# Association for Computing Machinery
# ACM India – Annual Report – 2017-2018

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.

## The ACM India Annual Event 2018

ACM India conducted its three-day 2018 annual event held from $15^{th}$ to $17^{th}$ Feb 2018 in Nagpur. This was attended by around 600+ faculty/students/professionals from around 80+ organizations across India.



This event was organized by the ACM Nagpur Professional Chapter in association with Persistent Systems Limited, Visvesvaraya National Institute of Technology (VNIT), Cummins College of Engineering for Women, and Yeshwantrao Chavan College of Engineering (YCCE).

On 15th Feb, iSIGCSE and CSPathshala events were conducted. iSIGCSE Faculty summit highlighted how ACM-IEEE CS2013 syllabus can be adopted by institutes to bring in uniformity in preparing courses taught such as in defining Learning objectives of courses and assessment methodology. CSPathshala session included experience sharing by some of the local schools who started to adopt their curriculum as part of the pilots.



*iSIGCSE Event 2018*

*iSIGCSE Event 2018*





*CSPathshala Teachers Meet*

On 16th Feb, 12th Inter-Research-Institute Student Seminar in Computer Science at VNIT, Nagpur was held. This started with Keynote by Prof. Y. Narahari, IISc. Bangalore, India and followed by paper and poster presentation by invited research scholars including Best Doctoral Dissertation Award winner Dr. Palash Dey. At Cummins College of engineering for women, a parallel session of ACM-W members celebrating women in computing was held.

IRISS 2018 Event



*Poster Presentation IRISS 2018*

ACM Annual Day 2018 was held on 17th Feb at Persistent Systems Ltd. This included best doctoral dissertation and best student chapter awards distribution, followed by keynotes from various eminent speakers.

*ACM India Doctoral Dissertation Award 2018*

Prof. Martin Hellman (Turing Award Winner 2015) talked about evolution of public key cryptography and how different people have contributed to its invention. Prof. Sunita Sarawagi did a deep dive into machine learning algorithms. Prof. Robert Tarjan (Turing Award Winner 1986) talked about how certain algorithms can be simplified so as to be able to easily analyze and understand. He elaborated on the same giving specific examples.

Key Note by Prof. Martin Hellman

ACM Annual Day 2018





Prof. Moshe Vardi (ACM Presidential Award Winner 2017) talked about artificial intelligence, automation and its impact on humans. Based on the past history around impact of industrial revolution on jobs, it highlights that humans should certainly give a thought to the impact of current wave of automation, they should device proper policies to bring out win-win situation for all.

*Key Note by Prof. Moshe Vardi*

**ACM Annual Event 2018 Organizers with ACM India Council members and Guests**



*Event organizers from Persistent Systems*



*Event Organizers from YCCE*



*Event Organizers from VNIT*

**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.

**ACM India Doctoral Dissertation Award 2018**

*Abhiram Ranade, IIT Bombay / Hemangee K. Kapoor, IIT Guwahati*

The ACM India Doctoral Dissertation Award, established in 2011, 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.

The call for nominations for the 2018 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 2017. A total of 23 nominations were received from academic institutions from across India.

A jury panel consisting of 9 distinguished computer scientists from around the world was constituted with Prof. Krishnendu Chakrabarty (Duke University) as the Chairperson to review and evaluate the nominations.

The jury was very impressed with the quality of the nominated dissertations. The jury included professors from universities in India, US, and Europe. They went through several rounds of intense deliberations. Initially, based on external reviews and evaluation by the jurors, they shortlisted seven potential winners, and after another round of careful scrutiny, they identified three 'finalists'. Based on further discussions, they identified the winner and honorable mention.

The jury selected Dr. Palash Dey's, dissertation titled "Resolving the Complexity of Some Fundamental Problems in Computational Social Choice" for the ACM India Doctoral Dissertation Award, 2018. Dr. Palash Day completed his Ph.D. from Indian Institute of Science, Bangalore under the guidance of Prof. Y. Narahari and A. Bhattacharyya. Jury also decided to give two special mention awards this year. Dr. Swagato Sanyal's dissertation titled "Complexity Measures of Boolean Functions: Fourier Sparsity, Fourier Dimension and Query Complexity" was selected for the Honorable Mention. Dr. Sanyal completed his PhD from Tata Institute of Fundamental Research, Mumbai under the guidance of Prof. Prahladh Harsha. Dr. Manoj Agarwal's dissertation titled "Data as Graph: Discovery, Search, Retrieval" was also selected for the Honorable Mention. Dr. Agarwal completed his PhD

from Indian Institute of Technology, Bombay under the guidance of Prof. Krithi Ramamritham.

The ACM India Doctoral Dissertation Award for 2018 was presented during the ACM India Annual Event on February 17, 2018 at, Persistent Systems Ltd., Nagpur campus. Tata Consultancy Services (TCS) generously sponsored the awards. Two of the three award winners were present in person to receive the award.

A committee of four members (Abhiram Ranade, Hemangee Kapoor, Supratik Chakravarty and Madhavan Mukund) coordinated the efforts.


**ACM Survey on PhD Production in India for Computer Science and Information Technology 2016 – 2017**

*Sachin Parkhi and Dr 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 Head - TCS Research, 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 2016-17 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 were 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. This list of institutions is given in Appendix H.


*Data Collection*

An online form was created, and sent to the Head of Department (CSE/IT) and the Director of the institutes. The form asked for information on: the number of PhD faculty, number of non-PhD faculty, total number of PhD students enrolled and the total number of PhDs graduated last year who got their degree. The form also asked for the stipend that was paid to the PhD students and the major problems that the institutes face with regard to the PhD programme.

Reminders were sent, and the institutions were informed that if they failed to respond, the data of students pursuing PhD from those institutes cannot be captured.

We got responses from 18 institutes through online survey. We assume that the other institutions (i.e. which did not respond and for which we could not find relevant data) don't have an active PhD program, or if they do, it is too small to be of any significant impact.

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. (18)
- Group 2: Institutes which provided data last time but did not do so for this year's report. (5)
- 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. (11)
- 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. (18)

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 2016 to July 2017:

Group 1 institutes: 75
Group 2 institutes (estimated): 45
Group 3 institutes (estimated): 71
Group 4 institutes (estimated): 81

To better understand where these PhDs are being produced, we divide the institutions in two categories: those that have 80% or more faculty 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 32 institutions in the first category (List of these institutions and their data ids given in Appendix E), and 20 institutions in the second category (Appendix F). With this classification, we have the following for PhD production:

- ***Research-focused institutes produced a total of 176 PhDs and other institutions produced 96. The total number of PhDs produced last year from all institutions is 272.***

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

- ***Of the total PhDs produced, 63% were male and 37% were females***.

Looking at the statistics, the number of students who are enrolled:

Group 1: 887
Group 2: 463
Group 3: 629

For all the institutes, the total adds up to 2779. And for group 1 and group 2 is 1350. Out of which, the total number of part time students doing PhDs in institutes belonging to Group 1 is 259 and that of Group 2 is 41.

Using this total, we can estimate the number of PhDs likely to be produced in the country in the coming years. We assume that 90% of these students will graduate over the next five years. If we expect that these graduations will be spread across 5 years with approximately uniform distribution, the number of PhDs graduating will come to around 520 per year for the coming five years. Since we know that the enrolment in PhD programs has been increasing over the past few years, we can expect the increase to be gradual. We assume that the increase in first year is x, in 2nd year is 2x… and in 5th year it is 5x. With this, we can estimate that the number of PhDs graduating will gradually increase to about 550 per year in about 5 years among all institutions, and about 300 per year from institutions in group 1 and 2.

**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 2016-17 was around 272, and that PhD production is likely to grow gradually to about 480 per year in about 5 years.**

For Full report – Please refer -  http://india.acm.org/PhDProductionReport2016_17.pdf

## MSR-ACM India Academic Research Summit

Microsoft Research (MSR) and the Association for Computing Machinery (ACM) India co-organised the third edition of the Academic Research Summit, in partnership with International Institute of Information Technology (IIIT) Hyderabad. The 2018 summit was held on the 24th and 25th of January at the IIIT campus in Gachibowli, Hyderabad.

The agenda included keynotes and talks from distinguished researchers from India and across the world. The summit also had sessions focused on specific topics related to the theme of **Artificial Intelligence: A Future with AI.**

The audience at the summit comprised faculty and research scholars from top engineering institutes across the country and representatives from industry and the government. The range of interests and breadth of the technical topics covered hopefully provided a unique experience for the attendees.

## IARCS-ACM India Student Conference Travel Awards

### *Supratik Chakraborty, IIT Bombay*

Since 2014, ACM India has collaborated with IARCS (http://www.iarcs.org.in/ ) for providing travel grants to students from Indian universities and institutions for presenting papers in International Conferences.

The process of receiving applications, reviewing them, arriving at a decision and informing applicants was managed online through a portal. A committee of 7 computer scientists

across different academic institutes in India and spanning areas of computer science reviewed and took decisions on the applications. We received 629 applications between April 1, 2017 and March 31, 2018. Of these, 54 applications were accepted. The total amount granted was: Rs. 34 lakhs, of which 4 grants were for Rs. 1 lakh each, and 50 grants were for Rs. 60k each.

The average number of days from submission of an application to a decision being taken was 19.71 days.

Below are a few conferences for which travel grants were awarded in the last financial year (this is not a complete listing)

1. International Conference on Computer Vision (ICCV)
2. Computer Vision and Pattern Recognition (CVPR)
3. Eurographics
4. AAAI Conference on Aritifical Intelligence (AAAI)
5. International Joint Conference on Artificial Intelligence (IJCAI)
6. Symposium on Theory of Computtion (STOC)
7. International Symposium on Theoretical Aspects of Computer Science (STACS)
8. ACM-SIAM Symposium on Discrete Algorithms (SODA)
9. Mathematical Foundations of Computer Science (MFCS)
10. International Colloquium on Automata, Languages and Programming (ICALP)
11. ACM Conference on Programming Language Design and Implementation (PLDI)
12. International Symposium on Software Testing and Analysis (ISSTA)
13. Static Analysis Symposium (SAS)
14. Annual Meeting of the Association for Computational Linguistics (ACL)
15. Empirical Methods in Natural Language Processing (EMNLP)
16. IEEE International Conference on Computer Communications (InfoCom)
17. International Conference on Autonomous Agents and Multiagent Systems (AAMAS)
18. The Web Conference (WWW)
19. International Conference on Artificial Intelligence and Statistics (AISTATS)
20. ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD)
21. Pacific-Asia Conference on Knowledge Discovery and Data Mining (PAKDD)

The awardees were affiliated to various institutes in the country, including, but not restricted to Indian Institute of Science, various Indian Institutes of Technology, International Institute of Information Technology Hyderabad, Indraprashta Institute of Information Technology Delhi, Chennai Mathematical Institute, Indian Statistical Institute Kolkata.

**Venkatesh R, Tata Consultancy Services**

During this year the committee continued with the agenda of evangelizing ACM curriculum, defining and evangelizing a CS curriculum and content for schools. One committee member, Dr. Abhijat Vichare, is representing India at CC2020 steering committee. CC2020 is a curriculum recommendations effort (see ACM Curricula Recommendations) that seeks to upgrade the previous effort in 2005 (CC2005). The CC2005 offered curricula recommendations for five fields. The current effort is targeted for release in 2020, and seeks to (a) add emerging fields (e.g. cybersecurity), and (b) refine the curricula for relevance into the next decade.

We also organized four summer schools in the summer during May and July 2017.

### CSpathshala: 2017-18

*Vipul Shah (v.shah@tcs.com)*

Although teaching computers has already been introduced in India, it focuses primarily on digital literacy and students are taught use of word processors and presentation applications. Many countries are moving away from a digital literacy to a Computational Thinking (CT) based curriculum. Introducing a computing curriculum for schools in India has several challenges over and above those faced by the developed nations. Apart from the cultural and regional diversity, India has over 1.6 million schools offering K-12 education to 300 million students. Compare that with about 130,000 schools in the USA with 54 million students. To compound the problem, India has over 50 education Boards!



*Teacher training in Sabarkantha*



*Encoding [Information Processing]*

The Association for Computing Machinery (ACM) India started an education initiative, CSpathshala (www.cspathshala.org) in 2016, to teach computing as a science in all schools. The key objectives are to popularise CT and influence education policy to enable its introduction into the curricula. A two-pronged approach has been undertaken, developing a CT curriculum along with teaching aids and working at grassroot levels with schools, training teachers, executing pilot projects and collecting data to

demonstrate the feasibility and efficacy of teaching CT. We have also initiated discussions with MHRD as well as policymakers.

Over 1,00,000 students in government and private schools in both rural and urban areas in Andhra Pradesh, Chandigarh, Delhi, Goa, Gujarat, Karnataka, Kerala, Maharashtra, Tamil Nadu, Uttar Pradesh and West Bengal are piloting the CT curriculum in English, Gujarati, Hindi and Marathi. 1350 trustees, heads and teachers from 600+ institutions, B.Ed students, local government and SCERT officials participated in 12 CT awareness workshops. 900+ teachers from 290+ schools have been trained on CT through 30 training programs.
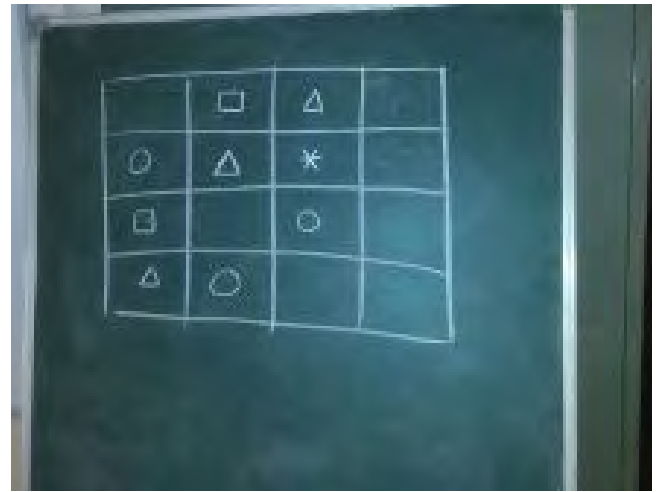


*Sudoku using Symbols [Decomposition]*

Teaching aids for 200 lessons have been created by CSpathshala's 250+ volunteers. A subset of these have been translated into Gujarati, Hindi and Marathi.



*Towers of Hanoi [Decomposition & Patterns]*
*Systematic Counting*



*Systematic Counting [Marathi]*

CSpathshala's leadership in CT education in  India is increasingly getting noticed and recognized. NCERT invited CSpathshala to participate in the CS curriculum committee for grades XI/XII, as well as author chapters for the textbook. Andhra Pradesh department of Social Welfare has decided to adopt curriculum for 1,00,00 students in 188 of its residential schools. Google has further extended the funding to CSpathshala by 2 years. Partnerships have been forged with NCERT's NROER repository, Cambridge University Press, Rotary Club of Pimpri and NGO Learning Links Foundation.

CSpathshala focus in 2018-2020 will be to roll out an assessment program to assess the direct and indirect impact of CT,  master trainer program and continue efforts with National

Policy & Education Boards to mainstream CT.  In this report we highlight the details of the various activities carried out.

## CC2020 Steering Committee Report

*Abhijat Vichare (abhijatv@gmail.com)*

Two face to face meetings of the steering committee of the CC2020 project were held during this reporting year. The first one was on August 01 and August 02, 2017 at Boston, U.S.A. This meeting aimed at learning from the surveys conducted before, and defining the broad outcomes of the project. Of particular importance were the international considerations. Three main working groups were formed: (a) the (final report) writing group, (b) the competencies group, and (c) the tools group. The writing group has been concerned with the issues to include, discuss, and thread through the report. The competencies group has been concerned with investigating the idea, relevance and use of a competency based approach to computing curricula. An associated aspect to competencies based approach is the context sensitivity of a curricular design effort. The tools group is concerned with the design, and possibly development, of a (software) tool that would bring together the ideas from the CC2020 project into a tool usable by the various stakeholders at large. This meet decided to carry out their work through a set of target conferences related to education. Each working group identifies and lists the conferences or workshops where their members could interact in various ways (e.g. speak, publish, participate etc.) to develop their work. One key take away from the first meeting has been the proposal to move towards a competency based model of learning from the outcomes based model.

The second meeting was held from February 19 and February 20, 2018 at Baltimore, U.S.A. to align with the SIGCSE 2018 conference. Significant work has been reported by each group, and has been collated onto a Google drive. The mutual dependence of each working group has been noted, and an "iterative convergence" approach has been adopted. Detailed tables of competencies have been produced for internal discussions. Among our contributions is a paper describing the landscape of computing has been submitted to FIE2018 (Frontiers In Education), where we are developing a model that captures the various facets of computing like the conceptual/scientific, technological, engineering and (software) services, and uses it to describe the landscape.

Between the twice-a-year face to face meetings, the steering committee meets twice or thrice as needed, and the working groups (which include the whole task force) meet monthly.  The main problem we (from ACM India) are contributing to is defining the computing landscape of today, and the possible tomorrow.

However, there are many other aspects of the curricula problem relevant to us that need contribution from our side. It is, therefore, critical for stakeholders in India to come together and examine issues relevant to us. In particular, the role of competencies based model juxtaposed with our traditional outcomes based model needs urgent clarity for effective representation of our issues in the steering committee. Among these are questions like:

1. Is the competencies model relevant to our India specific issues as the "next step" after outcomes based approach? If so, how? If not, why not and what are the alternatives?
2. Do the contexts of curricular needs change across various regions of our country? If so, how? How do we define contexts?

A focused effort is needed for our contribution in the CC2020 to be meaningful nationally and internationally. An upcoming ACM India conference, Compute 2018, will be focusing on CS education issues through the *i*SIGCSE group of ACM India. We hope to have some CC2020 steering committee members deliver keynotes. A meeting of the CC2020 steering committee is planned in the second half of 2019 at Pune. We hope to use this opportunity to have a national level event aligned with this meet to extract the maximum possible benefit for our curricular efforts in CS. We work along with the ACM India Education Committee and the *i*SIGCSE towards these goals.


## ACM-India Summer Schools May-July 2017

### *Venkatesh Raman, IMSC*

The higher education landscape in India is going through massive changes with opening up of a large number of government and private institutions including new IITs. Hence there is a huge demand for well-trained PhDs in the country. At the same time, majority of bright undergraduates are lured by the corporate world. Part of the reason is also the lack of awareness of academic research in the country, among the undergraduate students. The central government has started a number of initiatives including Prime Minister's Scholarship for bright undergraduates from IITs wanting to do PhD in premier institutes in the country. ACM-India Summer Schools is an initiative of ACM-India started in the last year towards the same goal. These summer schools were organised at various geographical regions of the country on varied topics in computer science. The primary target audience for the schools was students in the pre-final year of their undergraduate program, though master's and PhD students were allowed on a selective basis. In these schools, the participants were first given a grounding of basics in the first few days through lectures and problem sessions. Then they were taken through advanced topics, and in some schools participants also engaged in group projects. The coordinators and the lecturers in the school were eminent experts in the area in the country. For the year 2017, ACM-India supported the following schools.

1. School on Information and Systems Security from 29th May to 16th June, 2017 at Vellore Institute of Technology (VIT), Vellore. Coordinators: Prof R. Ramanujam, IMSc, Chennai, Prof. Aswani Kumar Cherukuri, VIT Vellore.
2. School on Information Security and Forensics from 29th May to 17th June, 2017 at PVPIT, SP Pune University, Pune (in association with the ACM Pune professional chapter.) targetting only women students. Coordinators: Dr. Sachin Lodha, TRDDC Pune and Dr. Arati Dixit, Pune University.
3. School on Machine Learning and Natural Language Processing from 1st June to 21st June, 2017 at IIT Kharagpur. Coordinators: Prof Sudeshna Sarkar, Prof Pawan Goel and Prof Pabitra Mitra, IIT Kharagpur.
4. School on Graph Theory and Graph Algorithms from 26th June to 15th July, 2017 at IIT Gandhinagar. Coordinators: Dr. Neeldhara Misra, Prof Anirban Dasgupta, IIT Gandhinagar.

These schools were well-advertised in ACM-India website and through mailers. We had an overwhelming response of over 1000 students applying for the schools. After scrutiny by an academic program committee, each school selected 40 to 50 students. The selection was primarily based on their academic performance, any previous internship or competitive exam experience and their motivation and preparation for the school as witnessed in their statement of purpose. Each school costed around 7 to 10 lakhs. ACM-India supported the bulk of the costs (primarily the speaker's expenses and some part of student expenses)

while the host institute covered the rest. We obtained funding to the tune of 5 lakhs from Google and 4 lakhs from Microsoft for these schools. There was also a registration fee of Rs. 2000 (+GST) that covered most of the expenses of the students. Specific details of the proposals are attached in the next few pages. Summary Through these schools, ACM-India has touched thousands of undergraduate students and nearly fifty expert researchers in the country. The feedback from the participants – both the lectures and students – were highly positive. Several students opined that they had not only understood the fundamentals of the subjects, but also got a clarity on the research directions in the area. Several participants kept in touch with the lecturers for further internship and possible higher studies in the area. We know of at least two students who managed to write papers in reputed conferences, primarily due to their participation in these schools. Quite a few lecturers mentioned about taking some of these participants for their research programme. Based on the success of the last year's programs, this year, ACM-India is organizing (with the host institutes) 5 summer schools.

1. School on Information and Systems Security

| Dates | 29th May to 16th June, 2017. |
|---|---|
| Venue | Vellore Institute of Technology (VIT), Vellore. |
| Coordinators | • Prof R. Ramanujam, IMSc, Chennai<br>• Prof. Aswani Kumar, Professor and Dean of School of IT and Engineering, VIT Vellore |
| Brief Topics | Cryptography, System Security, Network Security, Cyber Physical Systems Security. |
| Speakers | • Prof R. Ramanujam, The Institute of Mathematical Sciences, Chennai<br>• Prof S. P. Suresh, Chennai Mathematical Institute, Chennai<br>• Dr. Chittaranjan Hota , Birla Institute of Technology and Science-Pilani, Hyderabad<br>• Dr. Vishal Saraswat, C.R.Rao Advanced institute of Mathematics, Statistics, and Computer Science, Hyderabad.<br>• Dr. Kannan Srinathan, International Institute of Information Technology, Hyderabad<br>• Dr. Ashish Choudhury, International Institute of Information Technology, Bangalore<br>• Dr. Arpita Patra, Indian Institute of Science, Bangalore<br>• Dr. Bhavana Kanukurthi, Indian Institute of Science, Bangalore<br>• Dr. Chester Rebeiro, Indian Institute of Technology, Chennai |

2. School on Information Security and Forensics for Women

| Dates | 29th May to 17th June. |
|---|---|
| Venue | PVPIT, SP Pune University, Pune (co-organized by ACM Pune professional chapter.) |
| Coordinators | • Dr. Sachin Lodha, TRDDC Pune. <br> • Dr. Arati Dixit, PVPIT, SPPU, Pune University. |
| Brief Topics | Information Security and Forensics, Cryptography and Number Theory, Digital Forensics Fundamentals, Privacy and Mutual Trust Mechanisms, Software and Application Security, Network and Internet Security, Other Security Topics, Mathematical Models of Computer Security, Turing Talk Series (on Winners in Security), Management Issues. |
| Speakers: | • Prof. Bernard Menezes, KReSIT, IIT Bombay <br> • Dr. Sachin Lodha, TRDDC, Pune <br> • Mr. Manish Shukla, TRDDC, Pune <br> • Mr. Harshal Tupsamudre, TRDDC <br> • Dr. Nutan Limaye, IIT Bombay <br> • Dr. Aditya Abhyankar, DOT, SPPU , Pune <br> • Dr. Rituparna Chaki, University of Calcutta <br> • Dr.Jibi Abraham, COEP, Pune <br> • Dr.Nitin Bhavsar, ISACA, Pune <br> • Dr.Pandurang Kamat, PSL, Goa <br> • Dr.Madhumita Chatterjee, Bombay University <br> • Dr.Arati Dixit, PVPIT, SPPU, Pune <br> • Dr.Aniruddha Joshi, PUMBA, SPPU, Pune <br> • Ms. Shweta Chawla, CyberSolutions, Pune <br> • Mr.Parag Gokhale, ISL, IBM, Pune <br> • Mr. Mahesh Saptarshi, Symantec, Pune <br> • Mr. Atul Kahate, Pune, author, Cryptography and Network Security, Tata McGraw-Hill |

3. School on Machine Learning and Natural Language Processing

| Dates | 1st June to 21st June, 2017. |
|---|---|
| Venue | IIT Kharagpur. |
| Coordinators | • Prof Sudeshna Sarkar, IIT Kharagpur<br>• Prof Pawan Goel, IIT Kharagpur<br>• Prof Pabitra Mitra, IIT Kharagpur |
| Brief Topics | Natural Language Processing: Morphology, POS tagging, Word Vectors, Information Extraction, Parsing, Semantic Parsing, Machine Translation; Machine learning: Graphical Models, Neural Networks, Deep Learning |
| Speakers | • Asif Ekbal, IIT Patna<br>• Manish Gupta, Microsoft<br>• Balaraman Ravindran, IIT Madras<br>• Pushpak Bhattacharya, IIT Patna<br>• Vasudeva Verma, IIIT Hyderabad<br>• Arnab Bhattacharya, IIT Kanpur<br>• Dipti Mishra Sharma, IIIT Hyderabad<br>• Sobha Lalitha Devi, Anna University<br>• Dipanjan Das, Google, New York<br>• Manish Shrivastava, IIIT Hyderabad<br>• Mitesh Khapra, IIT Madras<br>• Sivaji Bandyopadhyay, Jadavpur University<br>• Rajeev Sangal, IIT BHU<br>• Sunita Sarawagi, IIT Bombay<br>• Soumen Chakrabarti, IIT Bombay<br>• Pawan Goyal, IIT Kharagpur<br>• Sudeshna Sarkar, IIT Kharagpur<br>• Pabitra Mitra, IIT Kharagpur |

4. School on Graph Theory and Graph Algorithms

| Dates | 26th June to 15th July, 2017. |
| --- | --- |
| Venue | IIT Gandhinagar. |
| Coordinators | • Dr. Neeldhara Misra, IIT Gandhinagar<br>• Prof Anirban Dasgupta, IIT Gandhinagar |
| Brief Topics | Graph theory, Special graph classes, Width measures, connectivity, shortest path, approximation algorithms, streaming algorithms, dynamic algorithms, fixed-parameter algorithms. |
| Speakers | • Bireswar Das, IIT Gandhinagar<br>• Anirban Dasgupta, IIT Gandhinagar<br>• Manoj Gupta, IIT Gandhinagar<br>• Neeldhara Misra, IIT Gandhinagar<br>• Rahul Muthu, DAICCT Gandhinagar<br>• Manu Basavaraju, NITK<br>• Meghana Nasre, IIT Madras<br>• Deepak Rajendraprasad, IIT Palakkad |

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**ACM India Celebration Of Women In Computing AICWiC**

**11ᵗʰ -13ᵗʰ September, 2017 , Chennai**

The **ACM India celebration of Women in Computing** – AICWiC 2017 event was hosted by ACM-W Chennai Chapter and School of Computing ,SRM University. This year's AICWiC 2017 main event was arranged from 11ᵗʰ to 13ᵗʰ September 2017, was truly an occasion for empowerment of women in computing.

**DAY 1: ( 11ᵗʰ September,2017)**

The day 1 of the convention experienced four important proceedings happening at various engineering colleges around in an around Chennai like:

1.   The Lady Ada Programming competition Finals, SRM University Kattankulathur Campus

2.   ACM-W Chapter summit, SRM University Kattankulathur Campus

3.   Web App Development,  REC College of Engineering, Chennai

4.   Deep Learning tutorial, Department of CSE SSN College of Engineering Chennai

**The Lady Ada Programming competition Finals:**

The day kick started with the "The Lady Ada Programming competition Finals" for the top 10 finalists (girls) from around India. The competition had more than 1000 girls registered from all over India. The competition had 2 online rounds followed by an interview to shortlist top 10 finalists. The event was technically supported by ReliScore. The first price of 15,000, 2ⁿᵈ prize of 10,000 and third prize of 5,000 for the winners.



**ACM-W Chapter summit, SRM University Kattankulathur Campus:**

ACM-W India organized its very first ACM-W India chapter summit during the AICWiC 2017. The Chapter meet was convened over by School of computing by SRM University between 3 to 5 pm, with about eight ACM-W chapters representation. It was truly a podium for various ACM-W students Chapter members from SRM University (host), SSN Engineering Col, UPES- Dehradun, Guwhathi, Delhi, Pune, Chennai based student chapters to connect, share experiences and empower woman in computing. The summit had an enthusiastic

discussion of procedure to start an ACM-W Chapter and the possible events that can be organized for encouraging and empowerment of women talent in the Computing society.



Dr. Arati M. Dixit, ACM-W India, Chair shared her thoughts and motivated the participants. There was a discussion over 101 ideas that chapters can implement. The discussion highlighted the Women in Computing history, Computer science education week, Communication workshop, Research Combining events and Peer tutoring. There was a talk on "How women empowerment can be done through ACM Women chapter" and "How can computing technology reach girls in rural areas". Ms. Gunjan Lal, ACM-W India Executive Council member shared her experience and ACM student chapter team organization leading to last year"s „Best student Chapter Award". The day concluded with the host University organizing a cultural fest treat and delicious dinner for ACM-W/student committee members and participants of AICWiC 2017.

Another was a technical session on WebApp Development by Rajalakshmi Engineering College.

**Web App Development,  REC College of Engineering, Chennai:**



The ACM - W has organized ACM INDIA CELEBRATION OF WOMEN IN COMPUTING at Rajalakshmi Engineering College on 11th September 2017 (Monday). In this connection the Department of Computer Science and Engineering had conducted a Tutorial on Web Application Development Using Hibernate with Spring MVC for the faculty members, students and research scholars across India on 11th September 2017 between 9 am and 2 pm.

Mrs. Banu Manoharan, Technical lead in Education, Training & Assessment Unit, Infosys Ltd, conducted the tutorial for Springs MVC. Spring Boot is a tool for the development of applications using Spring framework without requiring virtually no configuration. Spring Boot is able to identify what the main characteristics of the application being developed and automatically make the necessary settings, for example, the applicationContext.xml file, web.xml and data sources. Developers earn much in productivity, focusing only on the development of the application and not the configuration of the used tools and frameworks, Spring tool helps us to provide better performance and easy to learn. It is both front end and backend tool. Here there is no need of any html code and database connectivity. The internal working for java program was explained so clearly by the speaker along with the difference between the

working of a normal java,jre and spring. All the packages and the features provided by spring tool for creating a whole project was described. The automatic integration of the class in the code and the database tables were demonstrated. In the Afternoon session, the participants had live hands on experience to install and work out with spring MVC.Participants developed a simple web based project which consist of 5 pages and the same was deployed live. Dr. Sheila Anand, Professor presented a memento to the Speaker Mrs. Banu Manoharan.

**Deep Learning tutorial, SSN College of Engineering Chennai:**
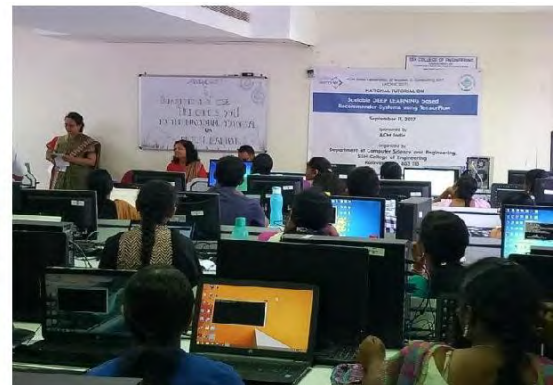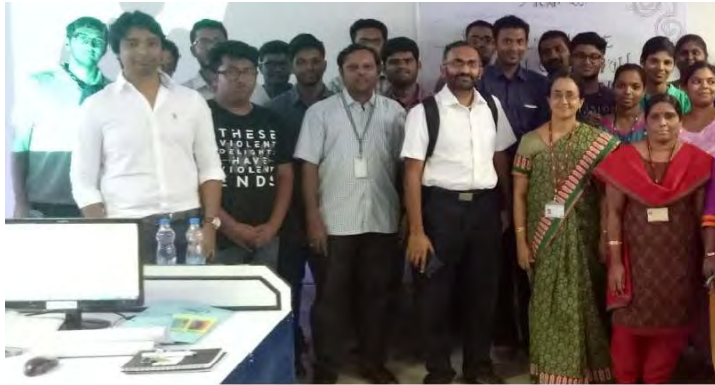






This tutorial was organized by the Department of Computer Science and Engineering, SSN College of Engineering Chennai. The workshop was co-ordinated by Dr.Chitra Babu, Prof. & Head, Dept. of CSE, SSN College of Engineering and Vice-Chair, ACM India Professional Chennai Chapter along with Dr.B.Prabavathy, Dr.B.Bharathi and Dr.Shomona Gracia Jacob, Asso.Profs./CSE, SSNCE.

The tutorial had an online registration that witnessed more than 72 entries. Since registrations were confirmed on a first come first serve basis, only the first 46 registrations could be accommodated owing to the requirement of space and time available to train the participants during the hands-on sessions.



The speakers at this tutorial were Dr.Vijay Agneeswaran, Senior Director of Technology who heads data sciences team of Sapient Razorfish in India and Mr.Abishek Kumar, Manager, Data Science, Sapient Razorfish. Dr.Arati M. Dixit inaugurated the tutorial. She introduced the participants to the various spheres of ACM and encouraged the students and faculty to actively contribute to Computing. The participants gave very good feedback on the tutorial and felt that more time could have been allotted for interaction and discussion with the speakers. On the whole, it was an enlightening experience that

enabled the participants to get introduced and set up the basic software environment to further explore their interests in deep learning frameworks and algorithms.

## DAY 2: (12<sup>th</sup> September, 2017)



The inauguration day was held on 12<sup>th</sup> of September 2017. The inauguration function was graced by Dr. Arati Dixit, Dr. Revathi Venkatraman, Ms. Gargi Das Gupta, Dr. Sheela Anand and Dr. Chitra Babu. There was a lightening of the lamp to commemorate the beginning of event. There was a welcome address by Dr Revati Venkatraman and presidential address by Dr.Arati Dixit, welcoming the faculty and students and giving an eye-opener session stating the need for the growth of women in computing from a pyramid to a tower level. Dr. Sheela Anand and Dr. Chitra Babu, welcomed he participants for ACM‟s AICWiC2017 and wished many more such events under ACM-W chapters across India. There were about 250 participants for the AICWiC 2017.

**Ms Gargi B. Dasgupta, senior research manager at IBM Research, India delivered a keynote on "Cognitive Technologies and their Applications".**

There were talks about history of women and computing that celebrated informed and was supportive of the fact that women can do wonders in the field of Cognitive technologies and artificial intelligence. She focused on how from simple search engines to complex applications, enable users to book vacations, shop groceries, schedule appointments with friends and study with aided tutors, AI is everywhere. For building cognitive applications there are several technology components that need to be built. One of them is conversation capability. Chat-bots have become extremely popular in many domains.

Ms.Dasgupta talked about the technology components in conversational chat-bots that help in automated understanding of natural language queries or question understanding, automated response generation and knowledge extraction for driving the conversation. Ms. Gargi B. Dasgupta concluded with her insights on the IBM program chapter called "MAITRI".

Dr. Arati M. Dixit, Chair, ACM-W India, delivered a talk on "Dawn of Women in Computing: A Turing Award Perspective". Women have been very much active members of the community contributing to the field of computing since its inception. The talk highlighted the historical, social, cultural and technological perspective resulting in an impressive dawn of women in computing. She did talk about the inspirational work done by the pioneer women in computing like Lady Ada, Grace Murray Hopper, Anita Borg and many more.

Her talk focused on Women Turing award winners with an elaborate discussion of the work by Silvio Micali and Shafi Goldwasser (2012 Turing award Winners). Their transformative work that laid the complexity-theoretic foundations forthe science of cryptography and in the process pioneered new methods for efficient verification of mathematical proofs in complexity theory was discussed.

Dr. Tracy Camp, Professor, The Colorado School of Mines, USA gave a Skpe talk on "Implementing a Wireless Geophysical Sensor Network" (was unable to attend the AICWiC,2017 in person because of unexpected Visa Issues). Her talk focused on designing an efficient wireless sensor network capable of real-time, continuous (e.g., 500 Hz sampling rate), geophysical monitoring, which requires a more intelligent approach than a naive "sense, store, send" method. It is known that, the radio on a wireless mote platform consumes significant amounts of power; Dr.Camp suggested the utility of compressive sampling techniques to reduce radio transmissions (and save energy) in the development of a wireless geophysical sensor network. In addition to energy savings from reduced radio transmissions, compressive sampling techniques can also save energy in some applications (e.g., pollution monitoring) from reduced sensing requirements.

The presentation showed that compressive sampling is a viable option for reducing the amount of data that is both collected and transmitted in a wireless seismic sensor. Specifically, summarized the experimentation and results from the ongoing research projects. First, simulating compressive sampling on real-world seismic data containing avalanches to find the "best" combination of sparsity domain and recovery algorithm; the seismic data was collected during the winter of 2010-2011, when seven wired geophone sensors were buried in a snow slope close to an active avalanche region near Davos, Switzerland.

**Poster presentation of Work in Progress (WIP)** encouraging the Women researchers to present their on- going research were showcased. Post lunch session started with the **oral presentation of Work in Progress**, where women researchers from different educational institutes eagerly participated to present their research views in computing.



The evening saw the most exciting **panel discussion on: Road Ahead for Women in Computing Research.** The panelists were Academicians Dr. Hema Murthy (IIT Chennai), Dr. Arati Dixit and Industry participants Ms. Vaijayanthi Srinivasaraghavan (IBM India Pvt Ltd), Ms. Thilagah Kasipandian,(Cognizant Technologies Ltd) and Dr. Chitra Babu

(Moderator). The discussion was on the comparative growth of women empowerment over the decades and how it is still much more women participation is required in field of Computing.

The winners for the The Lady Ada Programming competition and WIP Presentation were felicitated by Dr. Mukund Madhavan, President, ACM India and Dr. Arati Dixit, Chair ACM-W India.



**Programming completion and WIP Winners of AICWiC 2017**

The two days" event report summarizing the AICWiC 2017 events and activities was read by Ms.Vaishnavi Moorthy, Assistant Professor, SRM University followed by the valedictory event. The fruit of perseverance was rejoiced by celebrating the winners of Lady Ada Programming Contest, Work in Progress (Oral and Poster presentations) and a group photo with the winners and ACM members. The Lady Ada Programming Contest winners were:

- First Prize-Shreya Joshi (Pimpri Chinchwad College of Engg(PCCOE), Pune),
- Second Prize – R. N. Kirtana (SSN College Of Engineering, Chennai) & Shivani Junawane(PCCOE, Pune)
- Third Prize - Pooja Shah (SRM University,Kattankulathur)

The Poster Presentation Winner was R.Nandhini (Rajalakshmi Engineering College, Chennai) & the Paper Presentation Winner was Neeta Nathani (G.H. Raisoni College of Engg., Nagpur).

Dr.M.Pushpalatha, Vice Chair ACM-W Chennai Chapter, Professor, SRM University took the stage to thank the ACM members, organizing committee members and others, who on and off the dais were responsible to make this AICWiC 2017 possible and a successful get-together celebrating women in computing .

## ACM-W India 2nd National Hackathon for Women

## 2-3, October, 2017 , Chandigarh

ACM Student Chapter, Chitkara University in collaboration with ACM-W India and Oracle Academy organizedACM-W India 2nd National Hackathon for Women on October 2-3, 2017 and witnessed an ACM celebration of Women in Computing!



ACM-W India and Oracle Academy organized the hackathon to encourage & empower girls with an opportunity to exhibit problem solving talent using Computing Technology. The event witnessed the participation of 308 enthusiastic and tech-savvy teams from all over India with an idea which had the power to change the world and transform the machinery on which the world works. The theme of the hackathon was '*Digital India'*. The event started with the registration of 308 teams, had three rounds in total and finally ACM-W celebrations. '*Digital India*' is a campaign launched by the Government of India to ensure that Government services are made available to citizens electronically by improved on-line infrastructure and by making the country digitally empowered in the field of technology. The goal of this Digital India Hackathon is to get developers, designers and entrepreneurs come together,

form connections and apply their skills to create something of value. The hackathon was an intellectually stimulating activity that will spur innovation and collaboration.



The round 1 marked the beginning of the hackathon as 308 teams from all over India registered themselves, with any one idea on the theme 'Digital India'. After witnessing a huge response in the registration process, a team of 52 highly professional members from ACM India and Oracle Academy was formed to review the ideas of the teams registered for the event and select the best 20 teams out of it. The selected 20 teams were then promoted to the next round which held on 9th September, 2017.

The round 2 was witnessed on 9th September 2017 taking place on Skype. The 20 shortlisted teams selected for the were cross-examined by the panel. The discussion was mainly focused on the idea of the respective teams. The participants were questioned about their idea, it's implementation and it's application and use in the society. Out of these 20 teams, 10 teams were shortlisted to participate in the final round.

All the top 10 finalist teams and one wild card entry accompanied by their respective mentors were called for an on-site Final round with the theme like healthcare, Fintech and Education using gamification at Chitkara University, Chandigarh. These teams were given 24 hours to successfully run their application and showcase their idea to the judging panel. The process of evaluation of the projects took place in three phases. First phase was the evaluation of the designs of the projects. Second was the feedback and architecture based round, in which the teams presented their project and explained all the basics of their project such as the coding part and the probability of the completion of their projects in the specified time. Third was to give a demo of their respective projects and a presentation describing the mechanism of the project in five minutes. All the teams were given marks on the basis of these three rounds and the team with maximum marks was to be declared the winner. Ms. Heena Timani, Dr. S P Sood, Dr. Jagpreet Singh, Mr. Ajitpal Brar and Mr. Anish Chaudhry were the judges for the final round. The guests included the Mr. Shekhar Sahasrabudhe, COO, ACM India, Dr. Arati M. Dixit, Chair, ACM-W India, Mrs. Rashmi Mohan, Secretary of ACM India and Mrs. Maria Chaudhary, council member, ACM India.



Mrs. Rashmi Mohan addressed the students and enlightened them about the theme 'Digital India' and women empowerment on 3rd October. She also laid stress on the current situation of women in the IT sector as well as the society and pressed for reforms. Dr. Madhu Chitkara, Vice-Chancellor of Chitkara University also addressed the students and gave away the prizes to the winners.

The Hackathon Winners(Sponsored by Oracle Academy, India) announced by Ms. Maria Choudhary were:

- First Position: Tadakamadla Naveena, Yelakonda, Pilli Naga(Sphoorthy Engineering College)
- Second Position: Priyanka Atmakuri, L.Geethika, Sreeja(Sphoorthy Engineering College)
- Third Position: Sarveen Kaur, Shrijal Chauchan, shruti babbar(Chitkara University)

## GHCI 2017 - The Grace Hopper Celebration India 2017,

### November 16-17, 2017, Bangalore India

The Grace Hopper Celebration of women in computing, India (co-sponsored by ACM) has become a flagship event in the Indian technology circles.  Every winter, hordes of women technologists descend upon Bangalore to participate, learn and contribute to the conference that represents diversity and excellence at its core.



This year, with new leadership, a new venue and a new brand, GHCI brought together ~3700 women at their annual conference.  The location of BIEC (being further away from the city) did not deter the ladies from showing up and partaking of the activities.  As with every year, the tracks were unique and relevant and appealed to a wide variety of audiences.   There were some familiar and known tracks like Career Mastery, Emerging Technologies, Human Computer Interaction and Systems Engineering and many new and exciting ones like AI, Data Mining & ML, Big Data, IoT and Cloud, and Techno Social Innovation.   Each track was clearly defined and held enough unique appeal to showcase the myriad products and ideas that the women work on.

As always, Day 1 was kicked off by the ABI staff.  Speaking to a hall filled with 3700 hopeful and excited faces, Geetha Kannan, Managing Director of ABI India, brought forth her summary of the years gone by, her vision for the future all paired with the wry humour that she is famous for.  Her big message included the importance of having a diverse team while building a robust product.  She also had the important role of introducing the new CEO of AnitaB.org, Brenda Darden Wilkerson.  As she took on the mantle from the exiting CEO Telle Whitney, Brenda expressed her eagerness to continue to focus on India as a

stronghold for AnitaB.org's activities and a future that gave opportunities to many women across the world. ACM president Madhavan Mukund also spoke at the inauguration ceremony and brought out the collaboration opportunities that ACM and AnitaB.org have that can help reach the widest corners of the country, to bring knowledge and inspiration to young girls.

Pankaja Sridevi, MD of ANZ Bangalore Service Centre, took on the stage for the first keynote. Her speech was peppered with personal and relatable examples and a self deprecating humour that really appealed to the audience. Her focus on supporting your peers, being champions of change and empowering your ecosystem was well received as practical, actionable and useful advice. The CXO panel on "The Rise of the Machines" was also very relevant and eye opening. Moderated by Geetha Kannan, the panelists - Anu Acharya (MapMyGenome), Dilipkumar Khandelwal (SAP Labs India), Anant Maheshwari (Microsoft India) and San Banerjee (Apartment Adda) - really brought for their views on how automation is taking over our world and how we could equip ourselves to be successful as women technologists in the new changing workplace.
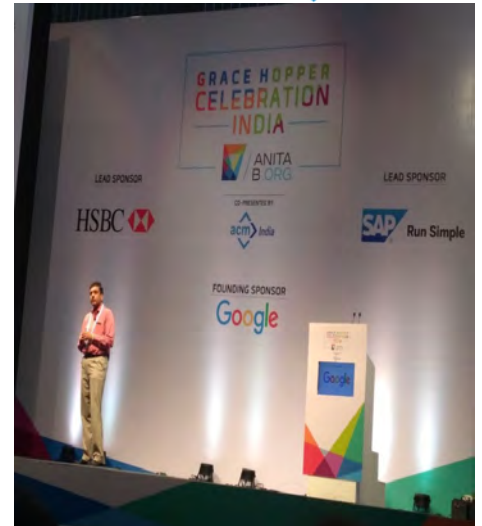
During lunch, our ACM sponsored scholars met informally with the ACM-W leadership for a breakout session to share their experiences and learning. The ACM sponsored 40 participants which included students and faculty members. The following ACM-W India Council members participated in the breakout mentoring session - Dr. Arati M. Dixit(chair), Dr. Sheila Anand, Dr. Rituparna Chaki, Dr, Maushmi Barooah, Ms. Heena Thimani and Ms. Gungjan Lal. There were representatives from about 15 ACM student chapters from India. The atmosphere was full of energy and enthusiasm as each chapter shared the activities they have been doing and planning. All the participants got excellent networking opportunities with other ACM student chapters.



Day 2 brought forth yet another valuable and engaging keynote from Rebecca Parsons, CTO of Thoughtworks. Rebecca's focus on continuous learning and practical advice on her own experience, relating it to programming and coding, made for a very fun and inspiring hour. She encouraged the women to take big risks with the sage advice of "Move towards something exciting, not just away from something uncomfortable". Her session was quickly followed by the Women's Entrepreneur Quest (WEQ). Always being the most energetic and fun part of the conference, this year was no different. Dr. Anita Gupta of the Department of Science & Technology, Government of India, introduced the audience to all the stellar work that the government was doing to encourage and retain women entrepreneurs - especially in science and technology streams. Their constant support of the WEQ through

the years is a testament to their commitment to women technologists. The WEQ winners represented a diverse set of accomplished women - working on ideas ranging from energy, healthcare, agriculture, virtual reality and social impact. Their learning and exposure from their silicon valley trip will help them bolster their entrepreneurial journey and serve as an inspiration for all the attendees of GHCI.

As always, GHCI left us all feeling rejuvenated and inspired. The technical sessions were of high quality and introduced us to many new areas such as aerospace sensors, 3-d Bioprinting, and maintaining your digital assets. We also got the opportunity to dive deeper in Neural Networks, Artful UX design and edge computing. We heard from renowned leaders about honing your instincts to make better decisions, and bringing humility and conversational intelligence into our thoughts and actions.

GHCI continues to connect, inspire and guide women technologists in India and ACM's association with the conference reinforces our commitment to making the technology world a fair playing field for all genders.

**ACM Pune Celebration of Women in Computing**

**23- 24 February, 2018 Pune**



With a view to commemorate women and their legendary achievements, ACM Pune Professional Chapter in association with ACM-W India organized - ACM Pune Celebration of Women in Computing hosted by ACM Student Chapter, PICT, Pune, Maharashtra, India on 23- 24 February, 2018.

The objective of this celebration was to spread awareness about women empowerment and to encourage women to attain great feats in technical domain by applauding and appreciating women talents. This event witnessed a platform for networking and interaction of Women in Computing in Pune region.



The competitions organized for the participants included JustCoding, Tech MCQ's Test, Cerebro, BollyQuiz and Insight. The well-received competitions catered to competitive coders, creative writers and Bollywood movie fans. There were various side events for fun and entertainment.



The inaugural ceremony was followed by an awe-inspiring talk by Mrs. Pranjal Gundesha. The chief guest Dr. Indira Parikh and Dr. Swati Sardesai and the guest of honour Dr. Arati Dixit, Mrs. Shubhangi Kale and Mrs. Shailaja Gaur enlightened the crowd with their motivational words.



An elite crowd of about 200 comprising renowned faculty members and girl students from all across Pune was marveled by their immense knowledge and their achievements. The highlight of the event was the panel discussion on "Career options for Women in Computing".

Dr. Prahlad T. Kulkarni, Principal of the host institution PICT, Pune expressed his thoughts and motivated the audience.

This event 'ACM Pune Celebration of Women in Computing' was instrumental in bringing the Pune Women in Computing together on a unique platform. This event is planned as an annual event in Pune with many academic institutions eager to host it.

**Winners for different competitions:**

JustCoding:   Shambhavi Jagtap(first), Vaishnavi Khindkar(second)
Tech MCQ Test:  Shambhavi Jagtap(first), Chaitali Agarwal(second)
Cerebro:   Kajal Toshniwal(first), Prachi Khoparde(second)
Bollyquiz: Mallika Malkani(first), Shrutika Kharat(second)
Insight: Manasi Sonawne(first), Priyanka Narode(second)

ACM-W India Executive Council Members at AICWiC 2017

## Conference Sponsorships

**Krishna Nandivada V,**

**IIT Madras**

We received 51 applications for approval. Out of which 9 conferences were accepted under ICPS and 8 conferences were under InCoop. Several high quality conferences were conducted or are planned to be conducted with ACM sponsorship or cooperation, including:

- ACM Compute 2017
- International Conference on Computer and Communication Technology
- Forum for Information Retrieval Evaluation
- Workshops co-located with the International Conference on Distributed Computing and Networks 2018
- 19th International Conference on Distributed Computing and Networking
- The ACM India Joint International Conference on Data Science & Management of Data
- Innovations in Software Engineering Conference
- Interact
- SIN
- FIRE
- HIPC
- COMSNET
- ICDCN

## ACM COMPUTE 2017

### *Lipika Dey & Shourya Roy*

The annual conference of ACM, COMPUTE 2017 was held at SIRT Bhopal during 16th and 17th November. In accordance with the global surge in interest in Artificial Intelligence (AI), the theme of the conference was "Artificial Intelligence: Current Trends and Future Impact."

The conference had received 70 submissions. Each paper went through two levels of plagiarism checks. Papers which were too lengthy (more than 20 pages in prescribed format) and/or had significant (> 20%) overlap with any single source were scrutinized carefully by us, the Program Chairs and Steering Committee Chair Mangala Gowri Nanda – and rejected outright. Rest of the papers were sent for review to the Program Committee members.

Each paper received three reviews. Top 15 papers, based on an weighted average score of reviewer's rating and reviewer's confidence were selected for full paper presentation. 11 papers were selected for presentation as posters. These papers were then prepared under the strict guidance of Dr. Nanda for publication in Digital Proceedings. 9 out of 11 posters were presented during the conference. 10 papers were presented over two sessions during the conference. The presented papers will be published as digital proceedings and will be available under the ACM Digital Library.

Due to a last-minute change in dates for the conference, only one key-note lecture could be scheduled on 17th November. Prof. Y. Narahari, Chairman, Division of Electrical Sciences, IISc Bangalore, gave an excellent introduction to Game Theory and Mechanism Design leading to some interesting examples of the same with artificial intelligence.  The talk was very insightful and engaging with strong participation from the audience. Owing to the last-minute change, the other keynote address by Prof. Pushpak Bhattacharya, Director, IIT Patna, had to be cancelled.

Two excellent tutorials were organized on two very contemporary topics – one on "Blockchain" by Dr. Rahul Ghosh of American Express Big Data Labs and another on "Deep Learning" by Dr. Vinay P. Namboodiri of IIT Kanpur. Both the tutorials had high degrees of participation from undergraduate students of Bhopal, conference registrants and faculty of SIRT.

A highlight of COMPUTE 2017 were the workshops. Two workshops were organized under the able chairmanship of Prof. Animesh Mukherjee of IIT Kharagpur - one on "AI and Legal Aspects" and another on "AI and Education". The first one was addressed by Prof. Prabuddhha Ganguli, Tezpur University, who enthralled the audience with his deep insights about various issues under the aegis of this crucial topic. Mr. Rahul Matthan could not make it due to ill health and had recorded a presentation for the audience. Dr. K. Ghosh of IIT Kanpur made a short presentation on AI research problems in the area of Legal Document retrieval.

The second workshop on AI and Education saw excellent presentations by Dr. Bikram Sengupta of IBM Research, who talked about the various initiatives taken by them to encourage interactive learning. Dr. Andrew Thangaraj of IIT Madras gave a comprehensive overview of how the  National Programme on Technology Enhanced Learning (NPTEL) platform is used by students, faculty and practitioners all across India to empower themselves on various contemporary and classical topics. Mr. A. Chattopadhyay and Dr. Prateek Gohil of sister concerns iMerit and Anudip respectively described how they are working towards skilling and reskilling of citizens using predictive technologies and also generating job opportunities for the marginalized sector by training them to annotate training data that is crucial for developing artificially intelligent systems.

The faculty, students and authorities of SIRT and RGPV provided wonderful support to the conference participants, guests and organizers. Logistics handling was nearly flawless. Though schedules could not be stuck to on the first day, the second day saw no such issues. Although the lack of Post-graduate students and researchers in the conference and audience was a dampener for all the invited speakers.


## iKDD Report

### CoDS-COMAD 2018 Conference

### *Shourya Roy and Sunita Sarawagi (Program Chairs)*

The ACM India Joint International Conference on Data Science & Management of Data happened at International Centre Goa on 11-13th January, 2018. This event merged the series of ACM IKDD CoDS and COMAD conferences and thereby **bringing** the vibrant Data Science and Databases communities in the country together under a common theme.

This year's conference drew about 375 registered attendees which surpassed the registration count for all past years. Rough two-third of the attendees came from the academia and the rest from the industry including large corporations and startups. About 175 papers were submitted across different tracks of which the following number of papers were selected in different tracks:

- Research track with 30 papers and posters (32% acceptance rate)
- 8 Demonstrations with a mix of reviewed and invited demos
- Young Researcher Symposium with 19 papers and posters
- Industry Track with invited talks, panel discussion and papers

One of the highlights of the conference was three high-profile keynote speakers - Anima Anandkumar (Principal scientist at Amazon Web Services & Endowed Professor at Caltech), Manik Varma (Principal Researcher, Microsoft Research India & Adjunct Professor of Computer Science, IIT Delhi) and Surajit Chaudhuri (Distinguished Scientist, Microsoft Research, Redmond). All the keynote talks were well attended and engaging with long post-talk Q&A sessions. This year's conference also had eight invited academicians from India and foreign academia covering their latest research in their respective research areas.

Presence of the eminent keynote and invited speakers gave excellent networking opportunity for the conference attendees.

The Industry Track of the conference had a timely and engaging panel discussion on "Deep Learning – Hype Vs. Reality". This track also had a number of talks covering a broad range of topics from Blockchain to Cloud Technologies to role of Analytics in Healthcare. The Demonstration track had a mix of peer-reviewed and invited (which were earlier demonstrated in top tier international conferences) demos which drove engaging interactions in the open lawn under the blue sky. The Young Researchers' Symposium presented a unique opportunity for young researchers to have fruitful peer to peer discussion and get feedback from leading senior researchers about their current research work. Finally the conference hosted four tutorials on latest topics ranging from adversarial machine learning to knowledge extraction from free text on the web. The Proceedings for the conference is available at ACM DL and details of the sessions are available on the conference website.

Finally we thank our sponsors, ACM India and SIGKDD for supporting this edition of the conference. The second edition of the joint conference will happen in Kolkata from 3rd- 5th January 2019

**"Data Science in India" event at KDD**

*Manish Gupta, Videoken*

IKDD organized a session on "Data Science in India" on August 15th at the KDD 2018 conference in Halifax, Canada. The event featured invited talks by Prof. Niloy Ganguly from IIT Kharagpur, Dr. Chid Apte from IBM Research, and Prof. Vipin Kumar from University of Minnesota. It also included a panel session where the speakers, Dr. Indrajit Bhattacharya (TCS), Dr. Sugato Basu (Google) and Dr. Karthik Sankaranarayanan (IBM Research India) highlighted the research challenges related to data science that they were dealing with in their respective organizations. Overall, the session highlighted the exciting opportunities available for data science research in both academia and industry in India.

**ISOFT Report for 2017-18**

ISOFT held two marquee events in the last year 2017-18.

a. ISEC '18, 11th Innovations in Software Engineering Conference was held in Hyderabad, India — February 09 - 11, 2018
b. Winter School in Software Engineering (WSSE) held 11-16 December 2017, TCS, Pune

**Details of ISEC'18**

ISEC 2018 received a total of 69 paper submissions with authors from nine different countries including India. Of these, 34 were submitted as regular research papers, 17 as short research papers, and 18 as industry papers. ISEC 2018 had an eminent program committee with reviewers from 8 different countries. All papers were reviewed by three members of the research or industry track program committees and then discussed during an online discussion phase. As a result, nine regular research papers were accepted, for an

acceptance rate of 26.4%, four short papers for an acceptance rate of 23.5%, and five industry papers for an acceptance rate of 28%. All papers are presented in the main conference and the ISEC 2018 proceedings are published in ACM Digital Library.

Our keynote, this year, is given by Professor Tao Xie, Professor and Willett Faculty Scholar in the Department of Computer Science at the University of Illinois at Urbana-Champaign, USA, who will present on the topic of "Intelligent Software Engineering: Synergy between AI and Software Engineering"

We invited a panel of academic and industry experts to discuss the topic of "How would Data Sciences, AI and ML impact the world of Software Engineering". The panelists include Sriram Rajamani from Microsoft Research, Balbir Barn from Middlesex University, Srinivas Padmanabhuni from Tarah.AI, J. Ramachandran from Gamener Technologies.

Three best ICSE/FSE invited presentations include:  Becoming Agile: Agile Transitions in Practice by Rashina Hoda, Senior Lecturer in Software Engineering and the Founder of the SEPTA research group at the University of Auckland, New Zealand  Optimizing Test Placement for Module-Level Regression Testing by Shuvendu Lahiri, Principal Researcher at Microsoft Research, Redmond, WA, USA Factors Influencing Code  Review Processes in Industry by Tobias Baum, Leibniz University, Hanover, Germany.

For the first time, ISEC has instituted a "Test of time" paper award. ISEC Test of time paper award is given to a paper that proposed methods, techniques, framework, tools, etc., that were used by many in practice and reported their results at academic and/or industry journals/conferences/forums. Papers from three ISEC conferences that were held 9-11 years before the current ISEC conference are considered for this award.The ISEC 2018 Test of time award is given to Girish Maskeri, Santonu Sarkar and Kenneth Heafield for their paper "Mining Business topics in source code using Latent Dirichlet Allocation".

ISEC 2018 hosted a workshop co-located with the conference on the topic of Emerging Software Engineering Education. This is organized by Paramvir Singh, NIT Jalandhar, India, Sheikh Umar Farooq, University of Kashmir, India, and Saurabh Tiwari, DA-IICT Gandhinagar, India.

ISEC 2018 also accepted 3 Tutorials:  Actor-Based Methods, Concepts and Tools for analyzing Emergent Behavior – Introduction to a model based approach  Compiler-Agnostic Translations Validation  Research Methodology on pursuing impact-driven research

ISEC also had 4 Technical Briefings:  DARVIZ: Visual IDE for Deep Learning  Understanding Digital Accessibility issues and Engineering Opportunities  Architecture, Method and Tool Support for Automated Regulatory Compliance  MC/DC Testing – A Cost Effective White Box Testing Technique

Overall 200 people attended ISEC 2018 with a great overwhelming response.
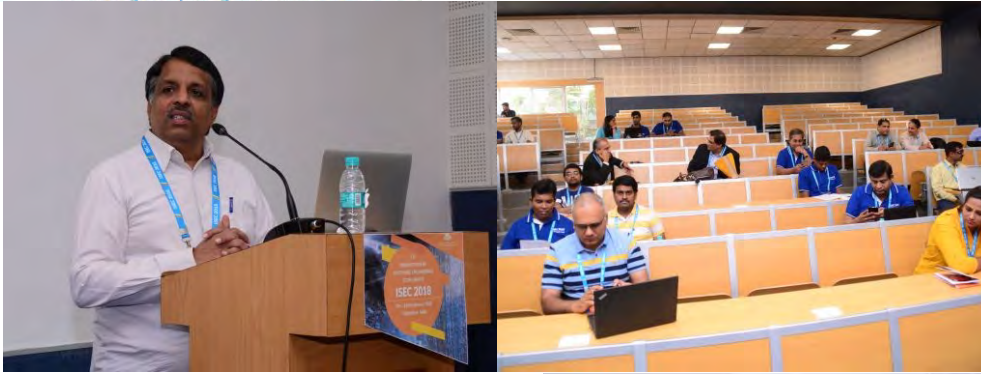
# Workshops/Events

**Chapter Summit**

We had separate Chapter Summits for ACM-W Chapters, ACM Student Chapters in India and ACM Professional Chapters in India. ACM-W Chapter Summit was organized along with AICWIC at SRM University Chennai. ACM Student Chapter Summit was organized during Compute 2017 at Bhopal. ACM Professional Chapter Summit was organized during ACM India Annual Event at Nagpur.

Representatives from around 30 chapters attended the summit. ACM India Officers provided guidance to the chapters. They advised chapters to take advantage of DSP and ESP schemes to get quality speakers for their activities. They 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 17 lectures under Distinguished speaker Program and 11 lectures under Eminent Speaker Program during the year.

# Membership

| Membership numbers | May 2016 | May 2017 | May 2018 |
|---|---|---|---|
| Professional | 3917 | 4305 | 4638 |
| Students | 5455 | 5834 | 6349 |
| Total | 9372 | 10139 | 10987 |
| No. of Professional Chapters | 15 | 13 | 13 |
| No. of Student Chapters | 114 | 135 | 151 |
| No. of SIG Chapters | 5 | 5 | 6 |
| No. of ACM-W chapters | 21 | 27 | 31 |