership was offered to all the registered student.

The event had 77 registered participants out of which 57 lady participants were from around 12 universities from the North-East. There were 25 poster submissions. The organizers are very thankful to the generous support given by the sponsors: Google, Xerox research India and Tata Consultancy Services.
GHC India, December 2015

More than 2,000 women technologists convened in Bangalore for the sixth annual Grace Hopper Celebration India organized during December 2-4, 2015. The theme of the conference was #OurTimeToLead. ACM India sponsored around 40 members to GHCI 15.

An ACM Student chapter meeting was organized which was also attended by the Professional and Student members participating in the conference. Many issues were discussed which included the benefits of opening a ACM-W chapter; the need and modalities of organizing conferences for women; encourage active participation from women both professional and student members. The Hour of Code initiative was also discussed.

WCI, August 2015

The Third International Symposium on Women in Computing and Informatics (WCI-2015) was organised in association with Association for Computing Machinery (ACM) Trivandrum Professional Chapter, ACM Cochin Chapter, ACM Committee on Women in Computing (ACM-W) India and IWNN of INNS India - Regional Chapter.

The event provided a platform for women to explore the opportunities as well as the diverse challenges facing women in computing and allied areas. It provided an opportunity to network with students, professionals, and researchers.
CODhER '16: A Women's Hackathon, 21 February

CodhER 2016, the women's hackathon organized by AU CEG ACM Student Chapter, was successfully held at the department of IST, CEG, Anna University. A total of 57 students turned up on Sunday morning to exhibit their skills and ideas. Teams of two to three people were allowed. A range of software products, from web apps and mobile apps to websites were built using PHP, HTML/CSS, JS, Angular, Android, etc. The teams then presented their work to the judges who evaluated them based on the idea, UI, and final implementation. ACM-W India Executive Council Chair Dr. Sheila Anand was on the panel of judges. The cash prize totaling 12,000 rupees was sponsored by ACM-W India. Internships for the successful participants were sponsored by Evalvon, GUVI, Bahwan Cybertech, and Juspay.

ACM Women in Research Symposium (ACM-WIR 2016), Indore, 21 March

The ACM Women in Research Symposium hosted a research paper/project competition. The symposium featured speakers Jeanna N. Matthews, Associate Professor of Computer Science at Clarkson University in New York; ACM India Eminent Speaker Suparna Bhattacharya (HP); and ACM-W India Executive Council members Arati Dixit and Rashmi Mohan.

HackHer Event for Women, 21 April 2016

The Hackathon Event for Women, HackHer, was held on 21 April 2016 at Coimbatore. This event was sponsored by ACM-W India and hosted by Amrita University. The programme was conducted by GUVI Chennai. Forty teams registered and 29 teams, of three members each, participated in the event. The event was organized in the Department of Computer Science and Engineering (CSE), Amrita School of Engineering. The event commenced with inauguration by Dr. Latha Parameswaran, Professor and Chairperson of the Department of CSE. Dr. Sheila Anand, Chair, ACM-W India addressed the participants and interacted with the teams.

Conference Sponsorships

G. Ramalingam, MSR

Several high quality conferences were conducted or are planned to be conducted with ACM sponsorship or cooperation, including:

- INTERACT 2017
- IKDD Conference on Data Sciences (CoDS 2016)
- International Conference on Intelligent Human Computer Interaction (IHCI 2015)
- IndiaHCI 2015
- International Conference on VLSI Design (VLSI ‘16)
- International Conference on Communication Systems and Networks (COMSNETS ‘16)
- India Software Engineering Conference (ISEC ‘16)
- Conference on Management of Data (COMAD 2016)
Conferences organized by ACM India and India SIG Chapters

ACM Compute 2015, Ghaziabad, 29-31 October 2015
In its eighth year, ACM India's flagship conference, Compute 2015, was hosted by the ACM Delhi-NCR chapter at ABES Engineering College, Ghaziabad. The overall theme of the Conference was "Big Data and Analytics" and consisted of two tracks: Information & knowledge Management and High Performance Computing. Keynote speakers were Mukesh Mohania, IBM Delhi, ACM India Council Treasurer; Valentina Salapura, IBM Master Inventor and System Architect, IBM T. J. Watson Research Center; and Jayant R. Haritsa, Indian Institute of Science (IISC) Bangalore. Tutorial speakers were Sitaram Chamarty from TCS; Santanu Chaudhury, IIT Delhi; N. Jeyakumar, Bharathiar University; Himanshu Bhatt and Shourya Roy, Xerox Research Centre; and Ashish Verma, IBM, ACM India Eminent Speaker. A video of the proceedings is available on YouTube.

iKDD CODS 2016, Pune, 13-16 March 2016
CODS 2016 was the third in a series of conferences organised by the India chapter of the ACM Special Interest Group on Knowledge Discovery in Databases (IKDD). Co-located with COMAD 2016, the conference included a research track and invited talks by distinguished speakers from academia as well as industry. An international roster of keynote speakers featured Peter Bartlett, a professor in the Computer Science Division and Department of Statistics at the University of California, Berkeley and a professor in Mathematical Sciences at Queensland University of Technology; Deepak Agarwal, who leads the relevance and machine learning team at LinkedIn; Eduard Hovy, a professor at the Language Technology Institute in the School of Computer Science at Carnegie Mellon University; and Yurii Nesterov, a Russian mathematician and internationally recognized expert in convex optimization, especially in the development of efficient algorithms and numerical optimization analysis. The program also included invited student talks, a Data Challenge, and an Industry Workshop featuring talks by various industry leaders on data science challenges in the industry.

iSOFT ISEC 2016 (India Software Engineering Conference), Goa 18-20 February 2016
ISEC is the annual conference of iSOFT, the India chapter of ACM SIGSOFT (http://isoft.acm.org) under the umbrella of ACM India. The 9th ISEC (ISEC 2016- http://www.isec2016.org/) was held at BITS Pilani, Goa, India. ISEC brings together researchers and practitioners from across the world to share the results of their work. The goal of the conference is to provide a forum for researchers and practitioners from both academia and industry to meet and share cutting-edge advancements in the field of software engineering. ISEC 2016 was a 3 day conference: 18th (Thursday) – 20th (Saturday) February 2016.

The Asia-Pacific Software Engineering Conference (APSEC) http://www.apsec2015.org/ is the leading International conference on Software Engineering and Technology in the Asia-Pacific region. APSEC aims to bring together researchers and practitioners from industry, academia, and government to
advance the state of the art in Software Engineering and technology and to encourage wider collaboration between academics and industries. APSEC 2015 is the 22nd Edition of the Conference. APSEC is happening in India for the second time in 22 years (APSEC 2006 happened in Bangalore). The conference venue was Holiday Inn Hotel at International Airport in New Delhi. APSEC 2015 was a 4 day conference: 1st December (Tuesday) 2015 – 4th December (Friday) 2015. The first day (pre-conference) consists of workshops and tutorials. The remaining three days (main conference) consists of paper presentations and keynotes. APSEC 2015 received 182 papers (after desk rejects) from 24 different countries in research and industry track. APSEC 2015 does not have a short paper or a poster paper category and all 182 papers reviewed were full papers. The acceptance rate for research track was 29% (42/144) and industry track was 24% (9/38). A total of 51 papers were presented at APSEC 2015 main conference. APSEC 2015 proceedings are published in IEEE Digital Library.


The 42nd edition of the Symposium on Principles of Programming Languages (POPL) was held at the Tata Institute of Fundamental Research from January 12th-18th. POPL is a prestigious annual conference organized by ACM SIGPLAN which is the Association for Computing Machinery’s Special Interest Group on Programming Languages. For the first time in its 42 year history, the event came to India. The event was attended by ~450 researchers working on all aspects of programming languages ranging from mathematical foundations and language design to practical issues such as language implementation, usability and performance. Papers were selected to be presented at POPL using a competitive peer-review process, where each paper was anonymously evaluated by an average of 4 peer reviewers who are experts in the field, and selection was done by scientific merit. As usual, fewer than one in four submitted papers were selected. In addition, invited talks are given by renowned researchers in the field. POPL 2015 had invited talks by Sumit Gulwani, Peter Lee and Peter Buneman. Together with the main POPL conference, there were several collocated events, workshops and smaller conferences on topics related to programming languages. Tutorials were given by experts on leading-edge topics for the benefit of new comers. There was a one-day event called Programming Languages Mentoring Workshop (PLMW) which was a day-long event for the benefit of students who are staring a research career in programming languages.

India has a strong community working in “formal methods” which works on mathematical foundations of designing systems, and a strong software engineering industry. POPL fits between the two communities and expertise on programming language design and greatly helped the Computer Science research ecosystem in India. Around 150 of the attendees participated from India, representing various academic institutions as well as industrial research institutes. The academic institutes represented include the IITs, IIITs, IISc, TIFR and National Institutes of Technology, and various engineering colleges. Industrial participants include TCS, Microsoft Research India, Infosys and IBM Research India. Generous support from Indian organizations such as Flipkart, Persistent Systems, TCS, ACM India and IARCS (Indian Association for Research in Computer Science) enabled us to give scholarships to students and faculty from India.
POPL 2015 was hosted by Tata Institute of Fundamental Research, TIFR, a premiere research institute working in the areas of basic sciences, mathematics and technology and computer science. The general chair of POPL 2015 was Sriram Rajamani from Microsoft Research India, Program Chair was Dave Walker from Princeton University, and Local Chair was Paritosh Pandya from TIFR. In addition there are a large number of researchers who served on the program committee and organizing committee. POPL 2015 was successful due to their efforts.

ACM e-Energy 2015 – July 14-17, 2015 Bangalore

The Sixth ACM International Conference on Future Energy Systems (ACM e-Energy 2015) was hosted for the first time in Asia, in Bangalore from July 14-17, 2015. The conference is the premier venue for researchers working in the broad areas of computing and communication for smart energy systems, and in energy-efficient computing and communication systems. Overall, over 85 papers were submitted to the regular and challenge tracks as well as 12 to the poster/demo track. The Technical Program Committee and the chairs selected a small subset (acceptance rate of the conference to the main track was 22.8%) of them through a meticulous review process. In addition to a single track of full papers and challenge papers, the program included keynote addresses by eminent researchers, a panel discussion and a poster/demo session. The program, keynotes and papers are available online at: http://conferences.sigcomm.org/energy/2015/program.php

The technical program of the conference was informative and thought provoking with sessions on Demand Response, Electric Vehicles (including batteries), Challenge Papers, Energy Analytics, Energy Markets, Smart Grids, and a Poster/Demo session. The best paper award was closely contested, and won by the paper: “Bugs in the Freezer: Detecting Faults in Supermarket Refrigeration Systems Using Energy Signals,” by S. Srinivasan, A. Vasan, V. Sarangan and A. Sivasubramanian from Tata Consultancy Services Limited, India (and Penn State, USA).

The day before the main conference featured three concurrent full-day workshops:

1. Energy Efficient Data Centers (E2DC): The fourth international workshop on Energy Efficient Data Centers (E2DC) focused on various topics related to the fields of energy efficient and energy aware data centers while considering data centers as active participants in smart grids and smart cities.

2. Distributed Energy Networks (DEN): The Distributed Energy Networks (DEN) workshop explored technologies that will shift the paradigm of energy networks from a conventional centralized top-down approach to a decentralized peer-to-peer one in which consumers, producers and prosumers can actively participate.

3. Smart Grid Communication, Computation and Control (C3): The C3 workshop brought together representatives from the communication, control and computation communities to discuss collaborative progress towards smart grid solutions, and to elucidate limitations and opportunities of emerging smart grid proposals.
The conference had keynote speakers from across the globe: Prof. Iven Mareels (University of Melbourne, Australia), Prof. Ashok Jhunjhunwala (IIT Madras, India), Bruce Nordman (Lawrence Berkeley Laboratory, USA). Workshop keynote speakers included Srinivasan Keshav (University of Waterloo, Canada, in DEN), Amod Ranade (Schneider Electric, India, in E2DC), and Prof. Anurag Kumar (IISc, in C3 workshop). The conference also included an exciting panel discussion, moderated by Prof. Sarvapali Ramchurn, on Smart Energy Systems: Where East meets West with Prof. Keshav, Prof. Jhunjhunwala and Dr. Venkatesh Sarangan.

We are grateful to ACM, Tata Consultancy Services, IBM Research and Rolta for providing generous financial support. We thank the members of organizing and steering committees for making e-energy 2015 a productive and successful event.

**Workshops/Events**

**iSIGCSE Workshop "Undergraduate CS Education: Moving Ahead" at Compute 2015**

An education workshop on undergraduate CS education took place on the third day of *Compute 2015* (October 31) under the banner of the ACM India Special Interest Group on Computer Science Education (iSIGCSE). The workshop provided a forum for educators to discuss issues related to the development, implementation, and/or evaluation of computing programs, curricula, and courses, as well as syllabus, laboratories, and other elements of teaching and pedagogy. Three seminars were presented: An Approach to Introductory Programming, by Abhiram Ranade, IIT Bombay; ACM Computer Science Curricula 2013 (CS2013), by Arati Dixit, Pune University (ACM-W India Executive Council member); and Gap Analysis for Computer Science Curricula, presented by Abhijat Vichare, Persistent, Pune (ACM India Eminent Speaker).

**iSIGCSE Workshop 2016 - "Getting Started with CS2013 for Our Academia"**

March 22, 2016 Indore

A special session was organized for educators of various engineering colleges of town, which was organized by ACM India Special Interest Group on Computer Science Education (iSIGCSE), in Sri Aurobindo Institute of Technology, Indore. The event was graced by the presence of the pioneer’s in the field of computer science education in Indore. It was an effort of developing sample curricula specifically adapted to challenges of Indian academia, with the hope that this activity will add to the collective wisdom by bringing in the ground realities in search for the solution. The aim of the activity was expanding the adoption of the ACM CS 2013 Curriculum across India as part of the education board activity.

The first address was delivered by Mr. R Venkatesh, on Essentials of CS2013 emphasizing the knowledge areas approach. It is important to recognize that Knowledge Areas are interconnected and that concepts in one KA may build upon or complement other.
This Keynote was followed by address by Dr. Aarti Dixit on developing a sample course: Use of CS2013 principles, and some India specific principles, for course design. Her talk included examples of actual fielded courses—from a variety of universities and colleges—to illustrate how topics in the Knowledge Areas may be covered and combined in diverse ways. It was a highly interactive session and senior professors were keen to discuss it further. Dr. Aarti also talked about Exemplars of Curricula and Courses.

Dr. Abhijat Vichare, discussed the details of CS2013 asked for joint effort that brings in the experience and knowledge of adapting the CS2013 for Indian academia.

He also did hands on activity in Lab Session for educators: all members were divided into small groups, and developed a syllabus for a course. Improvement and reclamation of current curriculum are not difficult to achieve in view of the advanced techniques, strategies and other inputs.

Chapter Summit

On the last day of Compute 2015, Chapter Summit was held. Representatives from 34 Professional and Student Chapters attended the summit. Dr. Srinivas Padmanabhuni, President ACM India, addressed the representatives about different activities that Chapters can organize. He advised chapters to take advantage of DSP and ESP schemes to get quality speakers for their activities. He briefed about different initiatives of ACM India and opportunities available for chapters to come forward and participate in these initiatives. Each chapter was given an opportunity to present the activities organized by them and the future plans.

Lectures under DSP/ESP schemes

We have 18 lectures under Distinguished speaker Program and 28 lectures under Eminent Speaker Program during the year.

Membership

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ACM India Elections

P.J. Narayanan, Chairman Nominations Committee

The nominations committee of ACM India invited nominations for the different positions on the ACM India Council from leaders in academia, industry, research laboratories, etc. We received a very healthy mix of suggestions. In the larger interest of the organization, candidates for President, Vice-President, Secretary, and Treasurer were selected among those who have extensive experience with ACM and other similar professional organizations. Since the numbers of such candidates are not plenty, only one name was proposed by the committee against these positions. For the council member positions, names of 9 candidates from different types of academic institutions and industry were proposed by the committee. One more candidate joined this panel through the process of nomination by the required number of professional members as per ACM India bylaws.

The voting took place May 03, 2016 through June 03, 2016. The following candidates were declared elected as per votes received.

**PRESIDENT:** Madhavan Mukund

**VICE-PRESIDENT:** Mukesh Mohania

**TREASURER:** Gautam Shroff

**SECRETARY:** Rashmi Mohan

**MEMBERS:**

- Sudeshna Sarkar
- Maria Choudhary
- Murali Krishna Ramanathan
- Venkatesh Raman
- Abhiram Ranade